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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



Defense-Wide

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Research, Development, Test and Evaluation, Defense-Wide

The Fiscal Year (FY) 2020 Overseas Contingency Operations funding can be separated into the following categories:

- OCO for Enduring Requirements (\$401,950,000): OCO for Enduring Requirements are enduring in-theater and in-CONUS costs that will likely remain after combat operations cease, and have previously been funded in OCO.
- OCO for Base Requirements (\$426,000,000): OCO for Base Requirements is OCO funding for base budget requirements in support of the National Defense Strategy. The Budget requests these funds in OCO to comply with the base budget defense caps included in the Budget Control Act of 2011.

Preparation of the Defense-Wide budget, excluding revolving funds, cost the Department of Defense a total of approximately \$1,196,500 in FY 2019.

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Defense-Wide • Budget Estimates FY 2020 • RDT&E Program

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

Appropriation -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
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Research, Development, Test & Eval, DW	23,774,016	23,659,448	402,514	24,061,962
Operational Test & Eval, Defense	208,587	377,001		377,001
Total Research, Development, Test & Evaluation	23,982,603	24,036,449	402,514	24,438,963
Other RDT&E Budget Activities Not Included in the Research, Development, Test and Evaluation Title -----				
Office of the Inspector General	2,800	3,977		3,977
Defense Health Program	2,038,555	2,179,621		2,179,621
Chem Agents & Munitions Destruction	839,414	886,728		886,728
Total Not in Research, Development, Test & Evaluation	2,880,769	3,070,326		3,070,326

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Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	24,346,953	426,000	401,950	827,950	25,174,903
Operational Test & Eval, Defense	221,200				221,200
Total Research, Development, Test & Evaluation	24,568,153	426,000	401,950	827,950	25,396,103
Other RDT&E Budget Activities Not Included in the Research, Development, Test and Evaluation Title					
Office of the Inspector General	2,965				2,965
Defense Health Program	732,273				732,273
Chem Agents & Munitions Destruction	875,930				875,930
Total Not in Research, Development, Test & Evaluation	1,611,168				1,611,168

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Summary Recap of Budget Activities -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
-----	-----	-----	-----	-----
Basic Research	704,622	780,884		780,884
Applied Research	1,774,557	1,947,006		1,947,006
Advanced Technology Development	3,540,320	3,725,727	13,648	3,739,375
Advanced Component Development And Prototypes	9,997,468	9,754,747	169,638	9,924,385
System Development And Demonstration	940,083	1,056,848		1,056,848
Management Support	1,864,089	1,727,302		1,727,302
Operational System Development	5,161,464	5,043,935	219,228	5,263,163
Total Research, Development, Test & Evaluation	23,982,603	24,036,449	402,514	24,438,963
Summary Recap of FYDP Programs -----				
General Purpose Forces	89,463	92,494		92,494
Intelligence and Communications	699,634	778,557		778,557
Research and Development	18,367,526	18,442,827	183,286	18,626,113
Central Supply and Maintenance	4,522	4,761		4,761
Training Medical and Other	37,334	42,653		42,653
Administration and Associated Activities	34,908	33,730		33,730
Special Operations Forces	710,874	579,337	27,097	606,434
Space	80,705	132,162		132,162
Classified Programs	3,957,637	3,929,928	192,131	4,122,059
Total Research, Development, Test & Evaluation	23,982,603	24,036,449	402,514	24,438,963

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	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Basic Research	729,300				729,300
Applied Research	2,049,458		1,677	1,677	2,051,135
Advanced Technology Development	3,742,088		74,758	74,758	3,816,846
Advanced Component Development And Prototypes	9,797,493		113,590	113,590	9,911,083
System Development And Demonstration	841,588				841,588
Management Support	1,575,828				1,575,828
Operational System Development	5,832,398	426,000	211,925	637,925	6,470,323
Total Research, Development, Test & Evaluation	24,568,153	426,000	401,950	827,950	25,396,103
 Summary Recap of FYDP Programs -----					
General Purpose Forces	80,912				80,912
Intelligence and Communications	1,007,590				1,007,590
Research and Development	18,257,594		190,025	190,025	18,447,619
Central Supply and Maintenance	6,810				6,810
Training Medical and Other	40,173				40,173
Administration and Associated Activities	30,155				30,155
Special Operations Forces	802,236		11,726	11,726	813,962
Space	174,572				174,572
Classified Programs	4,168,111	426,000	200,199	626,199	4,794,310
Total Research, Development, Test & Evaluation	24,568,153	426,000	401,950	827,950	25,396,103

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	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Summary Recap of Non-RDT&E Title FYDP Programs				
Research and Development	2,038,555	2,179,621		2,179,621
Central Supply and Maintenance	839,414	886,728		886,728
Administration and Associated Activities	2,800	3,977		3,977
Total Research, Development, Test & Evaluation	2,880,769	3,070,326		3,070,326

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	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Non-RDT&E Title FYDP Programs					
Research and Development	732,273				732,273
Central Supply and Maintenance	875,930				875,930
Administration and Associated Activities	2,965				2,965
Total Research, Development, Test & Evaluation	1,611,168				1,611,168

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Summary Recap of Budget Activities -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Basic Research	704,622	780,884		780,884
Applied Research	1,774,557	1,947,006		1,947,006
Advanced Technology Development	3,540,320	3,725,727	13,648	3,739,375
Advanced Component Development And Prototypes	9,997,468	9,754,747	169,638	9,924,385
System Development And Demonstration	940,083	1,056,848		1,056,848
Management Support	1,655,502	1,350,301		1,350,301
Operational System Development	5,161,464	5,043,935	219,228	5,263,163
Total Research, Development, Test & Evaluation	23,774,016	23,659,448	402,514	24,061,962
Summary Recap of FYDP Programs -----				
General Purpose Forces	89,463	92,494		92,494
Intelligence and Communications	699,634	778,557		778,557
Research and Development	18,158,939	18,065,826	183,286	18,249,112
Central Supply and Maintenance	4,522	4,761		4,761
Training Medical and Other	37,334	42,653		42,653
Administration and Associated Activities	34,908	33,730		33,730
Special Operations Forces	710,874	579,337	27,097	606,434
Space	80,705	132,162		132,162
Classified Programs	3,957,637	3,929,928	192,131	4,122,059
Total Research, Development, Test & Evaluation	23,774,016	23,659,448	402,514	24,061,962

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Summary Recap of Budget Activities -----	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Basic Research	729,300				729,300
Applied Research	2,049,458		1,677	1,677	2,051,135
Advanced Technology Development	3,742,088		74,758	74,758	3,816,846
Advanced Component Development And Prototypes	9,797,493		113,590	113,590	9,911,083
System Development And Demonstration	841,588				841,588
Management Support	1,354,628				1,354,628
Operational System Development	5,832,398	426,000	211,925	637,925	6,470,323
Total Research, Development, Test & Evaluation	24,346,953	426,000	401,950	827,950	25,174,903
 Summary Recap of FYDP Programs -----					
General Purpose Forces	80,912				80,912
Intelligence and Communications	1,007,590				1,007,590
Research and Development	18,036,394		190,025	190,025	18,226,419
Central Supply and Maintenance	6,810				6,810
Training Medical and Other	40,173				40,173
Administration and Associated Activities	30,155				30,155
Special Operations Forces	802,236		11,726	11,726	813,962
Space	174,572				174,572
Classified Programs	4,168,111	426,000	200,199	626,199	4,794,310
Total Research, Development, Test & Evaluation	24,346,953	426,000	401,950	827,950	25,174,903

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Appropriation -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
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Chemical and Biological Defense Program	1,056,761	998,721		998,721
Defense Advanced Research Projects Agency	3,088,620	3,427,049		3,427,049
Defense Contract Audit Agency		2,600		2,600
Defense Contract Management Agency	8,947	11,988		11,988
Defense Human Resources Activity	27,749	25,210		25,210
Defense Intelligence Agency				
Defense Information Systems Agency	272,639	282,171		282,171
Defense Logistics Agency	355,779	324,981		324,981
Defense Security Cooperative Agency	16,619	8,028		8,028
Defense Security Service				
Defense Technical Information Center	59,301	60,977		60,977
Defense Threat Reduction Agency	667,569	479,968	183,286	663,254
Missile Defense Agency	7,749,461	7,248,720		7,248,720
National Geospatial Intelligence Agency				
National Security Agency				
Office of Secretary of Defense	5,364,060	5,829,463		5,829,463
Space Development Agency				
U.S., Special Operations Command	716,362	585,623	27,097	612,720
The Joint Staff	123,975	138,000		138,000
Washington Headquarters Services	23,498	30,198		30,198
Total Research, Development, Test & Evaluation	23,774,016	23,659,448	402,514	24,061,962

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Appropriation -----	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Chemical and Biological Defense Program	1,052,406				1,052,406
Defense Advanced Research Projects Agency	3,556,221				3,556,221
Defense Contract Audit Agency	1,600				1,600
Defense Contract Management Agency	3,495				3,495
Defense Human Resources Activity	41,843				41,843
Defense Intelligence Agency					
Defense Information Systems Agency	542,928				542,928
Defense Logistics Agency	267,802				267,802
Defense Security Cooperative Agency	17,057				17,057
Defense Security Service					
Defense Technical Information Center	60,743				60,743
Defense Threat Reduction Agency	572,282		164,795	164,795	737,077
Missile Defense Agency	7,369,585				7,369,585
National Geospatial Intelligence Agency					
National Security Agency					
Office of Secretary of Defense	5,264,901		25,230	25,230	5,290,131
Space Development Agency	105,000				105,000
U.S., Special Operations Command	808,595		11,726	11,726	820,321
The Joint Staff	157,479				157,479
Washington Headquarters Services	1,000				1,000
Total Research, Development, Test & Evaluation	24,346,953		401,950	827,950	25,174,903

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
1	0601000BR	DTRA Basic Research	01	36,369	37,023		37,023	U
2	0601101E	Defense Research Sciences	01	403,448	422,680		422,680	U
3	0601110D8Z	Basic Research Initiatives	01	39,051	56,573		56,573	U
4	0601117E	Basic Operational Medical Research Science	01	42,129	46,575		46,575	U
5	0601120D8Z	National Defense Education Program	01	100,850	135,610		135,610	U
6	0601228D8Z	Historically Black Colleges and Universities/Minority Institutions	01	39,006	40,320		40,320	U
7	0601384BP	Chemical and Biological Defense Program	01	43,769	42,103		42,103	U
		Basic Research		704,622	780,884		780,884	
8	0602000D8Z	Joint Munitions Technology	02	19,053	19,126		19,126	U
9	0602115E	Biomedical Technology	02	88,962	101,300		101,300	U
10	0602134BR	Counter Improvised-Threat Advanced Studies	02					U
11	0602234D8Z	Lincoln Laboratory Research Program	02	47,891	51,479		51,479	U
12	0602251D8Z	Applied Research for the Advancement of S&T Priorities	02	47,550	60,550		60,550	U
13	0602303E	Information & Communications Technology	02	379,578	404,967		404,967	U
14	0602383E	Biological Warfare Defense	02	15,078	33,640		33,640	U
15	0602384BP	Chemical and Biological Defense Program	02	199,466	192,674		192,674	U
16	0602668D8Z	Cyber Security Research	02	14,429	14,935		14,935	U

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	See c
1	0601000BR	DTRA Basic Research	01	26,000				26,000	U
2	0601101E	Defense Research Sciences	01	432,284				432,284	U
3	0601110D8Z	Basic Research Initiatives	01	48,874				48,874	U
4	0601117E	Basic Operational Medical Research Science	01	54,122				54,122	U
5	0601120D8Z	National Defense Education Program	01	92,074				92,074	U
6	0601228D8Z	Historically Black Colleges and Universities/Minority Institutions	01	30,708				30,708	U
7	0601384BP	Chemical and Biological Defense Program	01	45,238				45,238	U
		Basic Research		729,300				729,300	
8	0602000D8Z	Joint Munitions Technology	02	19,306				19,306	U
9	0602115E	Biomedical Technology	02	97,771				97,771	U
10	0602134BR	Counter Improvised-Threat Advanced Studies	02			1,677	1,677	1,677	U
11	0602234D8Z	Lincoln Laboratory Research Program	02	52,317				52,317	U
12	0602251D8Z	Applied Research for the Advancement of S&T Priorities	02	62,200				62,200	U
13	0602303E	Information & Communications Technology	02	442,556				442,556	U
14	0602383E	Biological Warfare Defense	02	34,588				34,588	U
15	0602384BP	Chemical and Biological Defense Program	02	202,587				202,587	U
16	0602668D8Z	Cyber Security Research	02	15,118				15,118	U

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Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
17	0602702E	Tactical Technology	02	292,957	309,466		309,466	U
18	0602715E	Materials and Biological Technology	02	191,880	208,898		208,898	U
19	0602716E	Electronics Technology	02	283,180	348,847		348,847	U
20	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	152,544	155,924		155,924	U
21	0602751D8Z	Software Engineering Institute (SEI) Applied Research	02	8,614	9,279		9,279	U
22	1160401BB	SOF Technology Development	02	33,375	35,921		35,921	U
		Applied Research		1,774,557	1,947,006		1,947,006	
23	0603000D8Z	Joint Munitions Advanced Technology	03	25,550	25,540		25,540	U
24	0603121D8Z	SO/LIC Advanced Development	03					U
25	0603122D8Z	Combating Terrorism Technology Support	03	149,541	171,321		171,321	U
26	0603133D8Z	Foreign Comparative Testing	03	21,715	24,277		24,277	U
27	0603134BR	Counter Improvised-Threat Simulation	03	23,366		13,648	13,648	U
28	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	292,846	280,858		280,858	U
29	0603176C	Advanced Concepts and Performance Assessment	03	17,683	13,017		13,017	U
30	0603178C	Weapons Technology	03	28,894	13,400		13,400	U
31	0603180C	Advanced Research	03	23,765	42,565		42,565	U
32	0603225D8Z	Joint DoD-DoE Munitions Technology Development	03	17,959	18,602		18,602	U

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17	0602702E	Tactical Technology	02	337,602				337,602	U
18	0602715E	Materials and Biological Technology	02	223,976				223,976	U
19	0602716E	Electronics Technology	02	332,192				332,192	U
20	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	179,096				179,096	U
21	0602751D8Z	Software Engineering Institute (SEI) Applied Research	02	9,580				9,580	U
22	1160401BB	SOF Technology Development	02	40,569				40,569	U
		Applied Research		2,049,458		1,677	1,677	2,051,135	
23	0603000D8Z	Joint Munitions Advanced Technology	03	25,779				25,779	U
24	0603121D8Z	SO/LIC Advanced Development	03	5,000				5,000	U
25	0603122D8Z	Combating Terrorism Technology Support	03	70,517		25,230	25,230	95,747	U
26	0603133D8Z	Foreign Comparative Testing	03	24,970				24,970	U
27	0603134BR	Counter Improvised-Threat Simulation	03			49,528	49,528	49,528	U
28	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	340,065				340,065	U
29	0603176C	Advanced Concepts and Performance Assessment	03	14,208				14,208	U
30	0603178C	Weapons Technology	03	10,000				10,000	U
31	0603180C	Advanced Research	03	20,674				20,674	U
32	0603225D8Z	Joint DoD-DoE Munitions Technology Development	03	18,773				18,773	U

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
33	0603286E	Advanced Aerospace Systems	03	176,200	302,463		302,463	U
34	0603287E	Space Programs and Technology	03	226,988	254,671		254,671	U
35	0603288D8Z	Analytic Assessments	03	12,658	18,430		18,430	U
36	0603289D8Z	Advanced Innovative Analysis and Concepts	03	36,763	37,178		37,178	U
37	0603291D8Z	Advanced Innovative Analysis and Concepts - MHA	03	14,971	13,590		13,590	U
38	0603294C	Common Kill Vehicle Technology	03	55,562	56,753		56,753	U
39	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03	23,498	29,198		29,198	U
40	0603342D8Z	Defense Innovation Unit (DIU)	03					U
41	0603375D8Z	Technology Innovation	03	24,825	33,068		33,068	U
42	0603384BP	Chemical and Biological Defense Program - Advanced Development	03	141,242	142,826		142,826	U
43	0603527D8Z	RETRACT LARCH	03	164,544	160,762		160,762	U
44	0603618D8Z	Joint Electronic Advanced Technology	03	14,020	12,889		12,889	U
45	0603648D8Z	Joint Capability Technology Demonstrations	03	102,769	105,808		105,808	U
46	0603662D8Z	Networked Communications Capabilities	03	12,369	12,667		12,667	U
47	0603680D8Z	Defense-Wide Manufacturing Science and Technology Program	03	206,257	174,489		174,489	U
48	0603680S	Manufacturing Technology Program	03	39,090	62,396		62,396	U

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33	0603286E	Advanced Aerospace Systems	03	279,741				279,741	U
34	0603287E	Space Programs and Technology	03	202,606				202,606	U
35	0603288D8Z	Analytic Assessments	03	19,429				19,429	U
36	0603289D8Z	Advanced Innovative Analysis and Concepts	03	37,645				37,645	U
37	0603291D8Z	Advanced Innovative Analysis and Concepts - MHA	03	14,668				14,668	U
38	0603294C	Common Kill Vehicle Technology	03	13,600				13,600	U
39	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03						U
40	0603342D8Z	Defense Innovation Unit (DIU)	03	29,398				29,398	U
41	0603375D8Z	Technology Innovation	03	60,000				60,000	U
42	0603384BP	Chemical and Biological Defense Program - Advanced Development	03	172,486				172,486	U
43	0603527D8Z	RETRACT LARCH	03	159,688				159,688	U
44	0603618D8Z	Joint Electronic Advanced Technology	03	12,063				12,063	U
45	0603648D8Z	Joint Capability Technology Demonstrations	03	107,359				107,359	U
46	0603662D8Z	Networked Communications Capabilities	03	2,858				2,858	U
47	0603680D8Z	Defense-Wide Manufacturing Science and Technology Program	03	96,397				96,397	U
48	0603680S	Manufacturing Technology Program	03	42,834				42,834	U

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49	0603699D8Z	Emerging Capabilities Technology Development	03	79,469	60,700		60,700	U
50	0603712S	Generic Logistics R&D Technology Demonstrations	03	16,105	18,127		18,127	U
51	0603716D8Z	Strategic Environmental Research Program	03	63,055	76,340		76,340	U
52	0603720S	Microelectronics Technology Development and Support	03	241,867	192,926		192,926	U
53	0603727D8Z	Joint Warfighting Program	03	3,236	5,978		5,978	U
54	0603739E	Advanced Electronics Technologies	03	73,673	111,099		111,099	U
55	0603760E	Command, Control and Communications Systems	03	103,577	185,984		185,984	U
56	0603766E	Network-Centric Warfare Technology	03	429,691	434,069		434,069	U
57	0603767E	Sensor Technology	03	202,189	183,101		183,101	U
58	0603769D8Z	Distributed Learning Advanced Technology Development	03	11,053	13,564		13,564	U
59	0603781D8Z	Software Engineering Institute	03	14,468	15,016		15,016	U
60	0603826D8Z	Quick Reaction Special Projects	03	64,775	59,490		59,490	U
61	0603833D8Z	Engineering Science & Technology	03	24,447	19,371		19,371	U
62	0603924D8Z	High Energy Laser Advanced Technology Program	03		74,364		74,364	U
63	0603941D8Z	Test & Evaluation Science & Technology	03	108,958	117,389		117,389	U
64	0603950D8Z	National Security Innovation Network	03					U

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49	0603699D8Z	Emerging Capabilities Technology Development	03	80,911				80,911	U
50	0603712S	Generic Logistics R&D Technology Demonstrations	03	10,817				10,817	U
51	0603716D8Z	Strategic Environmental Research Program	03	66,157				66,157	U
52	0603720S	Microelectronics Technology Development and Support	03	171,771				171,771	U
53	0603727D8Z	Joint Warfighting Program	03	4,846				4,846	U
54	0603739E	Advanced Electronics Technologies	03	128,616				128,616	U
55	0603760E	Command, Control and Communications Systems	03	232,134				232,134	U
56	0603766E	Network-Centric Warfare Technology	03	512,424				512,424	U
57	0603767E	Sensor Technology	03	163,903				163,903	U
58	0603769D8Z	Distributed Learning Advanced Technology Development	03	13,723				13,723	U
59	0603781D8Z	Software Engineering Institute	03	15,111				15,111	U
60	0603826D8Z	Quick Reaction Special Projects	03	47,147				47,147	U
61	0603833D8Z	Engineering Science & Technology	03	19,376				19,376	U
62	0603924D8Z	High Energy Laser Advanced Technology Program	03	85,223				85,223	U
63	0603941D8Z	Test & Evaluation Science & Technology	03	175,574				175,574	U
64	0603950D8Z	National Security Innovation Network	03	25,000				25,000	U

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65	0604055D8Z	Operational Energy Capability Improvement	03	39,788	45,478		45,478	U
66	0303310D8Z	CWMD Systems	03	32,111	26,583		26,583	U
67	0303367D8Z	Spectrum Access Research and Development	03	86,472				U
68	1160402BB	SOF Advanced Technology Development	03	92,311	79,380		79,380	U
69	1206310SDA	Space Science and Technology Research and Development	03					U
		Advanced Technology Development		3,540,320	3,725,727	13,648	3,739,375	
70	0603161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E ADC&P	04	32,165	28,076		28,076	U
71	0603600D8Z	WALKOFF	04	98,920	92,012		92,012	U
72	0603821D8Z	Acquisition Enterprise Data & Information Services	04	2,194	2,500		2,500	U
73	0603851D8Z	Environmental Security Technical Certification Program	04	53,342	41,925		41,925	U
74	0603881C	Ballistic Missile Defense Terminal Defense Segment	04	454,147	388,273		388,273	U
75	0603882C	Ballistic Missile Defense Midcourse Defense Segment	04	1,153,263	803,359		803,359	U
76	0603884BP	Chemical and Biological Defense Program - Dem/Val	04	135,322	115,886		115,886	U
77	0603884C	Ballistic Missile Defense Sensors	04	290,289	385,375		385,375	U
78	0603890C	BMD Enabling Programs	04	533,993	620,831		620,831	U
79	0603891C	Special Programs - MDA	04	356,560	422,348		422,348	U

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65	0604055D8Z	Operational Energy Capability Improvement	03	70,536				70,536	U
66	0303310D8Z	CWMD Systems	03	28,907				28,907	U
67	0303367D8Z	Spectrum Access Research and Development	03						U
68	1160402BB	SOF Advanced Technology Development	03	89,154				89,154	U
69	1206310SDA	Space Science and Technology Research and Development	03	20,000				20,000	U
		Advanced Technology Development		3,742,088		74,758	74,758	3,816,846	
70	0603161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E ADC&P	04	42,695				42,695	U
71	0603600D8Z	WALKOFF	04	92,791				92,791	U
72	0603821D8Z	Acquisition Enterprise Data & Information Services	04	5,659				5,659	U
73	0603851D8Z	Environmental Security Technical Certification Program	04	66,572				66,572	U
74	0603881C	Ballistic Missile Defense Terminal Defense Segment	04	302,761				302,761	U
75	0603882C	Ballistic Missile Defense Midcourse Defense Segment	04	1,156,506				1,156,506	U
76	0603884BP	Chemical and Biological Defense Program - Dem/Val	04	83,662				83,662	U
77	0603884C	Ballistic Missile Defense Sensors	04	283,487				283,487	U
78	0603890C	BMD Enabling Programs	04	571,507				571,507	U
79	0603891C	Special Programs - MDA	04	377,098				377,098	U

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80	0603892C	AEGIS BMD	04	798,395	741,076		741,076	U
81	0603896C	Ballistic Missile Defense Command and Control, Battle Management and Communicati	04	449,985	507,817		507,817	U
82	0603898C	Ballistic Missile Defense Joint Warfighter Support	04	48,574	48,767		48,767	U
83	0603904C	Missile Defense Integration & Operations Center (MDIOC)	04	51,905	58,125		58,125	U
84	0603906C	Regarding Trench	04	8,898	16,916		16,916	U
85	0603907C	Sea Based X-Band Radar (SBX)	04	173,988	136,715		136,715	U
86	0603913C	Israeli Cooperative Programs	04	373,800	300,000		300,000	U
87	0603914C	Ballistic Missile Defense Test	04	406,806	515,897		515,897	U
88	0603915C	Ballistic Missile Defense Targets	04	512,838	561,352		561,352	U
89	0603920D8Z	Humanitarian Demining	04	10,519	11,262		11,262	U
90	0603923D8Z	Coalition Warfare	04	10,515	8,509		8,509	U
91	0604016D8Z	Department of Defense Corrosion Program	04	4,503	8,458		8,458	U
92	0604115C	Technology Maturation Initiatives	04	163,947	316,822		316,822	U
93	0604132D8Z	Missile Defeat Project	04	121,025	43,508		43,508	U
94	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04	144,934		169,638	169,638	U
95	0604181C	Hypersonic Defense	04	63,032	130,944		130,944	U
96	0604250D8Z	Advanced Innovative Technologies	04	1,423,173	1,387,539		1,387,539	U

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80	0603892C	AEGIS BMD	04	727,479				727,479	U
81	0603896C	Ballistic Missile Defense Command and Control, Battle Management and Communicati	04	564,206				564,206	U
82	0603898C	Ballistic Missile Defense Joint Warfighter Support	04	51,532				51,532	U
83	0603904C	Missile Defense Integration & Operations Center (MDIOC)	04	56,161				56,161	U
84	0603906C	Regarding Trench	04	22,424				22,424	U
85	0603907C	Sea Based X-Band Radar (SBX)	04	128,156				128,156	U
86	0603913C	Israeli Cooperative Programs	04	300,000				300,000	U
87	0603914C	Ballistic Missile Defense Test	04	395,924				395,924	U
88	0603915C	Ballistic Missile Defense Targets	04	554,171				554,171	U
89	0603920D8Z	Humanitarian Demining	04	10,820				10,820	U
90	0603923D8Z	Coalition Warfare	04	11,316				11,316	U
91	0604016D8Z	Department of Defense Corrosion Program	04	3,365				3,365	U
92	0604115C	Technology Maturation Initiatives	04	303,458				303,458	U
93	0604132D8Z	Missile Defeat Project	04	17,816				17,816	U
94	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04			113,590	113,590	113,590	U
95	0604181C	Hypersonic Defense	04	157,425				157,425	U
96	0604250D8Z	Advanced Innovative Technologies	04	1,312,735				1,312,735	U

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97	0604294D8Z	Trusted & Assured Microelectronics	04	147,481	522,950		522,950	U
98	0604331D8Z	Rapid Prototyping Program	04	46,984	99,107		99,107	U
99	0604341D8Z	Defense Innovation Unit (DIU) Prototyping	04					U
100	0604400D8Z	Department of Defense (DoD) Unmanned System Common Development	04	7,839	7,763		7,763	U
101	0604532D8Z	Joint Artificial Intelligence	04		12,970		12,970	U
102	0604672C	Homeland Defense Radar - Hawaii (HDR-H)	04		62,221		62,221	U
103	0604673C	Pacific Discriminating Radar	04	59,564	15,926		15,926	U
104	0604682D8Z	Wargaming and Support for Strategic Analysis (SSA)	04	3,686	3,759		3,759	U
105	0604775BR	Defense Rapid Innovation Program	04					U
106	0604775D8Z	Defense Rapid Innovation Program	04	250,000	249,432		249,432	U
107	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	23,638	22,435		22,435	U
108	0604873C	Long Range Discrimination Radar (LRDR)	04	370,516	166,543		166,543	U
109	0604874C	Improved Homeland Defense Interceptors	04	742,842	421,820		421,820	U
110	0604876C	Ballistic Missile Defense Terminal Defense Segment Test	04	35,738	61,017		61,017	U
111	0604878C	Aegis BMD Test	04	128,757	92,160		92,160	U

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97	0604294D8Z	Trusted & Assured Microelectronics	04	542,421				542,421	U
98	0604331D8Z	Rapid Prototyping Program	04	100,957				100,957	U
99	0604341D8Z	Defense Innovation Unit (DIU) Prototyping	04	92,000				92,000	U
100	0604400D8Z	Department of Defense (DoD) Unmanned System Common Development	04	3,021				3,021	U
101	0604532D8Z	Joint Artificial Intelligence	04						U
102	0604672C	Homeland Defense Radar - Hawaii (HDR-H)	04	274,714				274,714	U
103	0604673C	Pacific Discriminating Radar	04	6,711				6,711	U
104	0604682D8Z	Wargaming and Support for Strategic Analysis (SSA)	04	3,751				3,751	U
105	0604775BR	Defense Rapid Innovation Program	04	14,021				14,021	U
106	0604775D8Z	Defense Rapid Innovation Program	04						U
107	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	20,062				20,062	U
108	0604873C	Long Range Discrimination Radar (LRDR)	04	136,423				136,423	U
109	0604874C	Improved Homeland Defense Interceptors	04	412,363				412,363	U
110	0604876C	Ballistic Missile Defense Terminal Defense Segment Test	04	25,137				25,137	U
111	0604878C	Aegis BMD Test	04	169,822				169,822	U

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112	0604879C	Ballistic Missile Defense Sensor Test	04	88,840	77,405		77,405	U
113	0604880C	Land-Based SM-3 (LBSM3)	04	29,652	27,692		27,692	U
114	0604881C	AEGIS SM-3 Block IIA Co-Development	04	9,531				U
115	0604887C	Ballistic Missile Defense Midcourse Segment Test	04	85,030	72,634		72,634	U
116	0604894C	Multi-Object Kill Vehicle	04	6,347	6,500		6,500	U
117	0300206R	Enterprise Information Technology Systems	04		2,600		2,600	U
118	0303191D8Z	Joint Electromagnetic Technology (JET) Program	04	2,896	3,097		3,097	U
119	0305103C	Cyber Security Initiative	04	964	985		985	U
120	1206410SDA	Space Technology Development and Prototyping	04					U
121	1206893C	Space Tracking & Surveillance System	04	35,008	36,955		36,955	U
122	1206895C	Ballistic Missile Defense System Space Programs	04	45,123	94,484		94,484	U
		Advanced Component Development And Prototypes		9,997,468	9,754,747	169,638	9,924,385	
123	0604161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E SDD	05	12,320	8,314		8,314	U
124	0604165D8Z	Prompt Global Strike Capability Development	05	360,860	465,852		465,852	U
125	0604384BP	Chemical and Biological Defense Program - EMD	05	368,151	358,608		358,608	U

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112	0604879C	Ballistic Missile Defense Sensor Test	04	105,530				105,530	U
113	0604880C	Land-Based SM-3 (LBSM3)	04	38,352				38,352	U
114	0604881C	AEGIS SM-3 Block IIA Co-Development	04						U
115	0604887C	Ballistic Missile Defense Midcourse Segment Test	04	98,139				98,139	U
116	0604894C	Multi-Object Kill Vehicle	04						U
117	0300206R	Enterprise Information Technology Systems	04	1,600				1,600	U
118	0303191D8Z	Joint Electromagnetic Technology (JET) Program	04	3,191				3,191	U
119	0305103C	Cyber Security Initiative	04	1,138				1,138	U
120	1206410SDA	Space Technology Development and Prototyping	04	85,000				85,000	U
121	1206893C	Space Tracking & Surveillance System	04	35,849				35,849	U
122	1206895C	Ballistic Missile Defense System Space Programs	04	27,565				27,565	U
		Advanced Component Development And Prototypes		9,797,493		113,590	113,590	9,911,083	
123	0604161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E SDD	05	11,276				11,276	U
124	0604165D8Z	Prompt Global Strike Capability Development	05	107,000				107,000	U
125	0604384BP	Chemical and Biological Defense Program - EMD	05	384,047				384,047	U

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126	0604771D8Z	Joint Tactical Information Distribution System (JTIDS)	05	24,268	34,425		34,425	U
127	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	6,199	6,163		6,163	U
128	0605013BL	Information Technology Development	05	8,947	11,988		11,988	U
129	0605021SE	Homeland Personnel Security Initiative	05	4,893	296		296	U
130	0605022D8Z	Defense Exportability Program	05	2,088	1,486		1,486	U
131	0605027D8Z	OUSD(C) IT Development Initiatives	05	21,312	9,568		9,568	U
132	0605070S	DOD Enterprise Systems Development and Demonstration	05	6,037	3,057		3,057	U
133	0605075D8Z	CMO Policy and Integration	05	2,805	2,100		2,100	U
134	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	23,544	20,384		20,384	U
135	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	12,983	10,339		10,339	U
136	0605210D8Z	Defense-Wide Electronic Procurement Capabilities	05	11,414	6,359		6,359	U
137	0605294D8Z	Trusted & Assured Microelectronics	05	59,516	95,959		95,959	U
138	0303140BL	Information Systems Security Program	05					U
139	0303141K	Global Combat Support System	05	2,500	2,512		2,512	U
140	0305304D8Z	DoD Enterprise Energy Information Management (EEIM)	05	4,032	2,429		2,429	U

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126	0604771D8Z	Joint Tactical Information Distribution System (JTIDS)	05	40,102				40,102	U
127	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	13,100				13,100	U
128	0605013BL	Information Technology Development	05	3,070				3,070	U
129	0605021SE	Homeland Personnel Security Initiative	05	7,295				7,295	U
130	0605022D8Z	Defense Exportability Program	05	17,615				17,615	U
131	0605027D8Z	OUSD(C) IT Development Initiatives	05	15,653				15,653	U
132	0605070S	DOD Enterprise Systems Development and Demonstration	05	2,378				2,378	U
133	0605075D8Z	CMO Policy and Integration	05	1,618				1,618	U
134	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	27,944				27,944	U
135	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	6,609				6,609	U
136	0605210D8Z	Defense-Wide Electronic Procurement Capabilities	05	9,619				9,619	U
137	0605294D8Z	Trusted & Assured Microelectronics	05	175,032				175,032	U
138	0303140BL	Information Systems Security Program	05	425				425	U
139	0303141K	Global Combat Support System	05	1,578				1,578	U
140	0305304D8Z	DoD Enterprise Energy Information Management (EEIM)	05	4,373				4,373	U

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141	0305310D8Z	CWMD Systems: System Development and Demonstration	05	8,214	17,009		17,009	U
		System Development And Demonstration		940,083	1,056,848		1,056,848	
142	0603829J	Joint Capability Experimentation	06					U
143	0604774D8Z	Defense Readiness Reporting System (DRRS)	06	6,941	6,607		6,607	U
144	0604875D8Z	Joint Systems Architecture Development	06	4,695	4,079		4,079	U
145	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	06	204,268	270,013		270,013	U
146	0604942D8Z	Assessments and Evaluations	06	48,985	31,285		31,285	U
147	0605001E	Mission Support	06	64,269	65,646		65,646	U
148	0605100D8Z	Joint Mission Environment Test Capability (JMETC)	06	90,326	88,184		88,184	U
149	0605104D8Z	Technical Studies, Support and Analysis	06	21,575	22,525		22,525	U
150	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	36,581	52,565		52,565	U
151	0605128D8Z	Classified Program USD(P)	06	138,494	103,000		103,000	U
152	0605142D8Z	Systems Engineering	06	36,313	38,784		38,784	U
153	0605151D8Z	Studies and Analysis Support - OSD	06	5,029	3,534		3,534	U
154	0605161D8Z	Nuclear Matters-Physical Security	06	5,031	5,039		5,039	U
155	0605170D8Z	Support to Networks and Information Integration	06	12,141	11,424		11,424	U

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141	0305310D8Z	CWMD Systems: System Development and Demonstration	05	12,854				12,854	U
		System Development And Demonstration		841,588				841,588	
142	0603829J	Joint Capability Experimentation	06	13,000				13,000	U
143	0604774D8Z	Defense Readiness Reporting System (DRRS)	06	9,724				9,724	U
144	0604875D8Z	Joint Systems Architecture Development	06	9,593				9,593	U
145	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	06	260,267				260,267	U
146	0604942D8Z	Assessments and Evaluations	06	30,834				30,834	U
147	0605001E	Mission Support	06	68,498				68,498	U
148	0605100D8Z	Joint Mission Environment Test Capability (JMETC)	06	83,091				83,091	U
149	0605104D8Z	Technical Studies, Support and Analysis	06	18,079				18,079	U
150	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	70,038				70,038	U
151	0605128D8Z	Classified Program USD(P)	06						U
152	0605142D8Z	Systems Engineering	06	37,140				37,140	U
153	0605151D8Z	Studies and Analysis Support - OSD	06	4,759				4,759	U
154	0605161D8Z	Nuclear Matters-Physical Security	06	8,307				8,307	U
155	0605170D8Z	Support to Networks and Information Integration	06	9,441				9,441	U

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156	0605200D8Z	General Support to USD (Intelligence)	06	165,090	5,693		5,693	U
157	0605384BP	Chemical and Biological Defense Program	06	105,122	102,883		102,883	U
158	0605502BP	Small Business Innovative Research - Chemical Biological Def	06	20,057				U
159	0605502BR	Small Business Innovation Research	06	11,311				U
160	0605502C	Small Business Innovation Research - MDA	06	115,278				U
161	0605502D8Z	Small Business Innovative Research	06	97,227				U
162	0605502E	Small Business Innovative Research	06	100,804				U
163	0605502K	Small Business Innovative Research	06	6,500				U
164	0605502S	Small Business Innovative Research	06	11,631	10,454		10,454	U
165	0605502T	Small Business Innovative Research	06	607				U
166	0605790D8Z	Small Business Innovation Research (SBIR)/ Small Business Technology Transfer	06	2,367	2,539		2,539	U
167	0605797D8Z	Maintaining Technology Advantage	06					U
168	0605798D8Z	Defense Technology Analysis	06	25,815	27,425		27,425	U
169	0605801KA	Defense Technical Information Center (DTIC)	06	55,114	56,853		56,853	U
170	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	22,856	24,914		24,914	U
171	0605804D8Z	Development Test and Evaluation	06	19,810	20,133		20,133	U

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156	0605200D8Z	General Support to USD (Intelligence)	06	1,700				1,700	U
157	0605384BP	Chemical and Biological Defense Program	06	110,363				110,363	U
158	0605502BP	Small Business Innovative Research - Chemical Biological Def	06						U
159	0605502BR	Small Business Innovation Research	06						U
160	0605502C	Small Business Innovation Research - MDA	06						U
161	0605502D8Z	Small Business Innovative Research	06						U
162	0605502E	Small Business Innovative Research	06						U
163	0605502K	Small Business Innovative Research	06						U
164	0605502S	Small Business Innovative Research	06						U
165	0605502T	Small Business Innovative Research	06						U
166	0605790D8Z	Small Business Innovation Research (SBIR)/ Small Business Technology Transfer	06	3,568				3,568	U
167	0605797D8Z	Maintaining Technology Advantage	06	19,936				19,936	U
168	0605798D8Z	Defense Technology Analysis	06	16,875				16,875	U
169	0605801KA	Defense Technical Information Center (DTIC)	06	57,716				57,716	U
170	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	34,448				34,448	U
171	0605804D8Z	Development Test and Evaluation	06	22,203				22,203	U

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172	0605898E	Management HQ - R&D	06	14,017	13,643		13,643	U
173	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	4,187	4,124		4,124	U
174	0606100D8Z	Budget and Program Assessments	06	3,838	5,755		5,755	U
175	0606225D8Z	ODNA Technology and Resource Analysis	06	998	1,028		1,028	U
176	0606589D8W	Defense Digital Service (DDS) Development Support	06		1,000		1,000	U
177	0606942C	Assessments and Evaluations Cyber Vulnerabilities	06		3,400		3,400	U
178	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06		3,854		3,854	U
179	0203345D8Z	Defense Operations Security Initiative (DOSI)	06	5,479	9,985		9,985	U
180	0204571J	Joint Staff Analytical Support	06	22,712	16,658		16,658	U
183	0303166J	Support to Information Operations (IO) Capabilities	06	673	652		652	U
184	0303260D8Z	Defense Military Deception Program Office (DMDPO)	06	977	1,003		1,003	U
185	0305172K	Combined Advanced Applications	06	16,998	21,363		21,363	U
187	0305245D8Z	Intelligence Capabilities and Innovation Investments	06	15,255	189,529		189,529	U
188	0306310D8Z	CWMD Systems: RDT&E Management Support	06	1,229	1,241		1,241	U
189	0307588D8Z	Algorithmic Warfare Cross Functional Teams	06					U

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172	0605898E	Management HQ - R&D	06	13,208				13,208	U
173	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	3,027				3,027	U
174	0606100D8Z	Budget and Program Assessments	06	8,017				8,017	U
175	0606225D8Z	ODNA Technology and Resource Analysis	06	3,194				3,194	U
176	0606589D8W	Defense Digital Service (DDS) Development Support	06	1,000				1,000	U
177	0606942C	Assessments and Evaluations Cyber Vulnerabilities	06						U
178	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06						U
179	0203345D8Z	Defense Operations Security Initiative (DOSI)	06	3,037				3,037	U
180	0204571J	Joint Staff Analytical Support	06	9,216				9,216	U
183	0303166J	Support to Information Operations (IO) Capabilities	06	553				553	U
184	0303260D8Z	Defense Military Deception Program Office (DMDPO)	06	1,014				1,014	U
185	0305172K	Combined Advanced Applications	06	58,667				58,667	U
187	0305245D8Z	Intelligence Capabilities and Innovation Investments	06	21,081				21,081	U
188	0306310D8Z	CWMD Systems: RDT&E Management Support	06						U
189	0307588D8Z	Algorithmic Warfare Cross Functional Teams	06	221,235				221,235	U

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190	0804767J	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06	37,334				U
191	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06		42,653		42,653	U
192	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06					U
193	0901598C	Management HQ - MDA	06	29,947	28,626		28,626	U
194	0903235K	Joint Service Provider (JSP)	06	4,309	5,104		5,104	U
9999	99999999999	Classified Programs		63,312	47,104		47,104	U
		Management Support		1,655,502	1,350,301		1,350,301	
195	0604130V	Enterprise Security System (ESS)	07	4,565	9,750		9,750	U
196	0604532K	Joint Artificial Intelligence	07					U
197	0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	1,792	1,855		1,855	U
198	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS)	07	287	304		304	U
199	0607210D8Z	Industrial Base Analysis and Sustainment Support	07	16,464	48,765		48,765	U
200	0607310D8Z	CWMD Systems: Operational Systems Development	07	6,945	5,902		5,902	U
201	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	13,933	5,869		5,869	U

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190	0804767J	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06						U
191	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	40,073				40,073	U
192	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06	100				100	U
193	0901598C	Management HQ - MDA	06	27,065				27,065	U
194	0903235K	Joint Service Provider (JSP)	06	3,090				3,090	U
9999	99999999999	Classified Programs		51,471				51,471	U
		Management Support		1,354,628				1,354,628	
195	0604130V	Enterprise Security System (ESS)	07	7,945				7,945	U
196	0604532K	Joint Artificial Intelligence	07	208,834				208,834	U
197	0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	1,947				1,947	U
198	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS)	07	310				310	U
199	0607210D8Z	Industrial Base Analysis and Sustainment Support	07	10,051				10,051	U
200	0607310D8Z	CWMD Systems: Operational Systems Development	07	12,734				12,734	U
201	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	14,800				14,800	U

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202	0607384BP	Chemical and Biological Defense (Operational Systems Development)	07	43,632	43,741		43,741	U
203	0208043J	Planning and Decision Aid System (PDAS)	07	3,037	3,037		3,037	U
204	0208045K	C4I Interoperability	07	58,235	62,814		62,814	U
206	0301144K	Joint/Allied Coalition Information Sharing	07	5,801				U
209	0302016K	National Military Command System-Wide Support	07	1,863				U
210	0302019K	Defense Info Infrastructure Engineering and Integration	07	20,059	16,121		16,121	U
211	0303126K	Long-Haul Communications - DCS	07	23,090	14,353		14,353	U
212	0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	15,855	17,579		17,579	U
213	0303135G	Public Key Infrastructure (PKI)	07	4,811				U
214	0303136G	Key Management Infrastructure (KMI)	07	33,746	31,737		31,737	U
215	0303140D8Z	Information Systems Security Program	07	19,074	17,899		17,899	U
216	0303140G	Information Systems Security Program	07	234,652	228,382		228,382	U
217	0303140K	Information Systems Security Program	07		19,611		19,611	U
218	0303150K	Global Command and Control System	07	41,126	46,900		46,900	U
219	0303153K	Defense Spectrum Organization	07	8,377	7,457		7,457	U
220	0303228K	Joint Regional Security Stacks (JRSS)	07	4,550	7,947		7,947	U
221	0303267K	Auctioned Spectrum Relocation Fund	07	15,804				U

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202	0607384BP	Chemical and Biological Defense (Operational Systems Development)	07	54,023				54,023	U
203	0208043J	Planning and Decision Aid System (PDAS)	07	4,537				4,537	U
204	0208045K	C4I Interoperability	07	64,122				64,122	U
206	0301144K	Joint/Allied Coalition Information Sharing	07						U
209	0302016K	National Military Command System-Wide Support	07						U
210	0302019K	Defense Info Infrastructure Engineering and Integration	07	15,798				15,798	U
211	0303126K	Long-Haul Communications - DCS	07	11,166				11,166	U
212	0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	17,383				17,383	U
213	0303135G	Public Key Infrastructure (PKI)	07						U
214	0303136G	Key Management Infrastructure (KMI)	07	54,516				54,516	U
215	0303140D8Z	Information Systems Security Program	07	67,631				67,631	U
216	0303140G	Information Systems Security Program	07	289,080				289,080	U
217	0303140K	Information Systems Security Program	07	42,796				42,796	U
218	0303150K	Global Command and Control System	07	25,218				25,218	U
219	0303153K	Defense Spectrum Organization	07	21,698				21,698	U
220	0303228K	Joint Regional Security Stacks (JRSS)	07	18,077				18,077	U
221	0303267K	Auctioned Spectrum Relocation Fund	07						U

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222	0303430K	Federal Investigative Services Information Technology	07	41,743	55,400		55,400	U
225	0305103K	Cyber Security Initiative	07	1,644				U
228	0305128V	Security and Investigative Activities	07					U
232	0305186D8Z	Policy R&D Programs	07	6,441	6,190		6,190	U
233	0305199D8Z	Net Centricity	07	17,812	16,742		16,742	U
235	0305208BB	Distributed Common Ground/Surface Systems	07	5,488	6,286		6,286	U
238	0305208K	Distributed Common Ground/Surface Systems	07	2,959	2,970		2,970	U
241	0305327V	Insider Threat	07	7,265	5,954		5,954	U
242	0305387D8Z	Homeland Defense Technology Transfer Program	07	2,067	1,137		1,137	U
249	0307577D8Z	Intelligence Mission Data (IMD)	07	13,086	6,889		6,889	U
250	0708012K	Logistics Support Activities	07		1,317		1,317	U
251	0708012S	Pacific Disaster Centers	07	1,705	1,705		1,705	U
252	0708047S	Defense Property Accountability System	07	2,817	1,739		1,739	U
253	0903235K	Joint Service Provider (JSP)	07	652				U
254	1105219BB	MQ-9 UAV	07	33,106	18,403		18,403	U
255	1160279BB	Small Business Innovative Research/ Small Bus Tech Transfer Pilot Prog	07	23,371				U
256	1160403BB	Aviation Systems	07	250,604	175,862		175,862	U

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222	0303430K	Federal Investigative Services Information Technology	07	44,001				44,001	U
225	0305103K	Cyber Security Initiative	07						U
228	0305128V	Security and Investigative Activities	07	2,400				2,400	U
232	0305186D8Z	Policy R&D Programs	07	6,301				6,301	U
233	0305199D8Z	Net Centricity	07	21,384				21,384	U
235	0305208BB	Distributed Common Ground/Surface Systems	07	6,359				6,359	U
238	0305208K	Distributed Common Ground/Surface Systems	07	2,981				2,981	U
241	0305327V	Insider Threat	07	1,964				1,964	U
242	0305387D8Z	Homeland Defense Technology Transfer Program	07	2,221				2,221	U
249	0307577D8Z	Intelligence Mission Data (IMD)	07						U
250	0708012K	Logistics Support Activities	07	1,361				1,361	U
251	0708012S	Pacific Disaster Centers	07	1,770				1,770	U
252	0708047S	Defense Property Accountability System	07	3,679				3,679	U
253	0903235K	Joint Service Provider (JSP)	07						U
254	1105219BB	MQ-9 UAV	07	20,697				20,697	U
255	1160279BB	Small Business Innovative Research/ Small Bus Tech Transfer Pilot Prog	07						U
256	1160403BB	Aviation Systems	07	245,795				245,795	U

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257	1160405BB	Intelligence Systems Development	07	8,837	10,625		10,625	U
258	1160408BB	Operational Enhancements	07	73,734	99,307	3,632	102,939	U
259	1160431BB	Warrior Systems	07	74,169	63,542	11,040	74,582	U
260	1160432BB	Special Programs	07	2,300	2,479		2,479	U
261	1160434BB	Unmanned ISR	07	33,576	33,270	11,700	44,970	U
262	1160480BB	SOF Tactical Vehicles	07	2,483	1,121	725	1,846	U
263	1160483BB	Maritime Systems	07	66,280	42,471		42,471	U
264	1160489BB	Global Video Surveillance Activities	07	4,661	4,780		4,780	U
265	1160490BB	Operational Enhancements Intelligence	07	12,067	12,176		12,176	U
266	1203610K	Teleport Program	07	574	723		723	U
9999	9999999999	Classified Programs		3,894,325	3,882,824	192,131	4,074,955	U
		Operational System Development		5,161,464	5,043,935	219,228	5,263,163	
Total Research, Development, Test & Eval, DW				23,774,016	23,659,448	402,514	24,061,962	

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Defense-Wide
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 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
257	1160405BB	Intelligence Systems Development	07	15,484				15,484	U
258	1160408BB	Operational Enhancements	07	166,922		726	726	167,648	U
259	1160431BB	Warrior Systems	07	62,332		6,000	6,000	68,332	U
260	1160432BB	Special Programs	07	21,805				21,805	U
261	1160434BB	Unmanned ISR	07	37,377		5,000	5,000	42,377	U
262	1160480BB	SOF Tactical Vehicles	07	11,150				11,150	U
263	1160483BB	Maritime Systems	07	72,626				72,626	U
264	1160489BB	Global Video Surveillance Activities	07	5,363				5,363	U
265	1160490BB	Operational Enhancements Intelligence	07	12,962				12,962	U
266	1203610K	Teleport Program	07	6,158				6,158	U
9999	9999999999	Classified Programs		4,116,640	426,000	200,199	626,199	4,742,839	U
		Operational System Development		5,832,398		211,925	637,925	6,470,323	
Total Research, Development, Test & Eval, DW				24,346,953		401,950	827,950	25,174,903	

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 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Summary Recap of Budget Activities -----				
Management Support	208,587	377,001		377,001
Total Research, Development, Test & Evaluation	208,587	377,001		377,001
Summary Recap of FYDP Programs -----				
Research and Development	208,587	377,001		377,001
Total Research, Development, Test & Evaluation	208,587	377,001		377,001

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 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Management Support	221,200				221,200
Total Research, Development, Test & Evaluation	221,200				221,200
Summary Recap of FYDP Programs -----					
Research and Development	221,200				221,200
Total Research, Development, Test & Evaluation	221,200				221,200

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 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

Appropriation: 0460D Operational Test & Eval, Defense

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
1	0605118	OPE Operational Test and Evaluation	06	83,190	85,685		85,685	U
2	0605131	OPE Live Fire Test and Evaluation	06	58,950	64,332		64,332	U
3	0605814	OPE Operational Test Activities and Analyses	06	66,447	226,984		226,984	U
		Management Support		208,587	377,001		377,001	
Total Operational Test & Eval, Defense				208,587	377,001		377,001	

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 Total Obligational Authority
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05 Mar 2019

Appropriation: 0460D Operational Test & Eval, Defense

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
1	0605118	OTE Operational Test and Evaluation	06	93,291				93,291	U
2	0605131	OTE Live Fire Test and Evaluation	06	69,172				69,172	U
3	0605814	OTE Operational Test Activities and Analyses	06	58,737				58,737	U
		Management Support		221,200				221,200	
Total Operational Test & Eval, Defense				221,200				221,200	

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22	02	1160401BB	SOF Technology Development.....	Volume 5 - 987

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50	03	0603712S	Logistics Research and Development Technology (Log R&D).....	Volume 5 - 409
52	03	0603720S	Microelectronics Technology Development and Support (DMEA).....	Volume 5 - 421
68	03	1160402BB	SOF Advanced Technology Development.....	Volume 5 - 993
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Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

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105	04	0604775BR	Advanced Component Development and Prototypes.....	Volume 5 - 751
107	04	0604826J	Joint C5 Capability Development, Integration, and Interoperability Assessments.....	Volume 5 - 857
117	04	0300206R	Enterprise Information Technology System.....	Volume 5 - 21
120	04	1206410SDA	Space Technology Development and Prototyping.....	Volume 5 - 809

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128	05	0605013BL	Information Technology Development.....	Volume 5 - 47
129	05	0605021SE	Homeland Personnel Security Initiative.....	Volume 5 - 85
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164	06	0605502S	Small Business Innovative Research (SBIR).....	Volume 5 - 457
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169	06	0605801KA	Defense Technical Information Center.....	Volume 5 - 579
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173	06	0605998KA	Management HQ - Defense Technical Information Center (DTIC).....	Volume 5 - 595
176	06	0606589D8W	Defense Digital Service (DDS).....	Volume 5 - 1283
178	06	0606942S	Cyber Vulnerability Assessment and Mitigation.....	Volume 5 - 461
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190	06	0804767J	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA.....	Volume 5 - 917
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192	06	0808709SE	Defense Equal Opportunity Management Institute (DEOMI).....	Volume 5 - 127
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198	07	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS).....	Volume 5 - 505
201	07	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)..	Volume 5 - 511
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206	07	0301144K	Joint/Allied Coalition Information Sharing.....	Volume 5 - 205
209	07	0302016K	National Military Command System-Wide Support.....	Volume 5 - 215
210	07	0302019K	Defense Info. Infrastructure Engineering and Integration.....	Volume 5 - 223
211	07	0303126K	Long-Haul Communications - DCS.....	Volume 5 - 243
212	07	0303131K	Minimum Essential Emergency Communications Network (MEECN).....	Volume 5 - 265
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235	07	0305208BB	Distributed Common Ground/Surface Systems.....	Volume 5 - 1005
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252	07	0708047S	Defense Property Accountability System (DPAS).....	Volume 5 - 469
253	07	0903235K	Joint Service Provider.....	Volume 5 - 355
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255	07	1160279BB	Small Business Innovation Research/Small Bus Tech Transfer.....	Volume 5 - 1023
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Defense Innovation Unit (DIU)	0603342D8W	39	03.....	Volume 5 - 1277
Defense Property Accountability System (DPAS)	0708047S	252	07.....	Volume 5 - 469
Defense Retired and Annuitant Pay System (DRAS)	0605090S	135	05.....	Volume 5 - 451
Defense Spectrum Organization	0303153K	219	07.....	Volume 5 - 303
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Planning and Decision Aid System (PDAS)	0208043J	203	07.....	Volume 5 - 961
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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

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(Dollars in Thousands)

13 Mar 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
-----	-----	-----	-----	-----
Research, Development, Test & Eval, DW		2,600		2,600
Total Research, Development, Test & Evaluation		2,600		2,600

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 (Dollars in Thousands)

13 Mar 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	1,600				1,600
Total Research, Development, Test & Evaluation	1,600				1,600

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 (Dollars in Thousands)

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	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
<u>Summary Recap of Budget Activities</u>				
Advanced Component Development And Prototypes		2,600		2,600
Total Research, Development, Test & Evaluation		2,600		2,600
<u>Summary Recap of FYDP Programs</u>				
Intelligence and Communications		2,600		2,600
Total Research, Development, Test & Evaluation		2,600		2,600

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 (Dollars in Thousands)

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	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Component Development And Prototypes	1,600				1,600
Total Research, Development, Test & Evaluation	1,600				1,600
<u>Summary Recap of FYDP Programs</u>					
Intelligence and Communications	1,600				1,600
Total Research, Development, Test & Evaluation	1,600				1,600

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13 Mar 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
<u>Summary Recap of Budget Activities</u>				
Advanced Component Development And Prototypes		2,600		2,600
Total Research, Development, Test & Evaluation		2,600		2,600
<u>Summary Recap of FYDP Programs</u>				
Intelligence and Communications		2,600		2,600
Total Research, Development, Test & Evaluation		2,600		2,600

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 (Dollars in Thousands)

13 Mar 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Component Development And Prototypes	1,600				1,600
Total Research, Development, Test & Evaluation	1,600				1,600
<u>Summary Recap of FYDP Programs</u>					
Intelligence and Communications	1,600				1,600
Total Research, Development, Test & Evaluation	1,600				1,600

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Mar 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
-----	-----	-----	-----	-----
Defense Contract Audit Agency		2,600		2,600
Total Research, Development, Test & Evaluation		2,600		2,600

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Mar 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Defense Contract Audit Agency	1,600				1,600
Total Research, Development, Test & Evaluation	1,600				1,600

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Mar 2019

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

Line No	Element Number	Program Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se e c -
117	0300206R	Enterprise Information Technology Systems	04		2,600		2,600	U
		Advanced Component Development And Prototypes			2,600		2,600	
Total Research, Development, Test & Eval, DW					2,600		2,600	

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Mar 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	See
117	0300206R	Enterprise Information Technology Systems	04	1,600				1,600	U
		Advanced Component Development And Prototypes		1,600				1,600	
Total Research, Development, Test & Eval, DW				1,600				1,600	

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Defense Contract Audit Agency
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Mar 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
117	0300206R	Enterprise Information Technology Systems	04		2,600		2,600	U
		Advanced Component Development And Prototypes			2,600		2,600	
Total Defense Contract Audit Agency					2,600		2,600	

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Defense Contract Audit Agency
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Mar 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
117	0300206R	Enterprise Information Technology Systems	04	1,600				1,600	U
		Advanced Component Development And Prototypes		1,600				1,600	
Total Defense Contract Audit Agency				1,600				1,600	

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Defense Contract Audit Agency • Budget Estimates FY 2020 • RDT&E Program

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Enterprise Information Technology System	0300206R	117	04.....	Volume 5 - 21

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Contract Audit Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0300206R / <i>Enterprise Information Technology System</i>
---	---

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	2.600	1.600	-	1.600	1.600	1.700	1.700	1.700	Continuing	Continuing
000001: <i>Enterprise Information Technology System</i>	0.000	0.000	2.600	1.600	-	1.600	1.600	1.700	1.700	1.700	Continuing	Continuing

A. Mission Description and Budget Item Justification

This is a new start in FY19. Funding in the amount of \$2,600,000 is required for the software development of a prototype capability to streamline the assembly, transmission, routing, processing, and tracking of the large volume of contractor submissions received annually by the federal government which will become CSP (Contractor Submission Portal) as well as DCAA Management Information System (DMIS) replacement analysis and the System of Systems redesign.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	0.000	2.600	1.600	-	1.600
Current President's Budget	0.000	2.600	1.600	-	1.600
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 000001: *Enterprise Information Technology System*

Congressional Add: *N/A*

	FY 2018	FY 2019
	0.000	-
Congressional Add Subtotals for Project: 000001	0.000	-
Congressional Add Totals for all Projects	0.000	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Contract Audit Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0300206R / <i>Enterprise Information Technology System</i>				Project (Number/Name) 000001 / <i>Enterprise Information Technology System</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
000001: <i>Enterprise Information Technology System</i>	0.000	0.000	2.600	1.600	-	1.600	1.600	1.700	1.700	1.700	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This is a new start in FY19. Funding in the amount of \$2,600,000 is required for the software development of a prototype capability to streamline the assembly, transmission, routing, processing, and tracking of the large volume of contractor submissions received annually by the federal government which will become CSP (Contractor Submission Portal) as well as DMIS replacement analysis and the System of Systems redesign.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Enterprise Information Technology System	-	2.600	1.600
FY 2019 Plans: - Develop CSP (Contractor Submission portal) requirements and design the technical architecture that will support the CSP business and technical requirements - Lead the software development and testing of an initial CSP prototype - Deploy the initial CSP prototype in a web environment accessible to the public - Develop the SoS (System of System) design requirements and translate business requirements into technical requirements - Collaborate with the Government in the development of mock-ups and demonstrations - Develop and test the refined SoS prototype -- Conduct unit testing, system testing, user acceptance testing, and other software testing in order to ensure functionality meets all requirements - Produce SoS Planning module and the assignment module Intranet Functional and Technical Design			
FY 2020 Plans: This effort requires an increase in contract labor in FY 19, and will remain in a steady state from FY20 through FY23 as additional modules continue to be developed. Once the enhancement is complete, the staffing and funding levels return to their original levels.			
FY 2019 to FY 2020 Increase/Decrease Statement: This is a new requirement starting in FY 19.			
Accomplishments/Planned Programs Subtotals	-	2.600	1.600

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Contract Audit Agency	Date: March 2019
---	-------------------------

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0300206R / <i>Enterprise Information Technology System</i>	Project (Number/Name) 000001 / <i>Enterprise Information Technology System</i>
--	---	--

	FY 2018	FY 2019
Congressional Add: N/A	0.000	-
FY 2018 Accomplishments: N/A		
Congressional Adds Subtotals	0.000	-

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-3, RDT&E Project Cost Analysis: PB 2020 Defense Contract Audit Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0300206R / <i>Enterprise Information Technology System</i>				Project (Number/Name) 000001 / <i>Enterprise Information Technology System</i>				

Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development Cost	TBD	Defene Contract Audit Agency : Fort Belvoir, Virginia	-	-		2.600		1.600		-		1.600	Continuing	Continuing	-
Subtotal			-	-		2.600		1.600		-		1.600	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-	2.600	1.600	-	1.600	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Contract Audit Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0300206R / <i>Enterprise Information Technology System</i>	Project (Number/Name) 000001 / <i>Enterprise Information Technology System</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Software Development																												
Software Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Contract Audit Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0300206R / <i>Enterprise Information Technology System</i>	Project (Number/Name) 000001 / <i>Enterprise Information Technology System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Software Development				
Software Development	1	2019	4	2024

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

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Department of Defense
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Research, Development, Test & Eval, DW	8,947	11,988		11,988
Total Research, Development, Test & Evaluation	8,947	11,988		11,988

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation -----	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	3,495				3,495
Total Research, Development, Test & Evaluation	3,495				3,495

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted

System Development And Demonstration	8,947	11,988		11,988
Total Research, Development, Test & Evaluation	8,947	11,988		11,988
Summary Recap of FYDF Programs				

Intelligence and Communications				
Research and Development	8,947	11,988		11,988
Total Research, Development, Test & Evaluation	8,947	11,988		11,988

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
System Development And Demonstration	3,495				3,495
Total Research, Development, Test & Evaluation	3,495				3,495
Summary Recap of FYDP Programs -----					
Intelligence and Communications	425				425
Research and Development	3,070				3,070
Total Research, Development, Test & Evaluation	3,495				3,495

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
<u>Summary Recap of Budget Activities</u>				
System Development And Demonstration	8,947	11,988		11,988
Total Research, Development, Test & Evaluation	8,947	11,988		11,988
<u>Summary Recap of FYDP Programs</u>				
Intelligence and Communications				
Research and Development	8,947	11,988		11,988
Total Research, Development, Test & Evaluation	8,947	11,988		11,988

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
System Development And Demonstration	3,495				3,495
Total Research, Development, Test & Evaluation	3,495				3,495
Summary Recap of FYDP Programs -----					
Intelligence and Communications	425				425
Research and Development	3,070				3,070
Total Research, Development, Test & Evaluation	3,495				3,495

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

Appropriation -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Defense Contract Management Agency	8,947	11,988		11,988
Total Research, Development, Test & Evaluation	8,947	11,988		11,988

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Defense Contract Management Agency	3,495				3,495
Total Research, Development, Test & Evaluation	3,495				3,495

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se c
128	0605013BL	Information Technology Development	05	8,947	11,988		11,988	U
138	0303140BL	Information Systems Security Program	05					U
		System Development And Demonstration		8,947	11,988		11,988	
Total Research, Development, Test & Eval, DW				8,947	11,988		11,988	

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCC for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
128	0605013BL	Information Technology Development	05	3,070				3,070	U
138	0303140BL	Information Systems Security Program	05	425				425	U
		System Development And Demonstration		3,495				3,495	
Total Research, Development, Test & Eval, DW				3,495				3,495	

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Defense Contract Management Agency
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
128	0605013BL	Information Technology Development	05	8,947	11,988		11,988	U
138	03C3140BL	Information Systems Security Program	05					U
		System Development And Demonstration		8,947	11,988		11,988	
Total Defense Contract Management Agency				8,947	11,988		11,988	

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Defense Contract Management Agency
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se e c
128	0605013BL	Information Technology Development	05	3,070				3,070	U
138	0303140BL	Information Systems Security Program	05	425				425	U
		System Development And Demonstration		3,495				3,495	
Total Defense Contract Management Agency				3,495				3,495	

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138	05	0303140BL	Information Systems Security Program.....	Volume 5 - 57

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Information Technology Development	0605013BL	128	05.....	Volume 5 - 47

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Contract Management Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013BL / <i>Information Technology Development</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	169.848	8.947	11.988	3.070	-	3.070	7.140	7.283	7.428	7.729	Continuing	Continuing
01: <i>Systems Modifications and Development</i>	169.848	8.947	11.988	3.070	-	3.070	7.140	7.283	7.428	7.729	Continuing	Continuing

A. Mission Description and Budget Item Justification

DCMA is currently engaged in several major initiatives to improve our information technology environment. Information technology is the primary enabling capability our acquisition workforce is reliant upon to communicate with contractors, the DoD acquisition community and our customers. These initiatives are driven by the National Defense Strategy business reform line of effort. On December 21, 2017, the Reform Management Group directed the Information Technology (IT) and Business Systems Reform Lead to review Fourth Estate IT networks, policies, business processes, functions, costs and Chief Information Officer (CIO) organizational structures and manpower requirements across the Fourth Estate. In support of this directive, DCMA is structuring its information technology investments to be in synchronization with the vision of the DoD guidance. One early result of this review is the decision to transfer commodity information technology administrative control to Defense Information Systems Agency (DISA).

DCMA's IT investment strategy is being driven by the Director's initiatives to: 1) Develop Mission Business Systems; 2) Leverage Commodity IT Buying Power Through DISA; and 3) Focus On The Last Tactical Mile. These initiatives directly align and support the Optimization and Modernization efforts of the DoD CIO, which include: 1) Network Optimization; 2) Data Center Optimization; 3) Mission Partner Engagement; 4) Defense Travel Modernization ; 5) Enterprise Collaboration; 6) Consolidation of Cyber and IT Responsibilities; 7) Rationalize Business Systems; 8) Streamline IT Commodity Purchasing.

Development and research initiatives are a core component in DCMA's ability to align efforts appropriately to the DoD CIO IT Reform Initiative. In order to meet the needs of the DoD community, DCMA's current efforts are focused on the development of investments in two core areas: 1) DCMA App Store; and 2) Wide Area Work-Flow (WAWF).

These initiatives will empower mobile and fixed users ability to utilize DoD enterprise capabilities with the same level or better of efficiency and effectiveness.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Contract Management Agency	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013BL / <i>Information Technology Development</i>
--	--

B. Program Change Summary (\$ in Millions)	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	12.322	11.988	3.070	-	3.070
Current President's Budget	8.947	11.988	3.070	-	3.070
Total Adjustments	-3.375	0.000	0.000	-	0.000
• Congressional General Reductions	-1.000	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.375	-			
• SBIR/STTR Transfer	-	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Contract Management Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605013BL / <i>Information Technology Development</i>	Project (Number/Name) 01 / <i>Systems Modifications and Development</i>
--	--	---

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
01: <i>Systems Modifications and Development</i>	169.848	8.947	11.988	3.070	-	3.070	7.140	7.283	7.428	7.729	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Development and research initiatives are a core component in DCMA's ability to align efforts appropriately to the DoD CIO IT Reform Initiative. In order to meet the needs of the DoD community, DCMA's current efforts include development investments in two core areas: 1) DCMA App Store; and 2) Wide Area Work-Flow (WAWF).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: System Modifications and Development	8.947	11.988	3.070
<p>Description: The DCMA will use the systems and modifications program to focus on two main efforts which support: 1) messaging and collaboration (DCMA App Store); and 2) invoicing, receipt, acceptance and property transfer capabilities (WAWF). The DCMA App Store is required to centralize DCMA's acquisition mission specific applications into one application platform that will be housed on a DISA existing Impact Level 4 accredited cloud platform. The DCMA's second development effort will support Defense Logistics Agency's Wide area Workflow e-business suite by developing collaborative efficiencies in the invoicing effort between Defense Finance and Accounting Services (DFAS), DCMA, and vendors.</p> <p>FY 2019 Plans: MOCAS In FY 2019 the MOCAS JPMO's focus will transition from modernizing business processes to implementing the modernized conceptual design architectures. The JPMO anticipates the legacy MOCAS architecture transition will commence through prototyping and analysis of detailed designs of early development focused on three key enterprise service segments; Data Migration and Stabilization, Enhanced Reporting and User Workflow Automation. Additionally, in parallel, the MOCAS JPMO working through the DoD-wide enterprise governance model will continue to study, select, design, develop, test, and implement critical System Change Requests (SCRs) to further yield efficiency within the DoD's Procure to Pay (P2P) Business Process.</p> <p>IWMS IWMS will complete development and deployment of contract close-out and subsequently integrate with The Defense Contract Audit Agency (DCAA) and DCMA's Contract Business Analysis Repository to provide a "one stop shop" for DOD contract integration and close-out capabilities.</p> <p>Business Intelligence (BI) Modernization</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Contract Management Agency	Date: March 2019
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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605013BL / <i>Information Technology Development</i>	Project (Number/Name) 01 / <i>Systems Modifications and Development</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>BI Modernization will continue to provide internal DCMA end users self-service customization allowing for the creation and modification of canned and unique dashboards, displays, workspaces, and reporting across a multitude of DCMA functional capabilities. This cost category also includes online analytical processing (OLAP) which is a broader category of business intelligence which can be used for report writing.</p> <p><i>FY 2020 Plans:</i> DCMA App Store Development and testing for a new DCMA App Store capability which will replace DCMA's current Legacy eTools through rationalization and modernization. This investment transfers legacy application hosting and management of business requirements to an Impact Level 4/5 (IL4/IL5) cloud platform supported by Defense Information Systems Agency's (DISA) Enterprise solution.</p> <p>WAWF This effort will provide a more efficient way to retrieve accepted receiving report information for their active Commercial and Government Entity (CAGE) Codes and applicable extensions when initiating invoices for WAWF direct and vendor direct-shipping deliveries. It will reduce significant manual processes as an electronic solution is currently unavailable. In addition, funding will be used to develop processes to increase electronic submissions and decrease manual labor to create paper corrected receiving reports and prevent delays due to manual processing of documents. Requested changes for Wide Area WorkFlow were submitted to the Operational Requirements Committee (ORC) for review and approval. This committee is chaired by Defense Procurement and Acquisition Policy Directorate (DPAP) and the DoD Comptroller.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Explanation of change from FY 2019 to FY 2020 decreases result from a complete review of DCMA's IT environment requested by The Agency Director and new Chief Information Officer. DCMA conducted a requirements acquisition strategy review ensuring future development be aligned to the current DoD Enterprise and Agency strategic goals and objectives. As a result of this review and the DoD directive to complete the 4th Estate IT network optimization effort and transfer commodity management to DISA, DCMA is temporarily restricting focus of development to a few key projects.</p>			
Accomplishments/Planned Programs Subtotals	8.947	11.988	3.070

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

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Contract Management Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605013BL / <i>Information Technology Development</i>	Project (Number/Name) 01 / <i>Systems Modifications and Development</i>

D. Acquisition Strategy

The DoD CIO's strategy addresses Cloud, Cyber and Artificial Intelligence Initiatives and their implementation via the DoD IT Reform Initiative. The DCMA Director has identified three DCMA initiatives in alignment with the DoD CIO's initiatives to include: 1) Off-Ramping IT Services 2) Mission System Development and 3) The Last Tactical Mile.

E. Performance Metrics

To deliver on our mission and vision, the Agency is focused on five primary strategic goals: 1) Enhance Lethality through On-Time Delivery of quality products; 2) Enhance Lethality through Affordability; 3) Ensure Agency funds are used in alignment with Department guidance and executed in a transparent, accountable manner; 4) Reform the Agency business practices by working smarter not harder; and 5) Enhance and Strengthen the skills, readiness, and effectiveness of the total workforce. All five of these strategic goals align to the current three pillars of the National Defense strategy to: 1) Build a More Lethal Force; 2) Strengthen Our Alliances and Attract New Partners; and 3) Reform the Department's business practices for greater performance and affordability. The Agency will assess each of these primary strategic goals identifying measurable capability improvements leading to enhanced Warfighter Lethality through timely delivery of quality products, and acquisition insight supporting affordability and readiness.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Contract Management Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605013BL / <i>Information Technology Development</i>	Project (Number/Name) 01 / <i>Systems Modifications and Development</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCMA App Store	C/FFP	Various : Various	-	-		-		2.270	Jan 2020	-		2.270	Continuing	Continuing	2.270
WAWF	C/FFP	Various : Various	-	-		-		0.800	Jan 2020	-		0.800	Continuing	Continuing	0.800
Other Programs	C/FFP	Various : Various	169.848	8.947		11.988		-		-		-	Continuing	Continuing	-
Subtotal			169.848	8.947		11.988		3.070		-		3.070	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals		169.848	8.947	11.988	3.070	-	-	3.070	Continuing	Continuing	N/A

Remarks
 The DCMA Information Technology supports the Agency's CAS mission by capitalizing on IT investment innovations that leverage technology to achieve an agile enterprise architecture that improves its contract management workforce's productivity, efficiency, and effectiveness.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Contract Management Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605013BL / <i>Information Technology Development</i>	Project (Number/Name) 01 / <i>Systems Modifications and Development</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
WAWF																												
Requirement																												
Development																												
Testing																												
Deploy																												
Other Programs																												
Requirement																												
Integrated Workload Management System (IWMS) Delegation Capability																												
Requirement																												
Develop, Test, Deploy																												
Integrated Workload Management System (IWMS) Surveillance Events Planning Capability																												
Requirement																												
Development																												
Test and Deploy																												
Integrated Workload Management System (IWMS) Contract Closeout Capability																												
Requirement																												
Development																												
Test																												
Deploy																												
Mechanization of Contract Administration Services (MOCAS)																												
Requirement																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Contract Management Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605013BL / <i>Information Technology Development</i>	Project (Number/Name) 01 / <i>Systems Modifications and Development</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Develop, Test, Deploy (MOCAS Modernization Release 1)																												
Develop, Test, Deploy (MOCAS Modernization Release 2)																												
Develop, Test, Deploy (MOCAS Modernization Release 3)																												
Develop, Test, Deploy (MOCAS Modernization Release 4)																												
<i>DCMA App Store Capability Release Sprint 1</i>																												
Development																												
Testing																												
Deploy																												
<i>DCMA App Store Capability Release Sprint 2</i>																												
Requirement																												
Devlop, Test, Deploy																												
<i>DCMA App Store Capability Release Sprint 3</i>																												
Requirement																												
Devlop, Test, Deploy																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Contract Management Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605013BL / <i>Information Technology Development</i>	Project (Number/Name) 01 / <i>Systems Modifications and Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
WAWF				
Requirement	2	2020	2	2020
Development	2	2020	4	2020
Testing	1	2021	1	2021
Deploy	1	2021	2	2021
Other Programs				
Requirement	1	2018	4	2019
Integrated Workload Management System (IWMS) Delegation Capability				
Requirement	3	2021	3	2021
Develop, Test, Deploy	4	2021	4	2021
Integrated Workload Management System (IWMS) Surveillance Events Planning Capability				
Requirement	2	2021	2	2021
Development	3	2021	4	2021
Test and Deploy	1	2022	1	2022
Integrated Workload Management System (IWMS) Contract Closeout Capability				
Requirement	1	2022	1	2022
Development	2	2022	2	2022
Test	3	2022	3	2022
Deploy	4	2022	4	2022
Mechanization of Contract Administration Services (MOCAS)				
Requirement	1	2021	4	2024

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Contract Management Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605013BL / <i>Information Technology Development</i>	Project (Number/Name) 01 / <i>Systems Modifications and Development</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Develop, Test, Deploy (MOCAS Modernization Release 1)	1	2022	4	2022
Develop, Test, Deploy (MOCAS Modernization Release 2)	1	2022	4	2024
Develop, Test, Deploy (MOCAS Modernization Release 3)	1	2023	4	2024
Develop, Test, Deploy (MOCAS Modernization Release 4)	1	2024	4	2024
<i>DCMA App Store Capability Release Sprint 1</i>				
Development	2	2020	4	2020
Testing	3	2020	2	2021
Deploy	1	2021	3	2021
<i>DCMA App Store Capability Release Sprint 2</i>				
Requirement	1	2022	3	2022
Develop, Test, Deploy	2	2022	4	2022
<i>DCMA App Store Capability Release Sprint 3</i>				
Requirement	1	2024	3	2024
Develop, Test, Deploy	2	2024	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Contract Management Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0303140BL / <i>Information Systems Security Program</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	0.425	-	0.425	0.000	0.000	0.000	0.000	Continuing	Continuing
01: <i>Cyber Activities</i>	0.000	0.000	0.000	0.425	-	0.425	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

DCMA is currently engaged in several major initiatives to improve our information technology environment. Information technology is the primary enabling capability our acquisition workforce is reliant upon to communicate with contractors, the DoD acquisition community and our customers. These initiatives are driven by the National Defense Strategy business reform line of effort. On December 21, 2017, the Reform Management Group directed the Information Technology (IT) and Business Systems Reform Lead to review Fourth Estate IT networks, policies, business processes, functions, costs and Chief Information Officer (CIO) organizational structures and manpower requirements across the Fourth Estate. In support of this directive, DCMA is structuring its information technology investments to be in synchronization with the vision of the DoD guidance. One early result of this review is the decision to transfer commodity information technology administrative control to Defense Information Systems Agency (DISA).

DCMA's IT investment strategy is being driven by the Director's initiatives to: 1) Develop Mission Business Systems; 2) Leverage Commodity Buying Power Through DISA; and 3) Focus On The Last Tactical Mile. These initiatives directly align and support the Optimization and Modernization efforts of the DoD CIO, which include: 1) Network Optimization; 2) Data Center Optimization; 3) Mission Partner Engagement; 4) Defense Travel Modernization ; 5) Enterprise Collaboration; 6) Consolidation of Cyber and IT Responsibilities; 7) Rationalize Business Systems; 8) Streamline IT Commodity Purchasing.

These initiatives will empower mobile and fixed users ability to utilize DoD enterprise capabilities with the same or better level of efficiency and effectiveness. In addition, it will create an IT infrastructure that enables shared services and improve timely access to data via cloud capability in a secure and protected integrated environment. The new strategy to move services to the cloud requires research and solution identification to understand and implement a cloud security capability that doesn't currently exist within DCMA.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Contract Management Agency	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0303140BL / <i>Information Systems Security Program</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	0.425	-	0.425
Total Adjustments	0.000	0.000	0.425	-	0.425
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Tranfer of CYBER to spereate Program Element	-	-	0.425	-	0.425

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Contract Management Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0303140BL / <i>Information Systems Security Program</i>	Project (Number/Name) 01 / <i>Cyber Activities</i>
--	--	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
01: <i>Cyber Activities</i>	0.000	0.000	0.000	0.425	-	0.425	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Development and research initiatives are a core component in DCMA's ability to align efforts appropriately to the DoD CIO IT Reform Initiative. It's crucial that DCMA continue to develop capabilities and automate processes within IT to secure DoD IT cloud migration services for DCMA. In order to meet the needs of the DoD acquisition community, DCMA will develop a cloud security solution that integrates across all DCMA utilized government and commercial solutions while aligning with the DoD Joint Information Environment (JIE) and Joint Regional Security Stack (JRSS) .

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: System Modifications and Development	0.000	-	0.425
Description: Development and research initiatives are a core component in DCMA's ability to align efforts appropriately to the DoD CIO IT Reform Initiative. It's crucial that DCMA continue to develop capabilities and automate processes within IT to secure DoD IT cloud migration services for DCMA. In order to meet the needs of the DoD acquisition community, DCMA will develop a cloud security solution that integrates across all DCMA utilized government and commercial solutions while aligning with the DoD Joint Information Environment (JIE) and Joint Regional Security Stack (JRSS) .			
FY 2020 Plans: Cloud Security solution DCMA does not currently perform the Cloud Security function which will require RDT&E to develop the requirements to implement a new solution in support of the DoD CIO's cloud migration strategy. This will take multiple years to research and develop the requirements to implement another contract for a new capability and solution that will integrate across all DCMA utilized DoD and commercial solutions while aligning with DoD Joint Information Environment (JIE) Joint Regional Security Stack (JRSS).			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase is from a transfer of all cyber requirements into separate and transparent program elements in order to cleanly identify an manage cyber security requirements. This requirement in the prior budget cycle was aligned to DCMA's Information technology development program element.			
Accomplishments/Planned Programs Subtotals	0.000	-	0.425

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Contract Management Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0303140BL / <i>Information Systems Security Program</i>	Project (Number/Name) 01 / <i>Cyber Activities</i>

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2020</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• 030140BL: <i>Operations & Maintenance</i>	0.000	24.004	24.391	-	24.391	25.032	25.536	25.901	26.424	Continuing	Continuing

Remarks

**Only O&M IT CYBER specific direct funding reflected above.

D. Acquisition Strategy

The DoD CIO's strategy addresses Cloud, Cyber and Artificial Intelligence Initiatives and their implementation via the DoD IT Reform Initiative. The DCMA Director has identified three DCMA initiatives in alignment with the DoD CIO's initiatives to include: 1) Develop Mission Business Systems; 2) Leverage Commodity Buying Power Through DISA; and 3) Focus On The Last Tactical Mile. The DCMA's Cloud Security requirement research and solution identification are critical to the success of securely integrating DCMA's data into the DoD Cloud Migration effort.

E. Performance Metrics

To deliver on our mission and vision, the Agency is focused on five primary strategic goals: 1) Enhance Lethality through On-Time Delivery of quality products; 2) Enhance Lethality through Affordability; 3) Ensure Agency funds are used in alignment with Department guidance and executed in a transparent, accountable manner; 4) Reform the Agency business practices by working smarter not harder; and 5) Enhance and Strengthen the skills, readiness, and effectiveness of the total workforce. All five of these strategic goals align to the current three pillars of the National Defense strategy to: 1) Build a More Lethal Force; 2) Strengthen Our Alliances and Attract New Partners; and 3) Reform the Department's business practices for greater performance and affordability. The Agency will assess each of these primary strategic goals identifying measurable capability improvements leading to enhanced Warfighter Lethality through timely delivery of quality products, and acquisition insight supporting affordability and readiness.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Contract Management Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0303140BL / <i>Information Systems Security Program</i>	Project (Number/Name) 01 / <i>Cyber Activities</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cloud Security solution	C/FFP	Various : Various	-	-		-		0.425	Jan 2020	-		0.425	Continuing	Continuing	-
Subtotal			-	-		-		0.425		-		0.425	Continuing	Continuing	N/A

Remarks
*The Other Programs

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-	0.000	0.425	-	0.425	Continuing	Continuing	N/A

Remarks
The DCMA Information Technology supports the Agency's CAS mission by capitalizing on IT investment innovations that leverage technology to achieve an agile enterprise architecture that improves its contract management workforce's productivity, efficiency, and effectiveness.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Contract Management Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0303140BL / <i>Information Systems Security Program</i>	Project (Number/Name) 01 / <i>Cyber Activities</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Cloud Security solution																												
Requirement identification																												
Development, Test, and Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Contract Management Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0303140BL / <i>Information Systems Security Program</i>	Project (Number/Name) 01 / <i>Cyber Activities</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Cloud Security solution</i>				
Requirement identification	2	2020	1	2021
Development, Test, and Evaluation	1	2021	3	2021

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

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DoD Human Resources Activity

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

<u>Appropriation</u>	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Research, Development, Test & Eval, DW	27,749	25,210		25,210
Total Research, Development, Test & Evaluation	27,749	25,210		25,210

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	41,843				41,843
Total Research, Development, Test & Evaluation	41,843				41,843

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
System Development And Demonstration	4,893	296		296
Management Support	22,856	24,914		24,914
Total Research, Development, Test & Evaluation	27,749	25,210		25,210
Summary Recap of FYDP Programs				
Research and Development	27,749	25,210		25,210
Training Medical and Other				
Total Research, Development, Test & Evaluation	27,749	25,210		25,210

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
System Development And Demonstration	7,295				7,295
Management Support	34,548				34,548
Total Research, Development, Test & Evaluation	41,843				41,843
<u>Summary Recap of FYDP Programs</u>					
Research and Development	41,743				41,743
Training Medical and Other	100				100
Total Research, Development, Test & Evaluation	41,843				41,843

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
System Development And Demonstration	4,893	296		296
Management Support	22,856	24,914		24,914
Total Research, Development, Test & Evaluation	27,749	25,210		25,210
Summary Recap of FYDP Programs				
Research and Development	27,749	25,210		25,210
Training Medical and Other				
Total Research, Development, Test & Evaluation	27,749	25,210		25,210

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
System Development And Demonstration	7,295				7,295
Management Support	34,548				34,548
Total Research, Development, Test & Evaluation	41,843				41,843
<u>Summary Recap of FYDP Programs</u>					
Research and Development	41,743				41,743
Training Medical and Other	100				100
Total Research, Development, Test & Evaluation	41,843				41,843

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Defense Human Resources Activity	27,749	25,210		25,210
Total Research, Development, Test & Evaluation	27,749	25,210		25,210

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Defense Human Resources Activity	41,843				41,843
Total Research, Development, Test & Evaluation	41,843				41,843

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
129	0605021SE	Homeland Personnel Security Initiative	05	4,893	296		296	U
		System Development And Demonstration		4,893	296		296	
170	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	22,856	24,914		24,914	U
192	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06					U
		Management Support		22,856	24,914		24,914	
Total Research, Development, Test & Eval, DW				27,749	25,210		25,210	

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

26 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
129	0605021SE	Homeland Personnel Security Initiative	05	7,295				7,295	U
		System Development And Demonstration		7,295				7,295	
170	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	34,448				34,448	U
192	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06	100				100	U
		Management Support		34,548				34,548	
Total Research, Development, Test & Eval, DW				41,843				41,843	

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Defense Human Resources Activity
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

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

Line No	Element Number	Program Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
129	0605021SE	Homeland Personnel Security Initiative	05	4,893	296		296	U
		System Development And Demonstration		4,893	296		296	
170	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	22,856	24,914		24,914	U
192	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06					U
		Management Support		22,856	24,914		24,914	
Total Defense Human Resources Activity				27,749	25,210		25,210	

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Defense Human Resources Activity
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

26 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	See
129	0605021SE	Homeland Personnel Security Initiative	05	7,295				7,295	U
		System Development And Demonstration		7,295				7,295	
170	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	34,448				34,448	U
192	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06	100				100	U
		Management Support		34,548				34,548	
Total Defense Human Resources Activity				41,843				41,843	

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DoD Human Resources Activity • Budget Estimates FY 2020 • RDT&E Program

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

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
129	05	0605021SE	Homeland Personnel Security Initiative.....	Volume 5 - 85

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
170	06	0605803SE	R&D in Support of DOD Enlistment, Testing and Evaluation.....	Volume 5 - 103
192	06	0808709SE	Defense Equal Opportunity Management Institute (DEOMI).....	Volume 5 - 127

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DoD Human Resources Activity • Budget Estimates FY 2020 • RDT&E Program

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

Program Element Title	Program Element Number	Line #	BA	Page
Defense Equal Opportunity Management Institute (DEOMI)	0808709SE	192	06.....	Volume 5 - 127
Homeland Personnel Security Initiative	0605021SE	129	05.....	Volume 5 - 85
R&D in Support of DOD Enlistment, Testing and Evaluation	0605803SE	170	06.....	Volume 5 - 103

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.158	4.893	0.296	7.295	-	7.295	7.295	7.304	7.310	7.317	Continuing	Continuing
01: <i>Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases</i>	0.158	4.893	0.296	0.295	-	0.295	0.295	0.304	0.310	0.317	Continuing	Continuing
02: <i>Enterprise Data Services (EDS)</i>	-	0.000	0.000	4.200	-	4.200	4.200	2.800	2.800	2.800	Continuing	Continuing
03: <i>Identity Credential Management (ICM)</i>	-	0.000	0.000	2.800	-	2.800	2.800	4.200	4.200	4.200	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Department of Defense Human Resources Activity (DHRA) is a DoD-wide Field Activity chartered to support the Under Secretary of Defense for Personnel and Readiness (USD (P&R)). FY 2019 RDTE funds were applied to continue the research and investigation of multifactor authentication alternatives that may allow DoD to supplement current public key infrastructure and DoD Self-Service Logon authentication solutions, as well as security improvements and development of the USID card that provides identification for personnel not eligible for the standard CAC. In FY 2020 development of a pilot multifactor authentication alternative will begin. In addition, a new effort has begun in Identity Credential Management to enable data exchanges based on a common set of standard data attributes.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	4.893	0.296	0.295	0.000	0.295
Current President's Budget	4.893	0.296	7.295	0.000	7.295
Total Adjustments	0.000	0.000	7.000	0.000	7.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• ICM increase	-	-	7.000	-	7.000

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 02: *Enterprise Data Services (EDS)*

Congressional Add: *Enterprise Data Services*

FY 2018	FY 2019
-	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

	FY 2018	FY 2019
Congressional Add Subtotals for Project: 02	-	0.000
Project: 03: <i>Identity Credential Management (ICM)</i>		
Congressional Add: <i>Identity Credential Management</i>	-	0.000
Congressional Add Subtotals for Project: 03	-	0.000
Congressional Add Totals for all Projects	-	0.000

Change Summary Explanation

Recruiting Databases: OPA JAMRS will continue to operate and maintain the expanded JAMRSdb in FY 2019 and beyond using O&M,DW funding. Increase of \$7M for Improvements in Identity, Credential, and Access Management (IACM) Authentication Services, across two programs: Enterprise Data Services (EDS) and Identity Credential Management (ICM).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity										Date: March 2019		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>				Project (Number/Name) 01 / <i>Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
01: <i>Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases</i>	0.158	4.893	0.296	0.295	-	0.295	0.295	0.304	0.310	0.317	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Homeland Security Presidential Directive (HSPD-12) Initiative (\$0.393 million): The Department of Defense Human Resources Activity (DHRA) is a DoD-wide Field Activity chartered to support the Under Secretary of Defense for Personnel and Readiness (USD (P&R)). HSPD-12 requires rapid electronic authentication for all Government employees, uniformed individuals and contractors. Real Time Automated Personnel Identification System (RAPIDS) is the infrastructure that supports the Uniformed Services identification card, provides on-line updates to DEERS and issues the CAC to Service members, civilian employees, and eligible contractors, thus providing an enterprise-wide credential for both physical and logical access to DoD facilities and networks. CAC uses the DEERS database for authentication and personnel information.

Recruiting Databases Project (\$4.500 million): FY 2018 funds were directed to completing the expansion of recruiting database from the pilot started in FY 2017. It will be provided to all Military Services for use with officer and enlisted recruiting and to explore the merits of expanding use to civilian recruiting. Specifically, the funds will provide contractor support to research efforts on expanding the JAMRS Recruiting database for more precise direct messaging and run micro-targeting pilots with third party data buys.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Defense Enrollment Eligibility Reporting System/HSPD-12/Recruiting Databases	4.893	0.296	0.295
Description: The Department of Defense Human Resources Activity (DHRA) is a DoD-wide Field Activity chartered to support the Under Secretary of Defense for Personnel and Readiness (USD (P&R)). HSPD-12 requires rapid electronic authentication for all Government employees, uniformed individuals and contractors.			
The Office of People analytics (OPA) JAMRS Recruiting Database (JAMRSdb) - Recruiting database provided to all Military Services.			
FY 2019 Plans:			
HSPD-12: FY 2019 RDTE funds in HSPD-12 will be applied to research and investigation of multifactor authentication alternatives that may allow DoD to supplement current public key infrastructure and DoD Self-Service Logon authentication solutions.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>	Project (Number/Name) 01 / <i>Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Recruiting Databases: OPA JAMRS will continue to operate and maintain the expanded JAMRSdb in FY 2019 and beyond using O&M, DW funding. FY 2020 Plans: HSPD-12: FY 2020 RDTE funds in HSPD-12 will be applied to continue research and development of multifactor authentication alternatives that may allow DoD to supplement current public key infrastructure and DoD Self-Service Logon authentication solutions. FY 2019 to FY 2020 Increase/Decrease Statement: HSPD-12: FY 2020 mission efforts continue.			
Accomplishments/Planned Programs Subtotals	4.893	0.296	0.295

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

N/A

Remarks

D. Acquisition Strategy

HSPD-12: Existing contract vehicles in place/General Services Administration for Commercial Off The Shelf (COTS).

E. Performance Metrics

None

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 DoD Human Resources Activity											Date: March 2019				
Appropriation/Budget Activity 0400 / 5				R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>				Project (Number/Name) 01 / <i>Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases</i>							

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Homeland Personnel Security Directive (HSPD-12) Initiative/ Recruiting Databases	C/IDIQ	Gulf Coast Enterprise : Pensacola, FL	0.158	4.893	Dec 2017	0.296	Dec 2018	0.295	Dec 2019	0.000		0.295	Continuing	Continuing	-
Subtotal			0.158	4.893		0.296		0.295		0.000		0.295	Continuing	Continuing	N/A

Remarks

HSPD-12: RDTE funds in HSPD-12 will extend through the FYDP and be applied to research and investigation of multifactor authentication alternatives that may allow DoD to supplement current public key infrastructure and DoD Self-Service Logon authentication solutions.

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.158	4.893	0.296	0.295	0.000	0.295	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>	Project (Number/Name) 01 / <i>Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Homeland Security Presidential Directive (HSPD-12)																												
Recruiting Databases																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>	Project (Number/Name) 01 / <i>Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Homeland Security Presidential Directive (HSPD-12)</i>				
Recruiting Databases	4	2019	3	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity										Date: March 2019		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0605021SE / Homeland Personnel Security Initiative				Project (Number/Name) 02 / Enterprise Data Services (EDS)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
02: Enterprise Data Services (EDS)	-	0.000	0.000	4.200	-	4.200	4.200	2.800	2.800	2.800	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 2: Enterprise Data Services - supports the DoD CIO initiative to implement end-to-end digital services for person and non-person entities in support of DoD cybersecurity, interoperability, and secure information sharing across the Department. The enhancements to DMDC data repositories will implement a data centric approach to collect, verify, maintain, and share identity and other attributes. The development of new data attributes and services will enable authentication to DoD networks and resources through common standards, shared services and federation.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Enterprise Data Services	0.000	0.000	4.200
Description: The Enterprise Data Services funding will update the data attributes collected to secure trusted environments across the DoD so people and non-person entities can securely access all authorized resources based on mission need, and where DoD CIO has visibility of who and what is on the network at any point in time.			
FY 2019 Plans: N/A			
FY 2020 Plans: Develop a Mission Partner Registration service to enable a DoD Origin Network Identity Exchange solution which would enable cross-federal agency identity, credential, and information exchange from authoritative data sources.			
FY 2019 to FY 2020 Increase/Decrease Statement: Enterprise Data Services development begins in FY 2020 by establishing services to enable data exchanges based on a common set of standard data attributes.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.200

	FY 2018	FY 2019
Congressional Add: Enterprise Data Services	-	0.000
FY 2019 Plans: N/A		
Congressional Adds Subtotals	-	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>	Project (Number/Name) 02 / <i>Enterprise Data Services (EDS)</i>

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

Remarks

D. Acquisition Strategy
N/A

E. Performance Metrics
None.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / Homeland Personnel Security Initiative	Project (Number/Name) 02 / Enterprise Data Services (EDS)
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Enterprise Data Services	C/IDIQ	DHRA : TBD	-	-		-		4.200		-		4.200	Continuing	Continuing	-
Subtotal			-	-		-		4.200		-		4.200	Continuing	Continuing	N/A
Project Cost Totals			-	-		0.000		4.200		-		4.200	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>	Project (Number/Name) 02 / <i>Enterprise Data Services (EDS)</i>

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
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

Enterprise Data Services																												
Enterprise Data Services																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>	Project (Number/Name) 02 / <i>Enterprise Data Services (EDS)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Enterprise Data Services</i>				
Enterprise Data Services	2	2020	2	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / Homeland Personnel Security Initiative	Project (Number/Name) 03 / Identity Credential Management (ICM)
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
03: <i>Identity Credential Management (ICM)</i>	-	0.000	0.000	2.800	-	2.800	2.800	4.200	4.200	4.200	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Identity Credential Management establishes DHRA/DMDC as the Identity Credential Service Provider for the Department of Defense to develop improved credentialing solutions including the implementation of multi-factor authentication registration service, assertion services, authentication gateway, and a centralized enterprise credential management service.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Identity Credential Management	0.000	-	2.800
FY 2020 Plans: FY 2020 RDT&E funds will be applied to begin development of improved multifactor authentication technologies in support of DoD and VA associated individuals that require access to government websites using a trusted credential.			
FY 2019 to FY 2020 Increase/Decrease Statement: Research and development work supporting Identity Credential Management development begins in FY 2020.			
Accomplishments/Planned Programs Subtotals	0.000	-	2.800

	FY 2018	FY 2019
Congressional Add: Identity Credential Management	-	0.000
FY 2019 Plans: N/A		
Congressional Adds Subtotals	-	0.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>	Project (Number/Name) 03 / <i>Identity Credential Management (ICM)</i>

<u>E. Performance Metrics</u> N/A.
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Exhibit R-4, RDT&E Schedule Profile: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>	Project (Number/Name) 03 / <i>Identity Credential Management (ICM)</i>

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Identity Credential Management</i>	
Identity Credential Management	████████████████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605021SE / <i>Homeland Personnel Security Initiative</i>	Project (Number/Name) 03 / <i>Identity Credential Management (ICM)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Identity Credential Management</i>				
Identity Credential Management	2	2020	2	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	15.230	22.856	24.914	34.448	-	34.448	35.260	27.157	17.480	17.829	Continuing	Continuing
5: <i>ESGR Awards and Activity Tracking & Reporting (AATR) Tool</i>	0.000	0.595	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
6: <i>Enterprise Data Services</i>	0.000	0.134	4.856	14.434	-	14.434	17.880	10.637	0.644	0.658	Continuing	Continuing
7: <i>DSAID</i>	1.932	3.570	1.800	2.984	-	2.984	0.669	0.000	0.000	0.000	-	-
8: <i>CAP</i>	0.000	0.290	1.292	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
9: <i>Office of People Analytics (OPA), Testing and Assessment</i>	2.686	2.640	2.419	5.089	-	5.089	4.767	4.244	4.329	4.416	Continuing	Continuing
10: <i>Enterprise Human Resource Infor System(EHRIS)</i>	4.585	6.827	3.127	4.380	-	4.380	4.383	4.511	4.602	4.692	Continuing	Continuing
11: <i>Personnel Accountability (PA)</i>	1.774	5.000	3.330	2.174	-	2.174	2.174	2.237	2.282	2.327	Continuing	Continuing
12: <i>Personnel Security Assurance (PSA)</i>	4.253	3.000	4.116	4.594	-	4.594	4.594	4.728	4.823	4.920	Continuing	Continuing
13: <i>Federal Voting Assistance Program</i>	0.000	0.800	0.793	0.793	-	0.793	0.793	0.800	0.800	0.816	Continuing	Continuing
14: <i>Defense Travel System-Modernization (PILOT)</i>	0.000	0.000	3.181	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification

The Department of Defense Human Resources Activity (DHRA) is a DoD-wide Field Activity chartered to support the Under Secretary of Defense for Personnel and Readiness (USD (P&R)). This PE includes application of R&D to expedite prototype development and mission support efforts to sustain and/or modernize operations required for general RDT&E.

For FY 2017, as a result of a Business Process and Systems Review, DHRA implemented a major reorganization that impacted the DHRA RDT&E budget. The most significant aspect of this reorganization, from a RDT&E perspective, was the integration of the Enterprise Human Resources Information System (EHRIS) into the Defense Manpower Data Center's (DMDC) portfolio of information technology (IT) initiatives. Additionally, DHRA has implemented a major reorganization of the DMDC programs to more accurately align budget program lines with the DHRA Information Technology (IT) data reported in the DHRA IT Budget. The Defense Eligibility and

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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605803SE / <i>R&D in Support of DOD Enlistment, Testing and Evaluation</i>
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Enrollment System (DEERS); Data Governance; Real Time Automated Personnel Identification System (RAPIDS); Common Access Card (CAC); the Cyber Security program has been integrated into the DEERS and RAPIDS programs, with CAC being retained as part of the RAPIDS program. Synchronized Pre-deployment and Operational Tracker (SPOT) has been integrated into a Personnel Accountability (PA) program that also includes Joint Personnel Accountability Reconciliation and Reporting (JPARR), and the Noncombatant Evacuation Operations (NEO) Tracking System (NTS).

Project 1: DCPDS - this project is described below in Project #10 EHRIS where it has been realigned.

Project 5: ESGR Awards & Activity Tracking (AATR) Tool. Employer Support of the Guard and Reserve (ESGR) requires a comprehensive web-based application (Awards and Activity Tracking and Reporting) to track ESGR Activities to include briefings and recognition of civilian employers and briefings of National Guard and Reserve that will track against organizational goals vs. costs and the hours donated by Volunteers. The application will replace several manual processes that use Microsoft Excel spreadsheets across 54 State Committees and through contractor support. This will also place all critical data in a DoD Data Center. Development of a web-based application would immensely improve data collection and analysis while allowing field staff and volunteers to better focus on operations and mission accomplishment. The application would be an addition to ESGR's current Portal that contains ESGR's member management, inquiry and case management, and freedom award nomination systems.

Project 6: Enterprise Data Management (EDS) is addressing two critical projects in FY 2020: 1) JOM and 2) EDDIE. 1) The Joint Officer Management (JOM) modernization initiative will support improvements in the Joint Manpower Information System's (JMIS) automation, reliability, accuracy, and system interoperability to enable the Department to more effectively comply with Title 10 management requirements of Joint Duty Officers in the Active and Reserve forces, and improve the sight picture of joint officer personnel capabilities and readiness for the SECDEF and the Chairman, Joint Chiefs of Staff (CJCS). The JMIS is the DoD's sole IT system to inform the SECDEF and CJCS on their operational joint personnel officer readiness capability. The system is used to track joint duty billets, and the officers assigned to them. It also tracks joint duty experiences, education, training, and qualifications for facilitation of joint duty officer assignments and promotions. The legacy system was built in the 1990's and is no longer agile enough to support today's mission. This modernization project will bring JOM into the 21st century while addressing critical compliance issue around cyber security, and legislative and policy changes for which the legacy system has been unable to keep pace. 2) The Enterprise Data to Decisions Information Environment (EDDIE) introduces a streamlined way to provide person based "data as a service" and "analytics as a service" to all of DoD and other Federal Agencies. It enables and improves all types of analytics from standard reporting to more emergent and embedded predictive/prescriptive analytics. EDDIE will assist decision makers in forming relevant questions, retrieving pertinent information, and informing policy and program changes. In FY 2020 development will begin based on the findings of the Analysis of Alternatives.

Project 7: Defense Sexual Assault Incident Database (DSAID). DSAID serves as the Department's only centralized, case-level database for the collection and maintenance of information regarding sexual assaults involving Service members, via both Unrestricted and Restricted Reporting options. In addition, DSAID accommodates a variety of uses, including the tracking of sexual assault victim support services, support Sexual Assault Prevention and Response (SAPR) program administration, program reporting requirements, and data analysis. DSAID will also facilitate reports to Congress on claims of retaliation in connection with an Unrestricted Report of sexual assault made by or against a member of the Armed Force, and serve as a repository for documents necessary for victim future support. Service Sexual Assault Response Coordinators (SARCs) use the system to track support to victims of sexual assault throughout the lifecycle of support requirements that facilitate sexual assault case transfer between SARCs and Services.

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<p>The DoD SAPR Office and Service headquarters-level users access the system as a management tool for statistical analysis, tracking, Congressional and ad-hoc reporting, evaluating program effectiveness, conducting research, and case and business management. In order to facilitate analysis at the OSD level, the System is able to easily export data for analysis in statistical applications, such as Statistical Package for the Social Sciences (SPSS). DSAID includes safeguards to shield personally identifiable information (PII) from unauthorized disclosure, and stringent user access control in place.</p> <p>Currently CAP utilizes a Government-Off-The-Shelf (GOTS) product designed to support the program’s robust mission. This product, CAP Portal, is used primarily to process DoD and other government agencies requests for hardware, software, training, and other miscellaneous accommodation services. CAP Portal also processes information pertaining to developing and tracking requirements packages, market research, events and outreach to include proposals, presentations, materials, and assistive technology. The CAP Portal allows staff and contract support personnel to utilize all aspects of its functionality to facilitate the provision of reasonable accommodations, and run various reports to make financial forecasts with the data that is contained within the system.</p> <p>Project 9: OPA Testing and Assessment Division administers testing programs, which enable the Armed Services to select highly qualified military recruits. The DoD uses a single test, the Armed Services Vocational Aptitude Battery (ASVAB), to determine eligibility of military applicants and to report recruit quality data to Congress. High quality recruits are obtained from administering the ASVAB annually to approximately 600,000 applicants for Military Service as part of the DoD Enlistment Testing program, and to 1 million students in the DoD Student Testing program. Each Service also uses ASVAB test forms developed in this program as part of their in-service testing programs. New ASVAB test forms and related support materials are implemented approximately every four years. This allows DoD to make measurement improvements as well as decrease the likelihood of test compromise. Ongoing RDT&E efforts include development and evaluation of procedures which (1) reduce or eliminate threats to the validity of the ASVAB test scores generated; (2) improve the efficiency of the test development, calibration, and validation process; and (3) improve selection and classification decisions made by each Service through more effective use of test score information. In addition, periodic assessments are required to provide DoD manpower planners and Congress with information on aptitude trends in the population from which recruits are drawn.</p> <p>Project 10: The Enterprise Human Resource Information System (EHRIS) is comprised of the Defense Civilian Personnel Data System (DCPDS), Civilian HR IT Managed Services, Civilian HR IT Enterprise Services, and Civilian HR IT Program Planning and Management.</p> <ul style="list-style-type: none"> - DCPDS is the DoD enterprise civilian personnel HR system, servicing approximately 900,000 users worldwide. The system holds all authoritative civilian employee “personal data” and personnel actions, and provides HR business capabilities to support the end-to-end HR line of business and employee self-service capabilities, such as benefits election. The DCPDS program implements systems training, testing, and requirements management that provides user and administrator training for DCPDS and performs integrated testing for DCPDS and DoD HR IT systems to ensure proper operations throughout their life cycles. -Civilian HR IT Managed Services is responsible to customers for deployment and management of civilian HR IT systems delivered to the DoD by external government service providers, such as the Office of Personnel Management (OPM). Services currently managed include staff acquisition (USA Jobs and USA Staffing) and the electronic official personnel folders (eOPF). DMDC’s role is to centrally manage the Department’s requirements for these services so that the service provider (in most cases OPM) is working with a single point of contact at DoD. -Civilian HR IT Enterprise Services is responsible to customers for the development, operations, and sustainment of all other enterprise civilian HR IT capabilities not provided by DCPDS or external government service providers. These systems are typically unique to the DoD and allow the DoD to automate the remainder of the end-to-end HR line of business. 		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
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<p>-Civilian HR IT Program Planning and Management centralizes civilian HR IT planning and strategy activities within DMDC in order to create an integrated plan for the future that both aligns with higher level guidance and takes into account requirements and priorities across the Department for automation of civilian HR IT processes. This program works with functional sponsors and users to produce validated functional requirements, as well as technical requirements that apply to all DoD HR IT systems.</p> <p>Project 11: Personnel Accountability program is comprised of several systems, including: Synchronized Pre-deployment Operational Tracker Enterprise Suite (SPOT-ES), Joint Personnel Accountability Reconciliation and Reporting (JPARR), Defense Travel System (DTS)/Defense Travel System Modernization and Noncombatant Evacuation Operations (NEO) Tracking System (NTS). This family of systems represents end-to-end tracking, reconciliation and reporting of DoD personnel location and movements, to include military, DoD affiliated civilian, contractor and U.S. citizens. This includes DoD travel, contracts, and contractor personnel tracking in support of contingencies, military readiness, reporting of locations at the unit and person level, accountability of DoD personnel during (and after) natural or man-made disasters and accountability and visibility of noncombatant evacuees.</p> <p>Project 12: Personnel Security Assurance (PSA) provides comprehensive capabilities to perform processing and verification of security clearances for all DoD military personnel, civilians and contractors including the technology and processes that need to be addressed in order to implement Continuous Evaluation. Funding in this program support the Defense Information System for Security (DISS) which transferred to DHRA/DMDC from DLA in FY 2017. The DISS mission is to consolidate the DoD personnel security mission into an enterprise adjudicative case management system that will automate the implementation of improved national investigative and adjudicative standards to eliminate costly and inefficient work processes and increase information collaboration across the community.</p> <p>Project 13: The Federal Voting Assistance Program (FVAP) administers many of the federal responsibilities of the Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA) of 1986 and other federal military voter registration and assistance laws. FVAP works to ensure Service members, their eligible family members and overseas citizens are aware of their right to vote and have the tools and resources to successfully do so – from anywhere in the world. FVAP works to Increase the likelihood of interested Active Duty Members to use available FVAP resources to increase their level of awareness of available DoD voting assistance resources, which will increase the likelihood of returning their absentee ballot. FVAP conducts voting research projects with States, local election jurisdictions and private entities to assist UOCAVA voters to register to vote and submit their absentee ballot and improve federal, State and local election processes and procedures.</p> <p>Project 14: Defense Travel System-Modernization (Pilot) - The DoD Travel System Pilot Program (DTSP), is part of the DTS-M effort, to determine the viability of using commercial-off-the-shelf software as a service (CSaaS) to conduct DoD travel.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 DoD Human Resources Activity	Date: March 2019
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	30.356	24.914	34.448	-	34.448
Current President's Budget	22.856	24.914	34.448	-	34.448
Total Adjustments	-7.500	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-7.500	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

Congress reduced DHRA by -\$7.500 million in FY 2018 for prior year carryover.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 5 / ESGR Awards and Activity Tracking & Reporting (AATR) Tool
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
5: ESGR Awards and Activity Tracking & Reporting (AATR) Tool	0.000	0.595	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Redesign the ESGR Portal that contains the Inquiry and Case Management System, Member Management System, and Secretary of Defense Employer Support Freedom Award Nomination (FAN) system to account for technology changes and migrate to an approved DoD or Federal Cloud environment.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: ESGR Redesign/Technical Refresh	0.595	-	-
Accomplishments/Planned Programs Subtotals	0.595	-	-

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

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation				Project (Number/Name) 6 / Enterprise Data Services			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
6: Enterprise Data Services	0.000	0.134	4.856	14.434	-	14.434	17.880	10.637	0.644	0.658	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Supports research and development efforts on two critical projects, JOM and EDDIE. The Joint Officer Management (JOM) modernization initiative will support improvements in the Joint Manpower Information System's (JMIS) automation, reliability, accuracy, and system interoperability of the program that tracks and manages joint personnel officer readiness capability. The Enterprise Data to Decisions Information Environment (EDDIE) introduces a streamlined way to provide person based "data as a service" and "analytics as a service" to all of DoD and other Federal Agencies.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Enterprise Data Services (EDS)	0.134	4.856	14.434
FY 2019 Plans:			
<ul style="list-style-type: none"> • Research JOM requirements and perform decomposition of the technical implementation requirements and specifications needed for the development efforts. • Develop JOM proposed architecture for modernized system. • Evaluate JOM interoperability requirements and system interfaces. • Research existing alternatives and develop an Analysis of Alternatives for the EDDIE environment. • Evaluate the DISA Data Lake, CIO Data Environment, and PDE Enhancement. • Develop the architecture and design for EDDIE. • Collaborate with the Federally Funded Research and Development Centers (FFRDC), Policy Offices, and other stakeholders on EDDIE. • Perform business process reengineering in support of EDDIE to improve the approval processes in gaining access to the data, • Define EDDIE workflow. • Define the minimal and optimal data universe required for the EDDIE collaborative environment. 			
FY 2020 Plans:			
<ul style="list-style-type: none"> • JOM technical implement begins and continues through FY 2022. • Provides JOM configuration management support. • Deploys JOM to internal/user testing and Production Environments. • Install, configure, and integrate software and middleware to host EDDIE. • Implement EDDIE architecture and migrate data assets for inclusion in the pilot implementation. • Create the software workflows and data governance processes necessary to store candidate data assets in the EDDIE system. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 6 / Enterprise Data Services

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> Extend EDDIE self-service capability to selected user communities. <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The EDS project increase from FY 2019 to FY 2020 supports increased funding for both the JOM modernization project and the EDDIE project. FY 2019 funding provided initial start-up funds, but the bulk of the development work for each program will begin in FY 2020.</p>			
Accomplishments/Planned Programs Subtotals	0.134	4.856	14.434

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-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 7 / DSAID
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
7: DSAID	1.932	3.570	1.800	2.984	-	2.984	0.669	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Defense Sexual Assault Incidents Database (DSAID) is the integrated DoD SAPR Data Collection and Reporting System that accommodates a variety of uses, including the tracking of sexual assault victim support services, support SAPR program administration, program reporting requirements, and data analysis.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Defense Sexual Assault Incidents Database (DSAID)	3.570	1.800	2.984
FY 2019 Plans:			
<ul style="list-style-type: none"> • Add Business Intelligence tools to the Enhanced Reporting Capability Module • Incorporate DSAID Control Board (CCB) approved and pending Change Requests (CRs) (e.g. Create Retaliation and Document Management Modules) • Implement an interface with the DEERS. 			
FY 2020 Plans:			
<ul style="list-style-type: none"> • The Joint Services Provider (JSP) has required all systems moved out of the Pentagon enclave. This requirement necessitates SAPRO to move DSAID to new server environment with additional system requirements in FY 2020. • FY 2019 requires the Department to expand Congressional reporting requirements to include data on collateral misconduct and expedited transfers for adult dependents. SAPRO will add required data elements as a new module in DSAID. 			
FY 2019 to FY 2020 Increase/Decrease Statement:			
Decrease in funding \$1.770M from FY 2018 to FY 2019 - realigning planned FY 2019 requirements to FY 2020 and FY 2021 and prioritizing those requirements and associated funding: <ul style="list-style-type: none"> • Implement or update interfaces with the Service Investigative Agencies, Family Advocacy and Sexual Harassment Programs. • Add Service interface (e.g. Navy & USMC Resiliency Management system) to the Enhanced Reporting Capability Module. • Create additional Legal Officer (LO) Modules for Regional Judge Advocates, Academies, the National Guard Bureau (NGB), and the Coast Guard. 			
Accomplishments/Planned Programs Subtotals	3.570	1.800	2.984

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / <i>R&D in Support of DOD Enlistment, Testing and Evaluation</i>	Project (Number/Name) 7 / <i>DSAID</i>

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

Remarks

D. Acquisition Strategy
N/A

E. Performance Metrics

- In accordance with contract Plan of Action & Milestones.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation				Project (Number/Name) 8 / CAP			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
8: CAP	0.000	0.290	1.292	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Computer/Electronic Accommodations Program (CAP) Portal has been certified as a Defense Business System (DBS). This project will help CAP obtain and maintain an optimized and certified DBS that executes data collection, records management, and reporting accountability for all stakeholders. In order to enhance areas of program data-tracking capabilities and stabilize the environment for future operations, CAP requires modernization of CAP Portal. The CAP Portal has pages/controls that have accumulated up to 7,000 lines of code, making it difficult to ensure the reliability of any updates made to the system which has undergone over 500 change requests since its launch.

There are components and functionality that are no longer being utilized and others needed, but it is risky to remove or disable due to the interconnected nature of the codebase. The current codebase utilizes an outdated framework that is difficult to maintain. The CAP Modernization Project will implement a .NET Model View Controller (MVC) framework to separate the business, display and input layers of the code. As CAP's operating procedures evolve, CAP Portal's current structure will not match the changing business needs of its users. Towards that end, the issue of restructuring CAP Portal is necessary to ensure flexibility and reliability moving forward. As a result of an outdated framework, the current CAP Portal is becoming increasingly challenging to maintain and less reliable when making updates. The CAP Modernization Project will provide a restructured database for CAP Portal with an updated codebase to provide a solid foundation that supports CAP's current structure and business processes while also increasing flexibility for future enhancements and efficiencies. All aspects of CAP Portal will be enhanced by this project, which will provide a streamlined foundation on which to incorporate new internal processing workflow entitled ONE CAP. It will provide the ability to implement new processes that reflect the current organization, roles, responsibilities, tasks and specific workflow and assignments. The modernization of technology will ensure full integration of the new internal operating model.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: The Computer/Electronic Accommodations Program (CAP)	0.290	1.292	-
FY 2019 Plans: FY 2019 is a continuation of the efforts accomplished in FY 2018.			
FY 2019 to FY 2020 Increase/Decrease Statement: Project complete in FY 2019.			
Accomplishments/Planned Programs Subtotals	0.290	1.292	-

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / <i>R&D in Support of DOD Enlistment, Testing and Evaluation</i>	Project (Number/Name) 8 / CAP

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 9 / Office of People Analytics (OPA), Testing and Assessment
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
9: Office of People Analytics (OPA), Testing and Assessment	2.686	2.640	2.419	5.089	-	5.089	4.767	4.244	4.329	4.416	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The primary mission of OPA Testing and Assessment is to test and implement more accurate methods of assessing aptitudes required for military enlistment, success in training, and performance on the job. Also, it includes implementing methods that are useful in the identification of persons with the high aptitudes required by today's smaller and more technically demanding military.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Office of People Analytics (OPA), Testing and Assessment	2.640	2.419	5.089
FY 2019 Plans:			
<ul style="list-style-type: none"> • Improve the efficiency of the test development, calibration, and validation process • Continue research efforts on new measures/new content that could potentially be added to the Armed Services Vocational Aptitude Battery (ASVAB). 			
FY 2020 Plans:			
<ul style="list-style-type: none"> • Improve the efficiency of the test development, calibration, and validation process • Continue research efforts on new measures/new content that could potentially be added to the ASVAB • Build/Improve methods to conducted automated test item generation. 			
FY 2019 to FY 2020 Increase/Decrease Statement:			
Full funding for FY 2020 will allow development and implementation of new tests with higher predictive validity for predicting success in training to proceed. Reprioritized projects and realigned some planned FY 2019 requirements to FY 2020.			
Accomplishments/Planned Programs Subtotals	2.640	2.419	5.089

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / <i>R&D in Support of DOD Enlistment, Testing and Evaluation</i>	Project (Number/Name) 9 / <i>Office of People Analytics (OPA), Testing and Assessment</i>

E. Performance Metrics

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation				Project (Number/Name) 10 / Enterprise Human Resource Infor System(EHRIS)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
10: Enterprise Human Resource Infor System(EHRIS)	4.585	6.827	3.127	4.380	-	4.380	4.383	4.511	4.602	4.692	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The planned Civilian HR automation enhancements are focused on software development to rationalize and modernize legacy systems and standalone systems to support the Department’s civilian workforce, including a DoD-Wide performance management system; enhancement of employee competency assessment capability and talent management; modernization of the Priority Placement Program and Reemployment Priority List; and integration of succession planning. In addition, changes to the Defense Civilian Personnel Data System (DCPDS) are required for the Office of Personnel Management (OPM) mandates, HR Line of Business (LoB) directives, electronic Official Personnel Folder changes, and Retirement Systems Modernization implementation. DoD is one of five designated Shared Service Centers in the federal government focused on providing standard services across agency lines, potentially gaining significant business and cost-saving benefits. DoD is considered a leader in this initiative.

DCPDS is the Department’s enterprise civilian HR system that has proven a recurring \$200M annual cost-avoidance originally projected in the achievement of full operational capability in 2002 and which continues to operate as the DoD system serving over 900,000 employee records. Additional initiatives to sustain the Department’s lead in automated systems include expansion the Oracle eBusiness Suite (EBS) capability to provide self-service functionality, centralized payroll support, and data warehouse improvements. Compliance with a number of directives, such as Data Center Optimization Initiative (DCOI) and Financial Audit Readiness (FIAR), drive additional consolidation requirements.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Enterprise Human Resource Infor System (EHRIS)	6.827	3.127	4.380
FY 2019 Plans:			
Deploy Modernized Priority Placement Program and Reemployment Priority List Solution			
<ul style="list-style-type: none"> • Pilot USA Performance for Executive Performance Management • Explore Succession Planning • Develop cloud based solution for the migration of Civilian HR tools from the current DCPDS. • Develop replacement solutions for required capability currently existing in DCPDS that have been determined to be out of scope for initial IT • Reform Initiative to move to Software as a Service (SaaS) • Complete HRIT enterprise system hosting transition to DISA • Begin strategy for integration of time and attendance & payroll processing 			
FY 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019		
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 10 / Enterprise Human Resource Infor System(EHRIS)		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> • Continue exploring ways of transforming portfolio from on premise IT support to SaaS • Configure SaaS to replace attendance support • Configure SaaS to replace/enhance Competency Management and Talent Management • Explore Benefits Management capability in SaaS offering <p>FY 2019 to FY 2020 Increase/Decrease Statement: This increase supports the work required to re-develop and migrate the validated HR capability currently provided in DCPDS to a new solution.</p>				
Accomplishments/Planned Programs Subtotals		6.827	3.127	4.380
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-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation				Project (Number/Name) 11 / Personnel Accountability (PA)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
11: Personnel Accountability (PA)	1.774	5.000	3.330	2.174	-	2.174	2.174	2.237	2.282	2.327	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The PA program is comprised of three sub-programs: Synchronized Pre-deployment and Operational Tracker (SPOT), Joint Personnel Accountability Reconciliation and Reporting (JPARR), and the Noncombatant Evacuation Operations (NEO) Tracking System (NTS). This family of systems represents end-to-end tracking, reconciliation and reporting of DoD personnel location and movements, to include military, DoD affiliated civilians, contractors, and U.S. citizens. This includes DoD contracts, and contractor personnel tracking in support of contingencies, military readiness, reporting of locations at the unit and person level, accountability of DoD personnel during (and after) natural or man-made disasters, and accountability and visibility of noncombatant evacuees. SPOT is the DoD system of record for accountability and visibility of contracts and contractor personnel authorized to operate in a contingency operation. JPARR is a "public" SIPR only application that provides daily person-level location reporting. JPARR receives feeds for Service and Agency deployment systems, reconciles the data, and provides various reports at unit level detail. NTS is a certified and accredited DoD automated system that accounts for, and sustains visibility of noncombatant evacuees during a NEO.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Personnel Accountability (PA)	5.000	3.330	2.174
FY 2019 Plans: Enhancements will reduce the physical footprint of systems such as NEO and SPOT-ES (Joint Asset Movement Management System). In coordination with PACOM, DMDC will be creating the ability to pre-populate a NEO with the affected population to ensure faster more accurate accountability. Personnel Accountability will be looking at an effort to analyze and develop a plan to migrate SPOT-ES from the .NET framework to the Java technology stack standard supported by DMDC which will allow development and operations to live on DMDC shared application infrastructure.			
Personnel Accountability will also work towards several new modernization efforts to include development and implementation of distributed processing, business intelligence and geographic information system (GIS) tools to support the Contingency Tracking System (CTS) and Joint Personnel Accountability Reconciliation and Reporting (JPARR) systems. Additionally we will research and create an integration plan for the possible use of Blue Force Tracking data and Radio-frequency identification (RFID) scanning technologies for evacuation and personnel accounting operations.			
FY 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity	Date: March 2019
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Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 11 / Personnel Accountability (PA)
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Enhancements will include modernization and integration of the products in the PA program. Enhancements will also allow for development of new features within the SPOT, JAMMS and NTS systems to include additional online capabilities. Funding will also be used for the transformation of travel capabilities using a commercial travel solution.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Decrease is attributable to the completion of FY 2019 New Travel System and DTS Modernization Pilot funding.			
Accomplishments/Planned Programs Subtotals	5.000	3.330	2.174

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-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation				Project (Number/Name) 12 / Personnel Security Assurance (PSA)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
12: Personnel Security Assurance (PSA)	4.253	3.000	4.116	4.594	-	4.594	4.594	4.728	4.823	4.920	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Personnel Security Assurance (PSA) provides comprehensive capabilities to perform processing and verification of security clearances for all DoD military personnel, civilians and contractors including the technology and processes that need to be addressed in order to implement Continuous Evaluation. Funds within this program will support the Defense Information System for Security (DISS). The DISS mission is to consolidate the DoD personnel security mission into an enterprise adjudicative case management system that will automate the implementation of improved national investigative and adjudicative standards to eliminate costly and inefficient work processes and increase information collaboration across the community.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Personnel Security Assurance	3.000	4.116	4.594
FY 2019 Plans: FY 2019 RDT&E will be used for DISS development to meet National Security, Suitability and Credentialing reform initiatives.			
FY 2020 Plans: FY 2020 funding will be used to complete development of the DISS solution and finalize integration with Joint Verification System and National Background Investigation System interfaces.			
FY 2019 to FY 2020 Increase/Decrease Statement: DISS development continues in FY 2020. Increase can be attributed to a combination of price growth and normal schedule fluctuations associated with modernization.			
Accomplishments/Planned Programs Subtotals	3.000	4.116	4.594

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / <i>R&D in Support of DOD Enlistment, Testing and Evaluation</i>	Project (Number/Name) 12 / <i>Personnel Security Assurance (PSA)</i>

E. Performance Metrics

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 13 / Federal Voting Assistance Program
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
13: <i>Federal Voting Assistance Program</i>	0.000	0.800	0.793	0.793	-	0.793	0.793	0.800	0.800	0.816	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

FVAP administers many of the federal responsibilities of the Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA) of 1986 and other federal military voter registration and assistance laws. FVAP works to ensure Service members, their eligible family members and overseas citizens are aware of their right to vote and have the tools and resources to successfully do so – from anywhere in the world. FVAP works to increase the likelihood of interested Active Duty Members to use available FVAP resources to increase their level of awareness of available DoD voting assistance resources, which will increase the likelihood of returning their absentee ballot. FVAP conducts voting research projects with States, local election jurisdictions and private entities to assist UOCAVA voters to register to vote and submit their absentee ballot and improve federal, State and local election processes and procedures.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Federal Voting Assistance Program	0.800	0.793	0.793
Description: : The Federal Voting Assistance Program (FVAP) requires a research and analysis policy clearinghouse program that continues to research and present the value of key policy and technology topics that connects to the successful return of absentee balloting materials from military and overseas citizen voters pursuant to the Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA).			
FY 2019 Plans: FVAP efforts in FY 2019 are a continuation of the cooperative agreement from FY 2018.			
FY 2020 Plans: The program mission efforts continue from FY 2019.			
FY 2019 to FY 2020 Increase/Decrease Statement: No program changes between FY 2019 and FY 2020.			
Accomplishments/Planned Programs Subtotals	0.800	0.793	0.793

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / <i>R&D in Support of DOD Enlistment, Testing and Evaluation</i>	Project (Number/Name) 13 / <i>Federal Voting Assistance Program</i>

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. The project will yield actionable findings on how to best assist UOCAVA voters while reducing the overall reporting burden for these States to provide data on the number of absentee ballots transmitted to and received from military and overseas citizens after each federal election. Process mappings about how the Federal Post Card Application and the Federal Write-in Absentee Ballot, are treated by States for uniformed overseas and civilian overseas citizens and the impact of their residency classifications will identify the extent of uniformed and civilian overseas citizens who vote. The acceptance of electronic signatures derived from the Common Access Card within the Department provides significant potential for ensuring the absentee balloting process is seamless for active duty military members by permitting the use of an electronic signing and submission of an absentee ballot application in those States that permit an electronic submission. This will measure the extent to which States have proceeded with the consideration and adoption of authorizing statutes or administrative rules to permit the use of electronic signatures in a limited fashion and for a limited population of uniformed overseas voters.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605803SE / R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 14 / Defense Travel System-Modernization (PILOT)
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
14: Defense Travel System-Modernization (PILOT)	0.000	0.000	3.181	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 DoD Travel System Pilot Program (DTSPP), is part of the DTS-M effort, to determine the viability of using commercial-off-the-shelf software as a service (CSaaS) to conduct DoD travel.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Defense Travel System-Modernization	0.000	3.181	0.000
FY 2019 Plans: DTS supports \$3.0 Billion in annual travel across the DoD. DTSP will investigate the use of CSaaS to conduct DoD Travel under the Federal and Joint Travel Regulations.			
FY 2020 Plans: The Defense Travel System-Modernization project will reside within the Personnel Accountability (PA) program.			
FY 2019 to FY 2020 Increase/Decrease Statement: The Defense Travel System-Modernization project will reside within the Personnel Accountability (PA) program.			
Accomplishments/Planned Programs Subtotals	0.000	3.181	0.000

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 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0808709SE / <i>Defense Equal Opportunity Management Institute (DEOMI)</i>
--	--

COST (\$ in Millions)	Prior Years ⁽⁺⁾	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	0.100	-	0.100	0.100	0.100	0.100	0.100	Continuing	Continuing
15: <i>Defense Equal Opportunity Management Institute (DEOMI)</i>	-	0.000	0.000	0.100	-	0.100	0.100	0.100	0.100	0.100	Continuing	Continuing

⁽⁺⁾ 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

Executive Orders 13111 and 13218 mandate all federal agencies to take full advantage of technological advances to educate and train the workforce, to ensure employees acquire the skills and learning needed to succeed in a changing workplace, and to report on the training technologies used. Thus, DEOMI's mission is to develop and deliver world-class human relations education, training, research and innovative solutions to enhance total force readiness. This is accomplished through testing, evaluation, and transition of new technologies to enhance human relations performance. Development and dissemination of research, training resources, and other human relations job-aids and information materials for commanders, service members, and civilians, enhancing their human relations acumen and leadership.

The emerging spectrum of human relations requirements DEOMI was tasked to address are expanding and RDT&E funds are critical to supporting the DoD strategy for the Prevention of Sexual Harassment and to support the Department's strategy for Diversity and Inclusion. Fundamental research and development is also needed to support policy, training, and programs related to the prevention of hazing, bullying, and all forms of harassment. Adequate RDT&E will allow DEOMI to be a force multiplier for the DoD.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	0.000	0.000	0.100	-	0.100
Current President's Budget	0.000	0.000	0.100	-	0.100
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	0.000	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 15: *Defense Equal Opportunity Management Institute (DEOMI)*

FY 2018	FY 2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6:</i> <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0808709SE / <i>Defense Equal Opportunity Management Institute (DEOMI)</i>
--	--

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Congressional Add: *None*

Congressional Add Subtotals for Project: 15

Congressional Add Totals for all Projects

FY 2018	FY 2019
0.000	0.000
0.000	0.000
0.000	0.000

Change Summary Explanation

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0808709SE / Defense Equal Opportunity Management Institute (DEOMI)	Project (Number/Name) 15 / Defense Equal Opportunity Management Institute (DEOMI)
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
15: Defense Equal Opportunity Management Institute (DEOMI)	-	0.000	0.000	0.100	-	0.100	0.100	0.100	0.100	0.100	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Transfer from the U.S. Air Force

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Defense Equal Opportunity Management Institute (DEOMI)	0.000	0.000	0.100
Description: DEOMI's mission is to develop and deliver world-class human relations education, training, research and innovative solutions to enhance total force readiness.			
FY 2019 Plans: N/A			
FY 2020 Plans: Current ongoing projects include: Office of Naval Research Summer Faculty Research Program and the DEOMI High Fidelity Virtual Puppeteering Simulation Facilitator/EOA Training Platform.			
FY 2019 to FY 2020 Increase/Decrease Statement: Transfer in from the U.S. Air Force to DHRA.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.100

	FY 2018	FY 2019
Congressional Add: None	0.000	0.000
FY 2018 Accomplishments: N/A		
FY 2019 Plans: N/A		
Congressional Adds Subtotals	0.000	0.000

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 DoD Human Resources Activity		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0808709SE / <i>Defense Equal Opportunity Management Institute (DEOMI)</i>	Project (Number/Name) 15 / <i>Defense Equal Opportunity Management Institute (DEOMI)</i>
C. Other Program Funding Summary (\$ in Millions)		
Remarks DEOMI transferred to DHRA in FY 2020 from the U.S. Air Force.		
D. Acquisition Strategy N/A		
E. Performance Metrics N/A		

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



Defense Information Systems Agency

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Research, Development, Test & Evaluation, Defense-Wide

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Defense Information Systems Agency • Budget Estimates FY 2020 • RDT&E Program

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Research, Development, Test & Eval, DW	272,639	282,171		282,171
Total Research, Development, Test & Evaluation	272,639	282,171		282,171

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation -----	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
-----	-----	-----	-----	-----	-----
Research, Development, Test & Eval, DW	542,928				542,928
Total Research, Development, Test & Evaluation	542,928				542,928

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted

System Development And Demonstration	2,500	2,512		2,512
Management Support	27,807	26,467		26,467
Operational System Development	242,332	253,192		253,192
Total Research, Development, Test & Evaluation	272,639	282,171		282,171
Summary Recap of FYDP Programs				

General Purpose Forces	58,235	62,814		62,814
Intelligence and Communications	202,369	212,213		212,213
Research and Development	6,500			
Central Supply and Maintenance		1,317		1,317
Administration and Associated Activities	4,961	5,104		5,104
Space	574	723		723
Total Research, Development, Test & Evaluation	272,639	282,171		282,171

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
System Development And Demonstration	1,578				1,578
Management Support	61,757				61,757
Operational System Development	479,593				479,593
Total Research, Development, Test & Evaluation	542,928				542,928
Summary Recap of FYDP Programs -----					
General Purpose Forces	64,122				64,122
Intelligence and Communications	259,363				259,363
Research and Development	208,834				208,834
Central Supply and Maintenance	1,361				1,361
Administration and Associated Activities	3,090				3,090
Space	6,158				6,158
Total Research, Development, Test & Evaluation	542,928				542,928

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
System Development And Demonstration	2,500	2,512		2,512
Management Support	27,807	26,467		26,467
Operational System Development	242,332	253,192		253,192
Total Research, Development, Test & Evaluation	272,639	282,171		282,171
Summary Recap of FYDP Programs -----				
General Purpose Forces	58,235	62,814		62,814
Intelligence and Communications	202,369	212,213		212,213
Research and Development	6,500			
Central Supply and Maintenance		1,317		1,317
Administration and Associated Activities	4,961	5,104		5,104
Space	574	723		723
Total Research, Development, Test & Evaluation	272,639	282,171		282,171

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities -----	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
System Development And Demonstration	1,578				1,578
Management Support	61,757				61,757
Operational System Development	479,593				479,593
Total Research, Development, Test & Evaluation	542,928				542,928
 Summary Recap of FYDP Programs -----					
General Purpose Forces	64,122				64,122
Intelligence and Communications	259,363				259,363
Research and Development	208,834				208,834
Central Supply and Maintenance	1,361				1,361
Administration and Associated Activities	3,090				3,090
Space	6,158				6,158
Total Research, Development, Test & Evaluation	542,928				542,928

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Defense Information Systems Agency	272,639	282,171		282,171
Total Research, Development, Test & Evaluation	272,639	282,171		282,171

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Defense Information Systems Agency	542,928				542,928
Total Research, Development, Test & Evaluation	542,928				542,928

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se c
139	0303141K	Global Combat Support System	05	2,500	2,512		2,512	U
		System Development And Demonstration		2,500	2,512		2,512	
163	0605502K	Small Business Innovative Research	06	6,500				U
185	0305172K	Combined Advanced Applications	06	16,998	21,363		21,363	U
194	0903235K	Joint Service Provider (JSP)	06	4,309	5,104		5,104	U
		Management Support		27,807	26,467		26,467	
196	0604532K	Joint Artificial Intelligence	07					U
204	0208045K	C4I Interoperability	07	58,235	62,814		62,814	U
206	0301144K	Joint/Allied Coalition Information Sharing	07	5,801				U
209	0302016K	National Military Command System-Wide Support	07	1,863				U
210	0302019K	Defense Info Infrastructure Engineering and Integration	07	20,059	16,121		16,121	U
211	0303126K	Long-Haul Communications - DCS	07	23,090	14,353		14,353	U
212	0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	15,855	17,579		17,579	U
217	0303140K	Information Systems Security Program	07		19,611		19,611	U
218	0303150K	Global Command and Control System	07	41,126	46,900		46,900	U
219	0303153K	Defense Spectrum Organization	07	8,377	7,457		7,457	U
220	0303228K	Joint Regional Security Stacks (JRSS)	07	4,550	7,947		7,947	U
221	0303267K	Auctioned Spectrum Relocation Fund	07	15,804				U

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
139	0303141K	Global Combat Support System	05	1,578				1,578	U
		System Development And Demonstration		1,578				1,578	
163	0605502K	Small Business Innovative Research	06						U
185	0305172K	Combined Advanced Applications	06	58,667				58,667	U
194	0903235K	Joint Service Provider (JSP)	06	3,090				3,090	U
		Management Support		61,757				61,757	
196	0604532K	Joint Artificial Intelligence	07	208,834				208,834	U
204	0208045K	C4I Interoperability	07	64,122				64,122	U
206	0301144K	Joint/Allied Coalition Information Sharing	07						U
209	0302016K	National Military Command System-Wide Support	07						U
210	0302019K	Defense Info Infrastructure Engineering and Integration	07	15,798				15,798	U
211	0303126K	Long-Haul Communications - DCS	07	11,166				11,166	U
212	0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	17,383				17,383	U
217	0303140K	Information Systems Security Program	07	42,796				42,796	U
218	0303150K	Global Command and Control System	07	25,218				25,218	U
219	0303153K	Defense Spectrum Organization	07	21,698				21,698	U
220	0303228K	Joint Regional Security Stacks (JRSS)	07	18,077				18,077	U
221	0303267K	Auctioned Spectrum Relocation Fund	07						U

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Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
222	0303430K	Federal Investigative Services Information Technology	07	41,743	55,400		55,400	U
225	0305103K	Cyber Security Initiative	07	1,644				U
238	0305208K	Distributed Common Ground/Surface Systems	07	2,959	2,970		2,970	U
250	0708012K	Logistics Support Activities	07		1,317		1,317	U
253	0903235K	Joint Service Provider (JSP)	07	652				U
266	1203610K	Teleport Program	07	574	723		723	U
		Operational System Development		242,332	253,192		253,192	
Total Research, Development, Test & Eval, DW				272,639	282,171		282,171	

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222	0303430K	Federal Investigative Services Information Technology	07	44,001				44,001	U
225	0305103K	Cyber Security Initiative	07						U
238	0305208K	Distributed Common Ground/Surface Systems	07	2,981				2,981	U
250	0708012K	Logistics Support Activities	07	1,361				1,361	U
253	0903235K	Joint Service Provider (JSP)	07						U
266	1203610K	Teleport Program	07	6,158				6,158	U
		Operational System Development		479,593				479,593	
Total Research, Development, Test & Eval, DW				542,928				542,928	

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Defense Information Systems Agency
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210 0302019K	Defense Info Infrastructure Engineering and Integration	07	20,059	16,121		16,121	U
211 0303126K	Long-Haul Communications - DCS	07	23,090	14,353		14,353	U
212 0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	15,855	17,579		17,579	U
217 0303140K	Information Systems Security Program	07		19,611		19,611	U
218 0303150K	Global Command and Control System	07	41,126	46,900		46,900	U
219 0303153K	Defense Spectrum Organization	07	8,377	7,457		7,457	U
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220	0303228K	Joint Regional Security Stacks (JRSS)	07	18,077				18,077	U
221	0303267K	Auctioned Spectrum Relocation Fund	07						U

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250	0708012K	Logistics Support Activities	07		1,317		1,317	U
253	0903235K	Joint Service Provider (JSP)	07	652				U
266	1203610K	Teleport Program	07	574	723		723	U
		Operational System Development		242,332	253,192		253,192	
Total Defense Information Systems Agency				272,639	282,171		282,171	

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Defense Information Systems Agency
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225	0305103K	Cyber Security Initiative	07						U
238	0305208K	Distributed Common Ground/Surface Systems	07	2,981				2,981	U
250	0708012K	Logistics Support Activities	07	1,361				1,361	U
253	0903235K	Joint Service Provider (JSP)	07						U
266	1203610K	Teleport Program	07	6,158				6,158	U
		Operational System Development		479,593				479,593	
Total Defense Information Systems Agency				542,928				542,928	

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Line #	Budget Activity	Program Element Number	Program Element Title	Page
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185	06	0305172K	Combined Advanced Applications.....	Volume 5 - 167
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Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

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206	07	0301144K	Joint/Allied Coalition Information Sharing.....	Volume 5 - 205
209	07	0302016K	National Military Command System-Wide Support.....	Volume 5 - 215
210	07	0302019K	Defense Info. Infrastructure Engineering and Integration.....	Volume 5 - 223
211	07	0303126K	Long-Haul Communications - DCS.....	Volume 5 - 243
212	07	0303131K	Minimum Essential Emergency Communications Network (MEECN).....	Volume 5 - 265
217	07	0303140K	Information Systems Security Program.....	Volume 5 - 277
218	07	0303150K	Global Command and Control System.....	Volume 5 - 289
219	07	0303153K	Defense Spectrum Organization.....	Volume 5 - 303
220	07	0303228K	Joint Information Environment.....	Volume 5 - 313
221	07	0303267K	Auctioned Spectrum Relocation Fund.....	Volume 5 - 321
222	07	0303430K	Federal Investigative Services Information Technology.....	Volume 5 - 327
225	07	0305103K	Cybersecurity Initiative.....	Volume 5 - 335
238	07	0305208K	Distributed Common Ground/Surface Systems.....	Volume 5 - 341
250	07	0708012K	Logistics Support Activities.....	Volume 5 - 349
253	07	0903235K	Joint Service Provider.....	Volume 5 - 355
266	07	1203610K	Teleport Program.....	Volume 5 - 361

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C4I Interoperability	0208045K	204	07.....	Volume 5 - 185
Combined Advanced Applications	0305172K	185	06.....	Volume 5 - 167
Cybersecurity Initiative	0305103K	225	07.....	Volume 5 - 335
Defense Info. Infrastructure Engineering and Integration	0302019K	210	07.....	Volume 5 - 223
Defense Spectrum Organization	0303153K	219	07.....	Volume 5 - 303
Distributed Common Ground/Surface Systems	0305208K	238	07.....	Volume 5 - 341
Federal Investigative Services Information Technology	0303430K	222	07.....	Volume 5 - 327
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Global Command and Control System	0303150K	218	07.....	Volume 5 - 289
Information Systems Security Program	0303140K	217	07.....	Volume 5 - 277
Joint Artificial Intelligence Center (JAIC)	0604532K	196	07.....	Volume 5 - 177
Joint Information Environment	0303228K	220	07.....	Volume 5 - 313
Joint Service Provider	0903235K	194	06.....	Volume 5 - 171
Joint Service Provider	0903235K	253	07.....	Volume 5 - 355
Joint/Allied Coalition Information Sharing	0301144K	206	07.....	Volume 5 - 205
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Long-Haul Communications - DCS	0303126K	211	07.....	Volume 5 - 243
Minimum Essential Emergency Communications Network (MEECN)	0303131K	212	07.....	Volume 5 - 265
National Military Command System-Wide Support	0302016K	209	07.....	Volume 5 - 215
Small Business Innovative Research	0605502K	163	06.....	Volume 5 - 165
Teleport Program	1203610K	266	07.....	Volume 5 - 361

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0303141K / <i>Global Combat Support System</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	266.185	2.500	2.512	1.578	-	1.578	1.708	2.135	2.211	2.253	Continuing	Continuing
CS01: <i>Global Combat Support System</i>	266.185	2.500	2.512	1.578	-	1.578	1.708	2.135	2.211	2.253	Continuing	Continuing

Program MDAP/MAIS Code: 483

A. Mission Description and Budget Item Justification

Global Combat Support System - Joint (GCSS-J), is a key enabler for achieving Focused Logistics and is essential during peace, contingency, crisis, and war in support of the joint warfighter across the full range of military operations. GCSS-J, the Logistics System of Record, provides a Joint Logistics Common Operational Picture to ensure the right personnel, equipment, supplies, and support are in the right place at the right time and in the right quantities to mobilize, move, and sustain all elements of operating forces within a theater or operational area.

GCSS-J gathers data from authoritative sources to provide a fused, integrated, near real-time, multidimensional view of combat support and combat service support across joint capability areas. These efforts provide situational awareness of the battlespace and logistics pipeline (e.g., supply, deployment and distribution, engineering, etc.). Using GCSS-J, the joint logistics warfighter no longer needs to log into multiple legacy systems and manually gather data to compile reports. GCSS-J provides real time actionable information in the form of watchboards (e.g., fuels and munitions watchboards) and near real time information in the form of reports and mapping visualizations.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	2.576	2.512	1.578	-	1.578
Current President's Budget	2.500	2.512	1.578	-	1.578
Total Adjustments	-0.076	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.076	-			

Change Summary Explanation

The decrease of -\$0.076 in FY 2018 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0303141K / <i>Global Combat Support System</i>				Project (Number/Name) CS01 / <i>Global Combat Support System</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
CS01: <i>Global Combat Support System</i>	266.185	2.500	2.512	1.578	-	1.578	1.708	2.135	2.211	2.253	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Global Combat Support System – Joint (GCSS-J) provides the warfighter with a single, end-to-end capability to manage and monitor personnel and equipment through the mobilization process. GCSS-J, the Logistics' System of Record, provides a Joint Logistics Common Operational Picture (JLogCOP), ensuring the right personnel, equipment, supplies, and support are in the right place, at the right time, and in the right quantities across the full spectrum of military operations.

GCSS-J gathers data from authoritative sources to provide fused, integrated, near real-time multidimensional view of combat support and combat service support across joint capability areas. These efforts provide situational awareness of the battlespace and logistics pipeline (e.g., Supply, Deployment and Distribution, Engineering, etc.). Using GCSS-J, the joint logistics warfighter no longer needs to log into multiple legacy systems and manually gather data to compile reports. GCSS-J provides real-time in the form of reports and mapping visualizations.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Global Combat Support System-Joint	2.500	2.512	1.578
Description: GCSS-J is a key enabler for achieving Focused Logistics and is essential during peace, contingency, crisis, and war in support of the joint warfighter across the full range of military operations. GCSS-J, the Logistics System of Record, provides a Joint Logistics Common Operational Picture (LogCOP) to ensure the right personnel, equipment, supplies, and support are in the right place at the right time and in the right quantities to mobilize, move, and sustain all elements of operating forces within a theater or operational area.			
FY 2019 Plans: The GCSS-J PMO will continue to meet the JS J-4 approved and prioritized functional requirements to support the joint logistics community providing a fused, integrated, near real-time view of combat support and combat service support throughout the battlespace and the logistics pipeline through interoperability and connectivity of information system.			
FY 2020 Plans: The GCSS-J PMO will continue to meet the JS J-4 approved and prioritized functional requirements to support the joint logistics community providing a fused, integrated, near real-time view of combat support and combat service support throughout the battlespace and the logistics pipeline through interoperability and connectivity of information system.			
FY 2019 to FY 2020 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0303141K / <i>Global Combat Support System</i>	Project (Number/Name) CS01 / <i>Global Combat Support System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
The decrease of -\$0.934 from FY 2019 to FY 2020 is attributed to a reduction in the number of software changes required when adding or updating capabilities through adapting metadata.			
Accomplishments/Planned Programs Subtotals	2.500	2.512	1.578

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• O&M, DW/PE 0303141K: O&M, DW	13.565	15.174	14.717	-	14.717	15.008	15.305	15.566	15.787	Continuing	Continuing

Remarks

D. Acquisition Strategy

The GCSS-J Program Management Office (PMO) uses various contract types, employs large and small businesses, and is focused on achieving agency socio-economic goals and incorporating DoD acquisition reform initiatives in purchasing. The PMO maximizes the use of performance-based contracts and requires contractors to establish and manage specific earned value data to mitigate risk and monitor deviations from cost, schedule, and performance objectives. The PMO evaluates performance by conducting thorough Post-award Contract Reviews, monthly Contract Performance Reviews, and bi-monthly In-Process Reviews.

The PMO uses a Statement of Objectives (SOO) for development efforts rather than the traditional Statement of Work, as it provides potential offerors flexibility to develop cost-effective solutions and the opportunity to propose innovative alternatives to meet GCSS-J requirements. By stating the requirements in a SOO, the contractor can produce a technical solution methodology to deliver leading edge technology to the warfighter.

E. Performance Metrics

GCSS-J fields capabilities based on functional priorities of the Combatant Command 129 Requirements Document as approved and prioritized by the functional sponsor, Joint Staff J4. These requirements and goals are translated into releases with specific capabilities, which have established cost, schedule, and performance parameters approved by the DISA's Component Acquisition Executive/Milestone Decision Authority.

Metrics and requirements are routinely gathered by the GCSS-J PMO. The metrics from the strategic server sites are analyzed by the PMO to ensure that operational mission threads continue to be met and if system enhancement/capabilities are benefiting the user. Future capabilities include tools that allow GCSS-J to refine and enhance the type of performance metrics that can be gathered and analyzed. These tools become increasingly important as GCSS-J continues to integrate additional data sources and external applications, which allows GCSS-J to continue to transition to a Service Oriented Architecture and directly supports DoD's net-centric vision of exposing and consuming web services. As GCSS-J usage increases and new capabilities are fielded, performance metrics will ensure that the system is meeting user requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0303141K / <i>Global Combat Support System</i>	Project (Number/Name) CS01 / <i>Global Combat Support System</i>
<p>1. Mission and Business Results and Strategic National and Theater Defense</p> <p>FY 2018 (Actual) The Key Performance Parameters (KPPs) found in the GCSS-J Acquisition Program Baseline, define baseline measures for the effectiveness of mission performance; the threshold is 95%. Results: Data collected during FY18 demonstrates that GCSS-J v8.2 has met its target of 95% .</p> <p>FY 2019 (Estimate) The KPPs found in the GCSS-J Acquisition Program Baseline, define baseline measures for the effectiveness of mission performance; the threshold is 95%. Data will be gathered from the First Look Site during development and from surveys once the capability is deployed. FY19 Target: 95%</p> <p>FY 2020 Target: The KPPs found in the GCSS-J Acquisition Program Baseline, define baseline measures for the effectiveness of mission performance; the threshold is 95%. Data will be gathered from the First Look Site during development and from surveys once the capability is deployed. FY20 Target: 95%</p> <p>2. Customer Results and Customer Satisfaction</p> <p>2018 (Actual) Help Desk Key Performance Indicators (KPIs) define the baseline measure to evaluate customer satisfaction and provide a service desk assessment; KPI threshold is 80%. Results: GCSS-J exceeded the 80% threshold for the helpdesk KPIs by demonstrating 95% in Completeness and Accuracy, 81% in Escalation, 81% in Incident Report Updating/ Follow-Up and 88% in First Call Resolution</p> <p>FY 2019 (Estimate) Help Desk KPIs define the baseline measure to evaluate customer satisfaction and provide a service desk assessment; KPI threshold is 80%. Data will be gathered from the strategic server site, DISA Enterprise Computing Center (DECC)-Montgomery, and from user surveys. FY19 Target: 80%</p> <p>FY 2020 Target: Help Desk KPIs define the baseline measure to evaluate customer satisfaction and provide a service desk assessment; KPI threshold is 80%. Data will be gathered from the strategic server site, DECC-Montgomery, and from user surveys. FY20 Target: 80%</p> <p>3. Processes and Activities and Program Monitoring</p> <p>FY 2018 (Actual) Baseline Measure – Deployed Increment 8, v8.2.0.1, v8.2.0.2 and v8.2.0.3 in 2nd Quarter 2018.</p> <p>FY 2019 (Estimate) Baseline Measure – To deploy Increment 8, v8.4 in 2nd Quarter 2019.</p> <p>FY 2020 Target: Baseline Measure – To deploy Increment 9, v9.0 in 2nd Quarter 2020.</p> <p>4. Technology and System Development</p> <p>FY 2018 (Actual) Baseline Measure is the ability to provide current and accurate information from the Authorized Data Source (ADS) at a 95% effectiveness level. System Administrators at the Defense Enterprise Computing Centers will gather data from system logs to validate effectiveness. FY18 Target: 95%</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0303141K / <i>Global Combat Support System</i>	Project (Number/Name) CS01 / <i>Global Combat Support System</i>

FY 2019 (Estimate) Baseline Measure is the ability to provide current and accurate information from the ADS at a 95% effectiveness level. System Administrators at the Defense Enterprise Computing Centers will gather data from system logs to validate effectiveness. FY19 Target: 95%

FY 2020 Target: Baseline Measure is the ability to provide current and accurate information from the ADS at a 95% effectiveness level. System Administrators at the Defense Enterprise Computing Centers will gather data from system logs to validate effectiveness. FY20 Target: 95%

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency											Date: March 2019				
Appropriation/Budget Activity 0400 / 5						R-1 Program Element (Number/Name) PE 0303141K / <i>Global Combat Support System</i>					Project (Number/Name) CS01 / <i>Global Combat Support System</i>				

Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development 1	C/T&M	Enterworks : Sterling, VA	8.745	-		-		-		-		-	0.000	8.745	8.745
Product Development 2	C/T&M	WFI (DSI) : Manassas, VA	4.125	-		-		-		-		-	0.000	4.125	4.125
Product Development 3	C/CPAF	NGIT : Herndon, VA	127.849	-		-		-		-		-	0.000	127.849	127.849
Product Development 4	C/T&M	SAIC : Falls Church, VA	17.061	-		-		-		-		-	0.000	17.061	17.061
Product Development 5	C/FFP	NGIT, : Reston, VA	27.051	-		-		-		-		-	0.000	27.051	27.051
Product Development 6	SS/FFP	UNISYS, : Falls Church, VA	16.472	-		-		-		-		-	0.000	16.472	16.472
Product Development 7	MIPR	FGM, : Reston, VA	5.482	-		-		-		-		-	0.000	5.482	5.482
Product Development 8	SS/FFP	Merlin, : McLean, VA	1.664	-		-		-		-		-	0.000	1.664	1.664
Product Development 9	MIPR	JDTC, : Ft. Eustis, VA	2.423	-		-		-		-		-	0.000	2.423	2.423
Product Development 10	MIPR	CSC, : Norfolk, VA	0.300	-		-		-		-		-	0.000	0.300	0.300
Product Development 11	C/FFP	Pragmatics : Reston, VA	13.300	1.470	May 2018	1.774	May 2019	0.722	May 2020	0.000		0.722	Continuing	Continuing	Continuing
Subtotal			224.472	1.470		1.774		0.722		0.000		0.722	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation 1	C/CPFF	COMTEK, : Sterling, VA	3.902	-		-		-		-		-	0.000	3.902	3.902
Test & Evaluation 2	MIPR	SSO, : Montgomery	0.500	-		-		-		-		-	0.000	0.500	0.500
Test & Evaluation 3	MIPR	DIA : WDC	3.785	-		-		-		-		-	0.000	3.785	3.785
Test & Evaluation 4	C/CPFF	Pragmatics : Pragmatics	1.684	-		-		-		-		-	0.000	1.684	1.684
Test & Evaluation 5	C/CPFF	AAC, Inc., : Vienna, VA	2.790	-		-		-		-		-	0.000	2.790	2.790

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0303141K / <i>Global Combat Support System</i>	Project (Number/Name) CS01 / <i>Global Combat Support System</i>
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation 6	MIPR	JITC, : Ft. Huachuca, AZ	7.632	0.600	Oct 2017	0.486	Oct 2018	0.616	Oct 2019	-		0.616	Continuing	Continuing	Continuing
Test & Evaluation 7	MIPR	STRATCOM (DAA) : Bolling AFB, DC	0.962	0.170	Oct 2017	0.157	Oct 2018	0.170	Oct 2019	-		0.170	Continuing	Continuing	Continuing
Test & Evaluation 8	MIPR	DISA (TE LAB Support) : Fort Meade, MD	1.464	0.100	Oct 2017	0.095	Oct 2018	0.070	Oct 2019	-		0.070	Continuing	Continuing	Continuing
Test & Evaluation 9	MIPR	DISA FSO Security Testing Support : Fort Meade, MD	0.190	0.160	Oct 2017	-		-		-		-	0.000	0.350	0.350
Subtotal			22.909	1.030		0.738		0.856		-		0.856	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management Services 1	FFRDC	MITRE, : Vienna, VA	16.934	-		-		-		-		-	0.000	16.934	16.934
Management Services 2	SS/CPFF	UMD, : Eastern Shore, MD	1.021	-		-		-		-		-	0.000	1.021	1.021
Management Services 3	MIPR	IDA, : Alexandria, VA	0.749	-		-		-		-		-	0.000	0.749	0.749
Management Services 4	MIPR	JFCOM, : Norfolk, Va	0.100	-		-		-		-		-	0.000	0.100	0.100
Subtotal			18.804	-		-		-		-		-	0.000	18.804	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		266.185	2.500	2.512	1.578	0.000	1.578	Continuing	Continuing	N/A

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0303141K / <i>Global Combat Support System</i>	Project (Number/Name) CS01 / <i>Global Combat Support System</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
System Development & Testing - Increment 8	2	2017	4	2019
Full Deployment Decision - Increment 8	4	2019	4	2019
Acquisition Events - Milestone B/C: Increment 9 - MS B	1	2020	1	2020
Acquisition Events - Milestone B/C: Increment 9 - MS C	3	2020	3	2020
System Development & Testing - Increment 9	4	2020	4	2023
System Development & Testing - Increment 10	4	2020	2	2023
Full Deployment Decision - Increment 9	1	2021	1	2023
Full Deployment Decision - Increment 10	1	2022	1	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6:</i> <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605502K / <i>Small Business Innovative Research</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	6.500	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
SBR: <i>Small Business Innovative Research</i>	0.000	6.500	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

In accordance with Public Law No: 112-81 (National Defense Authorization Act) and Small Business Technology Transfer Program Reauthorization Act, the DISA Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are designed to provide small, high-tech businesses and academic institutions the opportunity to propose radical, innovative, high-risk approaches to address existing and emerging national security threats; thereby supporting DISA's overall strategy to enable fundamental discoveries and technological breakthroughs that provide new military capabilities.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	6.500	0.000	0.000	-	0.000
Total Adjustments	6.500	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	6.500	-			

Change Summary Explanation

The increase of +\$6.500 in FY 2018 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605502K / <i>Small Business Innovative Research</i>				Project (Number/Name) SBR / <i>Small Business Innovative Research</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
SBR: <i>Small Business Innovative Research</i>	0.000	6.500	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

In accordance with Public Law No: 112-81 (National Defense Authorization Act) and Small Business Technology Transfer Program Reauthorization Act, the DISA Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are designed to provide small, high-tech businesses and academic institutions the opportunity to propose radical, innovative, high-risk approaches to address existing and emerging national security threats; thereby supporting DISA's overall strategy to enable fundamental discoveries and technological breakthroughs that provide new military capabilities.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Small Business Innovation Research	6.500	-	-
Description: The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are designed to provide small, high-tech businesses and academic institutions the opportunity to propose radical, innovative, highrisk approaches to address existing and emerging national security threats; thereby supporting DISA's overall strategy to enable fundamental discoveries and technological breakthroughs that provide new military capabilities.			
Accomplishments/Planned Programs Subtotals	6.500	-	-

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

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0305172K / <i>Combined Advanced Applications</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	12.200	16.998	21.363	58.667	-	58.667	33.796	9.426	8.955	8.787	Continuing	Continuing
CA1: <i>Combined Advanced Applications</i>	12.200	16.998	21.363	48.667	-	48.667	33.796	9.426	8.955	8.787	Continuing	Continuing
FM1: <i>Financial Management Systems</i>	-	0.000	0.000	10.000	-	10.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Combined Advanced Applications is classified and exhibit will be provided under a separate cover.

Financial Management Systems will acquire support for the modernization of the financial account management information system capability. The new procurement will use a single step to full capability approach and execute in accordance with the Component Acquisition Executive (CAE) Guideline for Projects. This Acquisition Strategy provides the business and technical management approach to achieve program objectives within resource constraints. The financial business area is currently supported by multiple legacy systems operating on platforms with associated performance issues such as high cost, technology support issues, unsupportable interoperability, and high risk of failure. In addition, various federal financial management and Department of Defense requirements (e.g., Business Enterprise Architecture (BEA); the Treasury Department's Invoice Processing Platform.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	16.998	21.363	12.437	-	12.437
Current President's Budget	16.998	21.363	58.667	-	58.667
Total Adjustments	0.000	0.000	46.230	-	46.230
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	-	-	46.230	-	46.230

Change Summary Explanation

Increase of +\$46.230 in FY 2020 is due an increase of +\$10.000for the initial development of a financial management system for sensitive activities in support of the Defense-Wide (TI-97) and the Army (TI-21). Remaining +-\$36.230 is classified and exhibit will be provided under a separate cover.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0305172K / <i>Combined Advanced Applications</i>	Project (Number/Name) CA1 / <i>Combined Advanced Applications</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
<i>CA1: Combined Advanced Applications</i>	12.200	16.998	21.363	48.667	-	48.667	33.796	9.426	8.955	8.787	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Program is classified and exhibit will be provided under a separate cover.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Combined Advanced Applications	16.998	21.363	48.667
Description: Classified.			
FY 2019 Plans: Classified.			
FY 2020 Plans: Classified.			
FY 2019 to FY 2020 Increase/Decrease Statement: Classified.			
Accomplishments/Planned Programs Subtotals	16.998	21.363	48.667

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

N/A

Remarks

D. Acquisition Strategy

Classified

E. Performance Metrics

Classified

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0305172K / <i>Combined Advanced Applications</i>	Project (Number/Name) FM1 / <i>Financial Management Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
FM1: <i>Financial Management Systems</i>	-	0.000	0.000	10.000	-	10.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Financial Management Systems will acquire support for the modernization of the financial account management information system capability. The new procurement will use a single step to full capability approach and execute in accordance with the Component Acquisition Executive (CAE) Guideline for Projects. This Acquisition Strategy provides the business and technical management approach to achieve program objectives within resource constraints. The financial business area is currently supported by multiple legacy systems operating on platforms with associated performance issues such as high cost, technology support issues, unsupportable interoperability, and high risk of failure. In addition, various federal financial management and Department of Defense requirements (e.g., Business Enterprise Architecture (BEA); the Treasury Department's Invoice Processing Platform.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Financial Management Systems - Test and Development	0.000	-	10.000
Description: Provides development, testing, piloting and pre-deployment for integrated business solution for the modernization of the sensitive financial information platform capability for the DoD users.			
FY 2020 Plans: Develop, pilot, and test integrated capabilities and solutions to support the operational requirements of the defense wide financial communities user base. Supports such efforts as configuration Management, system engineering requirement's, and interoperability (IOP) and certification and system testing.			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of +\$10.000 from FY 2019 to FY 2020 is due to the initial development of a financial management system for sensitive activities in support of the Defense-Wide (TI-97) and the Army (TI-21).			
Accomplishments/Planned Programs Subtotals	0.000	-	10.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0305172K / <i>Combined Advanced Applications</i>	Project (Number/Name) FM1 / <i>Financial Management Systems</i>

E. Performance Metrics

Financial Management Systems - Test and Development

Number of infrastructure deployment tests and pre-deployment tests for system availability thresholds and interface processing requirements.

FY 2020 Target: 4 Planned

Program and Activities Monitoring

FY 2020 Target: Baseline Measure - To Deploy initial system 4th Quarter 2021.

Technology and System Development

FY 2020 Target: Baseline Measure is the ability to provide system availability at a 100% effectiveness with a 95% threshold for 250-500 concurrent users.

FY 2020 Target: Baseline Measures is the interfaces shall process 100% of all transactions to the appropriate general ledger accounts within the system.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6:</i> <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0903235K <i>Joint Service Provider</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	4.309	5.104	3.090	-	3.090	3.140	2.994	2.991	3.009	Continuing	Continuing
JSP: <i>Joint Service Provider</i>	0.000	4.309	5.104	3.090	-	3.090	3.140	2.994	2.991	3.009	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Service Provider (JSP) provides Information Technology infrastructure and office automation systems, components, supporting software, and IT support services for the Office of the Secretary of Defense (OSD), Joint Staff, Headquarters Department of the Army (HQDA), Washington Headquarters Services (WHS), Pentagon Force Protection Agency (PFPA), DoD Consolidated Adjudication Facility (DoD CAF), and other JSP-supported 4th Estate users and communities supported within the Pentagon Reservation and other areas in the National Capitol Region (NCR). RDT&E provides for the test, pilot, and development of new integrated business tools to enhance the JSP business processes and improve the delivery of IT services and capabilities. This activity executes JSP's testing environment to allow insertion of commercial off-the-shelf and government-managed software for all supported JSP services to include network transport, storage, compute, defensive cyber operations, Pentagon Installation Processing Node (IPN), and other components of the NCR's core network infrastructure. These efforts also provide mobile classified computing and communications platforms technology test and development for the immediate Office of the Secretary of Defense, enabling secured computing at residence, temporary and mobile locations around the world.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	5.113	5.104	5.090	-	5.090
Current President's Budget	4.309	5.104	3.090	-	3.090
Total Adjustments	-0.804	0.000	-2.000	-	-2.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.152	-			
• Adjustment	-0.652	-	-2.000	-	-2.000

Change Summary Explanation

The decrease of -\$0.804 in FY 2018 is due to the amount of -\$0.652 showing under BA07 PE 0903235K Joint Service Provider (JSP), but are for this same effort. Funds have since been corrected and moved to this BA06 PE for proper execution, but not in time for yearend lock. Total for FY 2018 should now be \$4.961). The decrease amount of -\$0.152 is for the transfer to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity
0400: *Research, Development, Test & Evaluation, Defense-Wide / BA 6:*
RDT&E Management Support

R-1 Program Element (Number/Name)
PE 0903235K / *Joint Service Provider*

The decrease of -\$2.000 in FY 2020 is attributed to a realignment of funding from RDT&E to the Operations and Maintenance (O&M) appropriation to fund sustainment efforts for the Defensive Cyber Insider Threat - User Activity Monitoring (UAM) initiative.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0903235K / Joint Service Provider				Project (Number/Name) JSP / Joint Service Provider			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
JSP: Joint Service Provider	0.000	4.309	5.104	3.090	-	3.090	3.140	2.994	2.991	3.009	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Joint Service Provider (JSP) provides mobile classified computing and communications platforms technology test and development for the immediate Office of the Secretary of Defense, enabling secured computing at residence, temporary and mobile locations around the world.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>Title: Pentagon/NCR Core Enterprise Services</p> <p>Description: Provides development, test, and pre-deployment for JSP-supported services to include network transport, network security, computer network defense, intrusion detection, Pentagon Installation Processing Node (IPN), and other components of the Pentagon's core network infrastructure.</p> <p>FY 2019 Plans: Develop, test, and pre-deploy JSP-supported services to include network transport, network security, computer network defense, intrusion detection, Pentagon Installation Processing Node (IPN), and other components of the Pentagon's core network infrastructure.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: A decrease of -\$3.886 from FY 2019 to FY 2020 is attributed to the re-alignment of -\$2.000 from RDT&E appropriation to Operations & Maintenance (O&M) appropriation to fund sustainment efforts for the Defensive Cyber Insider Threat - User Account Monitoring Activity (UAM) and the re-alignment of -\$1.886 from Project Title "Pentagon/NCR Core Enterprise Service" to the proper project title "Enterprise Initiative Test & Development" in support of the development, testing, piloting, and prototyping efforts for this correct project line.</p>	3.281	3.886	-
<p>Title: SECDEF Communications</p> <p>Description: Provides mobile classified computing and communications platforms technology test and development for the immediate Office of the Secretary of Defense, enabling secured computing at residence, temporary and mobile locations around the world.</p> <p>FY 2019 Plans: To develop better mobile classified computing and communications platforms for all customers to have secure computing at residences and temporary and mobile locations around the world.</p> <p>FY 2020 Plans:</p>	0.000	0.103	0.105

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0903235K / <i>Joint Service Provider</i>	Project (Number/Name) JSP / <i>Joint Service Provider</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Provide mobile classified computing and communications platforms technology test and development for the immediate Office of the Secretary of Defense, enabling secured computing at residence, temporary and mobile locations around the world. FY 2019 to FY 2020 Increase/Decrease Statement: The increase of +\$0.002 from FY 2019 to FY 2020 is attributed to an increase to technical contract support.				
Title: Business Solutions - Enterprise Services Description: Provides development, testing, piloting, and pre-deployment support for integrated business tools that will enhance JSP-supported enterprise mission application environment. FY 2019 Plans: Develop and test tools that will improve the delivery of IT services and capabilities for all JSP users. JSP will continue to expand the engineering, testing, and development networks for NIPR and SIPR. FY 2019 to FY 2020 Increase/Decrease Statement: A decrease of -\$1.115 from FY 2019 to FY 2020 is attributed to the re-alignment of -\$1.099 realigns funding to the proper project of Enterprise Initiative Test & Development line to develop and test capabilities to meet the operational requirements of JSP customers; and a decrease of -\$0.016 due to a reduction of engineering test hours.		1.028	1.115	-
Title: Enterprise Initiative Test & Development Description: This activity executes JSP's testing environment to allow insertion of commercial off the shelf and government managed software for all supported JSP services to include network transport, storage, compute, defensive cyber operations, Pentagon Installation Processing Node (IPN), and other components of the NCR's core network infrastructure. This effort allows informed investment in cyber defense, resilience, and the continued integration of cyber capabilities into the full spectrum of military operational needs required by the JSP supported user base and prioritize developing capabilities enabling a more resilient and survivable Department of Defense Information Network (DODIN) in the face of a dynamic and increasingly sophisticated threat environment. FY 2020 Plans: Develop, pilot, and test integrated capabilities and solutions to support the operational requirements of the JSP user base. Supports such efforts as adaptive security architecture, threat intelligence machine learning, runtime application self protection and Desktop as a Service. Improve delivery of IT services and capabilities of an increasingly mobile, application centric knowledge workforce JSP supports in a dynamic environment with advanced persistent cyber threats targeting DoD information networks (DODIN). FY 2019 to FY 2020 Increase/Decrease Statement:		-	-	2.985

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency	Date: March 2019
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Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0903235K / <i>Joint Service Provider</i>	Project (Number/Name) JSP / <i>Joint Service Provider</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
The increase of +\$2.985 from FY 2019 to FY 2020 will provide enterprise solutions for the JSP networks and systems for the adaptive security architecture, threat intelligence machine learning, runtime application self protection, and Desktop as a Service.			
Accomplishments/Planned Programs Subtotals	4.309	5.104	3.090

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Pentagon/NCR Core Enterprise Services:

Number of NCR Core Infrastructure development, test, and pre-deployment tests

FY 2018 Actual: Planned/2 Completed

FY 2019 Target: 4 Planned, 90% Pentagon Enterprise CNDS Services

FY 2020 N/A

SECDEF Communications:

Number of System upgrades

FY 2018 Actual: 2 Planned/0 completed

FY 2019 Target: 1 Planned/1 Required

FY 2020 Target: N/A

Business Solutions - Enterprise Services:

Number of Operational Test Events for the NIPR and SIPR

FY 2018 Actual: 2 Planned/2 Completed

FY 2019 Target: 2 Planned/2 Required

FY 2020 Target: N/A

Enterprise Initiative Test & Development

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency Date: March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0400 / 6	PE 0903235K / Joint Service Provider	JSP / Joint Service Provider

Develop measures of effectiveness (MOE) and measures of performance (MOP) based on 12 month testing planning and event process; as well as conduct testing for all new solutions, Enterprise software and hardware (server) implementations, infrastructure and architectural changes.

FY 2018 N/A
FY 2019 N/A
FY 2020 Target: Complete development of MOE and MOP by 4th quarter of the Fiscal Year

FY 2018 N/A
FY 2019 N/A
FY 2020 Target: Number of Prototype/Pilots conducted for new technologies - 3 achieved annually

FY 2018 N/A
FY 2019 N/A
FY 2020 Target: Percent of Piloted technologies introduced into production - 60% achieved annually

Develop testing environment that mirrors production in terms of hardware, software, network configurations and tools for JSP new Services.

FY 2018 N/A
FY 2019 N/A
FY 2020 Target: Accomplished at 70%

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604532K / <i>Joint Artificial Intelligence Center (JAIC)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	208.834	-	208.834	34.134	34.134	34.134	34.134	Continuing	Continuing
JA1: <i>Joint Artificial Intelligence Center (JAIC)</i>	-	0.000	0.000	208.834	-	208.834	34.134	34.134	34.134	34.134	Continuing	Continuing

A. Mission Description and Budget Item Justification

The JAIC was established to preserve and expand our military advantage in support of the Department’s 2018 National Defense Strategy. As a primarily executing body it will accelerate the delivery of Artificial Intelligence (AI) enabled capabilities, scale the Department-wide impact of AI, and synchronize DoD AI activities to expand Joint Force advantages. The JAIC mission is to accelerate the delivery of AI to achieve impact scaled across the DoD at relevant speed to transform the DoD and ensure the nation maintains a competitive advantage. JAIC capitalizes on Project Maven’s efforts as the pathfinder AI initiative for the DoD to further critical AI architecture and prototyping to rapidly expand AI to other mission areas. As JAIC efforts prove relevant, they will expedite technology transition from the laboratory to operational use, and increase Joint Force capability. Most military data storage, utilization, and analytic tools and systems were designed pre-AI and require specialized integration to enable the insertion of algorithms into their software baseline. JAIC capabilities are commercial technology initiatives that insert commercial AI into existing programs of record.

JAIC will execute an initial sequence of cross-functional use cases to demonstrate value and create momentum, called National Mission Initiatives (NMI). NMIs will rapidly develop and deploy AI across the Joint Force for selected high-priority, pressing operational or business reform challenges. Additionally, JAIC will work closely with individual components to help identify, shape, and accelerate component-specific AI deployments, called Component Mission Initiatives (CMI). Both NMI and CMI efforts will include selecting commercial and academic partners for prototypes, and develop standardized processes with respect to data, testing and evaluation, and cybersecurity. JAIC will use lessons learned from these initial projects to establish new processes and standards that will be repeatable across additional projects and immediately relevant to the Joint Force. This will be done in collaboration with partners across technology companies, consulting firms, academia, government labs, Federally Funded Research and Development Centers (FFRDC), services, and international partners.

To support the National Defense Strategy (NDS), the JAIC will catalyze and develop AI capabilities to enhance readiness and lethality and ensure DoD maintains an advantage over adversaries. JAIC will spearhead this unique opportunity to expand the competitive space across all domains with AI. JAIC efforts will directly contribute to increased military readiness towards a more lethal Joint Force, it will strengthen alliances and attract new partners by focusing on global problems, and it will enable Departmental reform to increase performance and affordability. JAIC will cultivate workforce talent by recruiting, developing, and retaining high-quality personnel to enable the development and delivery of AI. This will bring critical skills into the department by drawing outside expertise, and leveraging small companies, start-ups, and universities. Implementing AI at a speed of relevance hinges on the ability to integrate AI better than our adversaries, and the JAIC will enable the Department to adapt AI into how it fights. JAIC will focus on speed of delivery, continuous adaptation, and frequent capability delivery sprints. To fully realize this potential, the JAIC will pioneer AI approaches across the full scale of the global enterprise in a manner that is jointly interoperable with allies, partners, military Services, and agencies. Specifically, JAIC will identify and implement new organizational approaches, establish key AI building blocks and standards, develop and attract AI talent, and introduce new operational models that will enable DoD to systematically take advantage of AI at enterprise scale. The JAIC will fulfill the National Security Strategy and NDS to ensure conventional overmatch through dual-use commercial technology and partnered DoD-developed AI. The JAIC will collaborate with non-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604532K / <i>Joint Artificial Intelligence Center (JAIC)</i>
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governmental organizations, corporations, strategic influencers, and partners and allies. JAIC will seize the initiative to lead the world in the development and adoption of transformative defense AI solutions that are safe, ethical, and secure. JAIC will spearhead this effort, engaging with the best minds in government, the private sector, academia, and international community.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	208.834	-	208.834
Total Adjustments	0.000	0.000	208.834	-	208.834
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	-	-	208.834	-	208.834

Change Summary Explanation

Increase of +\$208.834 is due to the functional transfer of JAIC from DoD CIO to DISA.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0604532K / <i>Joint Artificial Intelligence Center (JAIC)</i>				Project (Number/Name) JA1 / <i>Joint Artificial Intelligence Center (JAIC)</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
JA1: <i>Joint Artificial Intelligence Center (JAIC)</i>	-	0.000	0.000	208.834	-	208.834	34.134	34.134	34.134	34.134	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The JAIC was established to preserve and expand our military advantage in support of the Department’s 2018 National Defense Strategy. As a primarily executing body it will accelerate the delivery of Artificial Intelligence (AI) enabled capabilities, scale the Department-wide impact of AI, and synchronize DoD AI activities to expand Joint Force advantages. The JAIC mission is to accelerate the delivery of AI to achieve impact scaled across the DoD at relevant speed to transform the DoD and ensure the nation maintains a competitive advantage. JAIC capitalizes on Project Maven’s efforts as the pathfinder AI initiative for the DoD to further critical AI architecture and prototyping to rapidly expand AI to other mission areas. As JAIC efforts prove relevant, they will expedite technology transition from the laboratory to operational use, and increase Joint Force capability. Most military data storage, utilization, and analytic tools and systems were designed pre-AI and require specialized integration to enable the insertion of algorithms into their software baseline. JAIC capabilities are commercial technology initiatives that insert commercial AI into existing programs of record.

JAIC will execute an initial sequence of cross-functional use cases to demonstrate value and create momentum, called National Mission Initiatives (NMI). NMIs will rapidly develop and deploy AI across the Joint Force for selected high-priority, pressing operational or business reform challenges. Additionally, JAIC will work closely with individual components to help identify, shape, and accelerate component-specific AI deployments, called Component Mission Initiatives (CMI). Both NMI and CMI efforts will include selecting commercial and academic partners for prototypes, and develop standardized processes with respect to data, testing and evaluation, and cybersecurity. JAIC will use lessons learned from these initial projects to establish new processes and standards that will be repeatable across additional projects and immediately relevant to the Joint Force. This will be done in collaboration with partners across technology companies, consulting firms, academia, government labs, Federally Funded Research and Development Centers (FFRDC), services, and international partners.

To support the National Defense Strategy (NDS), the JAIC will catalyze and develop AI capabilities to enhance readiness and lethality and ensure DoD maintains an advantage over adversaries. JAIC will spearhead this unique opportunity to expand the competitive space across all domains with AI. JAIC efforts will directly contribute to increased military readiness towards a more lethal Joint Force, it will strengthen alliances and attract new partners by focusing on global problems, and it will enable Departmental reform to increase performance and affordability. JAIC will cultivate workforce talent by recruiting, developing, and retaining high-quality personnel to enable the development and delivery of AI. This will bring critical skills into the department by drawing outside expertise, and leveraging small companies, start-ups, and universities. Implementing AI at a speed of relevance hinges on the ability to integrate AI better than our adversaries, and the JAIC will enable the Department to adapt AI into how it fights. JAIC will focus on speed of delivery, continuous adaptation, and frequent capability delivery sprints. To fully realize this potential, the JAIC will pioneer AI approaches across the full scale of the global enterprise in a manner that is jointly interoperable with allies, partners, military Services, and agencies. Specifically, JAIC will identify and implement new organizational approaches, establish key AI building blocks and standards, develop and attract AI talent, and introduce new operational models that will enable DoD to systematically take advantage of AI at enterprise scale. The JAIC will fulfill the National Security Strategy and NDS to ensure conventional overmatch through dual-use commercial technology and partnered DoD-developed AI. The JAIC will collaborate with non-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0604532K / <i>Joint Artificial Intelligence Center (JAIC)</i>	Project (Number/Name) JA1 / <i>Joint Artificial Intelligence Center (JAIC)</i>
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governmental organizations, corporations, strategic influencers, and partners and allies. JAIC will seize the initiative to lead the world in the development and adoption of transformative defense AI solutions that are safe, ethical, and secure. JAIC will spearhead this effort, engaging with the best minds in government, the private sector, academia, and international community.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>Title: Joint Artificial Intelligence Center (JAIC)</p> <p>Description: JAIC develops, tests, prototypes and demonstrates innovative AI, Machine Learning (ML), data infrastructure, and model/algorithm test and assessment capabilities to integrate AI capabilities across numerous domains and technical areas including maintenance and supply chain, personnel recovery, infrastructure assessment, geospatial monitoring during disaster, and cyber sense making. JAIC develops and evaluates integrated prototype technologies in realistic operating environments with DoD entities to assess the performance or cost reduction potential of applying such advanced technology to scale across multiple services. JAIC does this by aligning rapid prototype projects under NMIs and leverages existing commercial technology for DoD use, built upon a common architecture that enables the DoD to rapidly scale AI capability.</p> <p>FY 2020 Plans: JAIC will build a new NMI, Cyber Sense-making. The new NMI will provide artificial intelligence to the Cyber Mission Force to enable enterprise-scale sensemaking for cyberspace operations. Advanced adversarial Cyber actors infiltrate and operate undetected within the DoD Information Network (DODIN). Operating numerous disparate tools and processing the avalanche of data exceeds human cognitive ability for warfighters to detect and understand adversary activity. This hinders military operations, diminishes the security posture of the DODIN, and potentially compromises national strategic assets. Cyberspace operators and security professionals rely on static signature and rule based techniques combined with manual data correlation processes to detect known threats in the DODIN. They leverage disparate commercial and open source software to enumerate friendly Cyber terrain resulting in a myopic view of the Cyber environment. Due to the dynamic, contested, and congested nature of the DODIN, these capabilities fail to adequately integrate information to provide a Cyberspace Common Operating Picture. Currently, the Cyber Mission Force requires significant man-hours to manage, with varying degrees of success: detect advanced cyber threats in real time, identify adversarial use of compromised accounts, identify novel threat activity, and categorize user behavior trends and anomalies to detect adversary use of compromised accounts. Additionally, overall NMI efforts will augment current network mapping tools to accelerate and enrich Cyber terrain enumeration and improve situational awareness. Finally, this NMI will increase automation in malware and event detection/response to improve human sensing and optimize decision making to apply human judgement where it is most needed and apply machines to do repetitive analysis.</p> <p>Rapid prototyping models will be developed to detect adversary use of compromised accounts; to understand the DODIN networks and system malware/event detections; and to enhance network mapping. These actions will decrease the time and human effort it currently takes to conduct such cyber efforts, while increasing the accuracy and effectiveness of such efforts at the speed of machine computing. It will return the cognitive bandwidth of cyber defense operators and allow them to better maintain</p>	0.000	-	208.834

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0604532K / <i>Joint Artificial Intelligence Center (JAIC)</i>	Project (Number/Name) JA1 / <i>Joint Artificial Intelligence Center (JAIC)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
awareness of, and exercise judgement in the cyber realm. This NMI will increase DODIN security, safeguard sensitive information, and give crucial time back to decision makers who can focus on strategic analysis and response, rather than making sense of adversaries' actions and deterring them.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase of +\$208.834 from FY 2019 to FY 2020 is due to the functional transfer of JAIC from DoD CIO to DISA.			
Accomplishments/Planned Programs Subtotals	0.000	-	208.834

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

N/A

Remarks

D. Acquisition Strategy

The JAIC 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

JAIC 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 execute processes faster than current capabilities allow. This includes the ability to process more, or higher levels of relevant knowledge and apply human cognitive capital to higher order judgments on a faster pace than previously capable.
- 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. This includes finding efficiencies in system lifecycle management, supply chain, replacement and repair, and more accurate requisitions, saving critical limited fiscal resources to be applied appropriately.
- Realism – Enable the warfighter to create an environment that is closer to the real world environment than current capabilities allow.
- Fidelity – Ensure unity of effort throughout the Department and external stakeholders for national imperative focus areas, while catalyzing and accelerating AI capabilities beyond what was previously projected to be accomplished during that time period.
- Transition – Select projects that have the greatest likelihood of adoption and transition to operational capabilities.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0604532K / <i>Joint Artificial Intelligence Center (JAIC)</i>	Project (Number/Name) JA1 / <i>Joint Artificial Intelligence Center (JAIC)</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Joint Artificial Intelligence Center (JAIC)																												
Joint Artificial Intelligence Center (JAIC)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0604532K / <i>Joint Artificial Intelligence Center (JAIC)</i>	Project (Number/Name) JA1 / <i>Joint Artificial Intelligence Center (JAIC)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Joint Artificial Intelligence Center (JAIC)</i>				
Joint Artificial Intelligence Center (JAIC)	2	2020	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	750.929	58.235	62.814	64.122	-	64.122	62.364	61.644	63.201	63.840	Continuing	Continuing
T30: <i>MRTFB Test and Evaluation</i>	174.304	10.757	7.809	7.584	-	7.584	7.713	7.712	7.927	7.964	Continuing	Continuing
T40: <i>Major Range Test Facility Base Operations</i>	576.625	47.478	55.005	56.538	-	56.538	54.651	53.932	55.274	55.876	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Information Systems Agency's Joint Interoperability Test Command (JITC) serves as the only joint element of the Department of Defense's (DoD's) Major Range and Test Facility Base (MRTFB) that is operated primarily for Information Technology and National Security Systems (IT/NSS) Test and Evaluation (T&E) support missions. JITC executes the T&E mission in support of Command, Control, Communications, Computers and Intelligence (C4I), and is the DoD's Sole Interoperability Certifier and the only Non-Service Operational Test Agency.

With a focus on T&E for IT, JITC has the unique mission to provide consistent, structured, and effective T&E services that include converged information environment, Cyber, Cloud services, Mobility and NSS. JITC also has the responsibility for ensuring Joint/Coalition interoperability; issuing interoperability certifications; conducting operational evaluations; maintaining a federated IT infrastructure as a MRTFB activity and providing direct interoperability support to the warfighter by ensuring Joint warfighting capabilities are interoperable and support mission needs.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	59.490	62.814	61.074	-	61.074
Current President's Budget	58.235	62.814	64.122	-	64.122
Total Adjustments	-1.255	0.000	3.048	-	3.048
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.928	-			
• Adjustment	-0.327	-	3.048	-	3.048

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency Date: March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 7: <i>Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0208045K / <i>C4I Interoperability</i>
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Change Summary Explanation

The decrease of -\$0.928 in FY 2018 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and -\$0.327 is for the reduction costs by employing automation technologies to include cloud services to conduct testing and data analysis in the operational environment.

The increase of +\$3.048 in FY 2020 will provide additional infrastructure, network bandwidth and instrumentation to support development and testing of enterprise systems and Cyber capabilities in a replicated DODIN environment (+\$2.748). This increase is offset by a reduction required to offset civilian personnel requirements for departmental priorities and a transfer of 2 FTEs to the DISA Working Capital Fund in support of the Fourth Estate IT Optimization.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability				Project (Number/Name) T30 / MRTFB Test and Evaluation			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
T30: MRTFB Test and Evaluation	174.304	10.757	7.809	7.584	-	7.584	7.713	7.712	7.927	7.964	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Information Systems Agency (DISA), through the Joint Interoperability Test Command (JITC), manages the Department’s Interoperability Test, Evaluation, and Certification process that is structured to provide meaningful and independent test results in order to increase stakeholder confidence. The objectives, of the Test and Evaluation (T&E) activities, are to validate that DISA’s (and the Department’s, where appropriate) deliverables have met operational requirements. The T&E activities target evaluation strategies in the design, development, operational, integration and/or sustainment aspects of every program requiring support. DISA’s T&E efforts span a variety of test categories supporting DISA’s delivery of Department-wide enterprise solutions as well as Service, Agency, and mission partner developmental, operational, Information Assurance, and interoperability testing, validation and certification efforts. These efforts are focused on T&E for Information Technology (IT) that includes the Joint Information Environment (JIE), Cyber, Cloud services, and Mobility.

As the Department of Defense (DoD) Joint Interoperability Certification Authority, JITC annually:

- Issues hundreds of interoperability testing and certification related products.
- Manages the scheduling and executes multiple annual distributed Joint Tactical Data Link hardware in the loop interoperability test events. These events are designed to evaluate, certify and re-certify Service/Agency Tactical Data systems.
- Reviews hundreds of Joint Capabilities Integration and Development System documents, interoperability support plans and Legacy Waiver requests on behalf of the DoD Chief Information Officer (CIO) and the Joint Staff.
- Serves as executive agent to DoD Interoperability Steering Group, in support of the DoD CIO, and uses this forum to coordinate policy, adjudicate issues, and to process Interim Certificates to Operate.
- Ensures interoperability test and certification standard practices and procedures are in accordance with DoD policy, and reviews and issues over 600 Joint interoperability certifications annually for DoD’s Information Technology and National Security Systems (IT/NSS).
- Manages the scheduling and prioritization of multiple annual distributed Joint Tactical Data Link simulated test events using real components (hardware in the loop interoperability test events) designed to evaluate, certify and re-certify Service/Agency Tactical systems.

JITC provides interoperability test support to Joint, Coalition and Allied operations in theater by providing Interoperability test support within the area of responsibility and supports exercises intended to evaluate Joint, Coalition and Allied operations in, or planning to deploy to theater by:

- Providing on-demand rapid response contingency support to Regional Combatant Commands (COCOMs) as required, and conducting assessments of interoperability exercises.
- Conducting assessments during one of the largest interoperability exercises (the Endeavors).
- Broadening its support to the Joint Staff and functional COCOMs with a multitude of interoperability assessment services.
- Maintaining a 24x7 Warfighter Command, Control, Communications, Computers and Intelligence (C4I) Interoperability Hotline that connects warfighters to subject matter experts to resolve IT interoperability challenges.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / <i>C4I Interoperability</i>	Project (Number/Name) T30 / <i>MRTFB Test and Evaluation</i>
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- Establishing the framework for the conduct of annual independent evaluations and the status of interoperability through DoD Interoperability Communications Exercises (DICE).
- Emulating a distributed Joint Task Force network, providing realism and operational significance during the assessments and evaluations of data integrity, interfacing and responsiveness coupled with efficient configuration tactics, techniques, and procedures.
- Including first responder local and federal communications as part of the task force.

As the only non-Service Operational Test Agency (OTA) within DoD, JITC conducts operational testing of IT/NSS under realistic conditions to determine the operational effectiveness, suitability, interoperability, and security; and independently assesses the operational impact of system issues on mission accomplishment. JITC is the OTA for DISA-managed programs, and also upon request serves as the OTA for other Agencies such as the Defense Logistics Agency, Department of Homeland Security, and the National Security Agency.

JITC designs Operational Test and Evaluation (OT&E) events to determine if IT/NSS meet user requirements, offering sustaining support services to users to assist Acquisition Program Managers with meeting their overall milestone objectives.

JITC focuses its efforts towards core T&E improvements, better T&E policy for IT/NSS and designing new test methodologies to better assess Enterprise Service systems, aligning with the Information Technology Service Management model evaluating fulfillment services for suitability.

The T&E project supports the strategy development and investment plans in support of maintaining, improving and operating the DISA Major Range and Test Facility Base (MRTFB). Specific goals for DISA's MRTFB each year are to:

- Integrate evolving technologies that are able to leverage efficiencies such as virtualization, enterprise elements such as Infrastructure as a Service and Platform as a Service, and the foundational Cyber assets mandated by the JIE.
- Expand test infrastructure and operations to allow for rapid, on-demand provisioning, and federation across the DoD and Cyber integration with enterprise environments.
- Design consistent, repeatable test methodologies that ensure efficient T&E on changing or emerging technologies.
- Provide T&E guidance/oversight to nearly 130 DISA programs, creating synergy and efficiencies across the large DISA IT portfolio, gaining insight in new technologies and commercial best practices.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>Title: DoD's Joint Interoperability Certification Authority</p> <p>Description: Plans and executes interoperability certifications for Department of Defense's (DoD) Information Technology and National Security Systems (IT/NSS) by evaluating joint military operations, conformance to standards, and participating in developmental testing or executing purposefully planned Interoperability Test Events.</p> <p>FY 2019 Plans:</p>	9.837	6.889	6.664

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T30 / MRTFB Test and Evaluation
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Continue to evolve customer accessibility through enhanced T&E capabilities by employing automation technologies to include cloud services. Continue to reduce risk and identify/analyze trends by employing new technology and methodology to conduct data analysis in the operational environment.</p> <p>FY 2020 Plans: Continue to evolve customer accessibility through enhanced T&E capabilities by employing automation technologies to include cloud services. Continue to reduce risk and identify/analyze trends by employing new technology and methodology to conduct data analysis in the operational environment.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The decrease of -\$0.225 from FY 2019 to FY 2020 is due to reduced costs resulting from employing automation technologies to include cloud services to conduct testing and data analysis in the operational environment.</p>			
<p>Title: Operational Test and Evaluation</p> <p>Description: Conduct operational testing of IT/NSS under realistic operational conditions to determine the operational effectiveness, suitability, interoperability, and security of a particular system. Independently assesses the operational impact of system issues on mission accomplishment.</p> <p>FY 2019 Plans: Will continue to enhance OT&E processes, procedures, training, and tools by increasing automation, data collection and management, and better analysis utilizing virtualization to better evaluate performance and to improve operational testing capabilities for evolving requirements. Will continue to provide OT&E support to COCOMs, Military Services, and Defense Agencies as requested.</p> <p>FY 2020 Plans: Will continue to enhance OT&E processes, procedures, and tools by increasing automation and utilizing virtualization as needed, to better evaluate performance and to improve operational testing capabilities for evolving requirements. Will continue to provide OT&E support to COCOMs, Military Services, and Defense Agencies as requested.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: N/A</p>	0.800	0.800	0.800
<p>Title: Support to Warfighter</p> <p>Description: Provides pre/post-production evaluations including: collecting relevant data during a continuous monitoring effort, and providing on-the-spot evaluations of problem areas and viable mission-oriented solutions to warfighting COCOMs during exercises and contingency operations.</p> <p>FY 2019 Plans:</p>	0.120	0.120	0.120

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency	Date: March 2019
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Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T30 / MRTFB Test and Evaluation
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Support will continue to be focused primarily on the Asia Pacific region, consistent with the National Defense Strategy. Will sustain a Warfighter Support capability sufficient to respond to critical fielded system issues only.			
<i>FY 2020 Plans:</i> Support will continue to be focused primarily on the Asia Pacific region, consistent with the National Defense Strategy. Will sustain a Warfighter Support capability sufficient to respond to critical fielded system issues only.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> N/A			
Accomplishments/Planned Programs Subtotals	10.757	7.809	7.584

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

N/A

Remarks

D. Acquisition Strategy

T&E Mission Support Services (MSS) cost plus and firm fixed price contract provides T&E support by performing a wide range of non-personal services to encompass testing, scientific, engineering, logistic, administrative, and ancillary support of the DISA T&E missions. The T&E MSS contract provides for expansion and contraction of staff years as workload dictates.

E. Performance Metrics

JITC manages the Department's Joint Interoperability Test, Evaluation, and Certification process and Operational testing for Information Technology (IT)/National Security Systems (NSS) as well as test and evaluation activities for DISA's deliverables ensuring they have met operational requirements. JITC develops test and evaluation strategies, plan, and reports in the design, development, operational, integration and/or sustainment aspects of every program requiring support. Specific metrics are described below:

1. Metric: Provide operational test plans prior to the start date of a test for all customers where JITC is the OTA.

Measure/Goal: 90%

FY18 Actual: 100%

FY19 Target: 90%

FY20 Target: 90%

2. Metric: Provide operational test reports no later than 60 days after the completion of a test event when JITC is the responsible OTA.

Measure/Goal: 90%

FY18 Actual: 66%

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / <i>C4I Interoperability</i>	Project (Number/Name) T30 / <i>MRTFB Test and Evaluation</i>
FY19 Target: 90% FY20 Target: 90%		
3. Provide a interoperability certification letter to customers (Joint Staff (JS), COCOMS, OUSD (R&E), etc) no later than 60 days from the completion of the test event/ effort. Measure/Goal: 80% FY18 Actual: 83% FY19 Target: 80% FY20Target: 80%		
4. JITC surveys customers for each product that is delivered (Plan of Action and Milestones (POA&Ms), Test Plans, Test Reports, etc.) in terms of cost, schedule, and overall performance on a 1-5 scale with 5 being the highest rating. Measure/Goal: 4.5 FY18 Actual: 4.8 FY19 Target: 4.5 FY20 Target: N/A no longer reported on after FY19		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T30 / MRTFB Test and Evaluation
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	C/T&M	Northop Grumman Mission System : FT Huachuca, AZ	36.487	-		-		-		-		-	0.000	36.487	-
Test and Evaluation	C/T&M	Interop Joint Venture : FT Huachuca, AZ	44.342	-		-		-		-		-	0.000	44.342	-
Test and Evaluation	C/T&M	Northop Grumman Technology : FT Huachuca, AZ	25.831	-		-		-		-		-	0.000	25.831	-
Test and Evaluation	C/Various	Various : Various	15.076	-		-		1.529	Oct 2019	-		1.529	Continuing	Continuing	-
Test and Evaluation	Option/CPFF	ALION SCIENCE & TECH CORP : Various	0.008	0.018	Oct 2017	0.010	Oct 2018	-		-		-	0.000	0.036	-
Test and Evaluation	Option/CPFF	AMERICAN SYSTEMS CORP : Various	0.129	0.217	Oct 2017	0.080	Oct 2018	-		-		-	0.000	0.426	-
Test and Evaluation	Option/CPFF	MANTECH TELECOMMUNICATIONS AND INFORMATION : Various	0.570	0.838	Oct 2017	0.305	Oct 2018	-		-		-	0.000	1.713	-
Test and Evaluation	Option/CPFF	OBERON ASSOCIATES : Various	0.109	0.176	Oct 2017	0.072	Oct 2018	-		-		-	0.000	0.357	-
Test and Evaluation	Option/CPFF	TASC, INC : Various	1.887	3.223	Oct 2017	1.132	Oct 2018	-		-		-	0.000	6.242	-
Subtotal			124.439	4.472		1.599		1.529		-		1.529	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T30 / MRTFB Test and Evaluation
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	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
MRTFB Test and Evaluation																												
Provide Operational Test & Evaluation (OT&E) of DISA acquired systems																												
Conduct Joint interoperability test and certification on IT/NSS using the Joint Family of Tactical Data Link (TDL)																												
Operate 24/7 Interoperability Hotline																												
Provide Joint/Combined Interoperability Test support to Combatant Commanders																												
Provide JIE Compliance Test and Evaluation framework and infrastructure																												
Provide Cyberspace Test and Evaluation framework and infrastructure																												
Plan and conduct the Defense Interoperability Communications Exercise (DICE)																												

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
MRTFB Test and Evaluation																												
Provide Operational Test & Evaluation (OT&E) of DISA acquired systems																												
Conduct Joint interoperability test and certification on IT/NSS using the Joint Family of Tactical Data Link (TDL)																												
Operate 24/7 Interoperability Hotline																												
Provide Joint/Combined Interoperability Test support to Combatant Commanders																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T30 / MRTFB Test and Evaluation
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Provide JIE Compliance Test and Evaluation framework and infrastructure																												
Provide Cyberspace Test and Evaluation framework and infrastructure																												
Plan and conduct the Defense Interoperability Communications Exercise (DICE)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / <i>C4I Interoperability</i>	Project (Number/Name) T30 / <i>MRTFB Test and Evaluation</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MRTFB Test and Evaluation</i>				
Provide Operational Test & Evaluation (OT&E) of DISA acquired systems	1	2017	4	2024
Conduct Joint interoperability test and certification on IT/NSS using the Joint Family of Tactical Data Link (TDL)	1	2017	4	2024
Operate 24/7 Interoperability Hotline	1	2017	4	2024
Provide Joint/Combined Interoperability Test support to Combatant Commanders	2	2017	4	2024
Provide JIE Compliance Test and Evaluation framework and infrastructure	1	2017	4	2024
Provide Cyberspace Test and Evaluation framework and infrastructure	1	2017	4	2024
Plan and conduct the Defense Interoperability Communications Exercise (DICE)	3	2017	1	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability				Project (Number/Name) T40 / Major Range Test Facility Base Operations			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
T40: Major Range Test Facility Base Operations	576.625	47.478	55.005	56.538	-	56.538	54.651	53.932	55.274	55.876	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

As the only non-Service activity of the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB), Defense Information Systems Agency (DISA) provides the only dedicated Information Technology (IT) environment investing in a single end-to-end infrastructure for testing the Enterprise Edge to the Tactical Edge. As an MRTFB, Joint Interoperability Test Command (JITC) provides tested IT infrastructure products to the DoD, Federal/non-Federal Government, Commercial vendors, and Allied partners.

The DISA MRTFB infrastructure:

- Encompasses two geographic locations (Ft. Huachuca, AZ; Ft. Meade, MD).
- 116K square feet of raised floor space comprised of multiple test environments and test networks supporting over 100 programs on an annual basis.
- Complies with multiple levels of security and is scaled to support approximately 1,000 annual testing events to evaluate the DoD's converged information environment, Cyber, Cloud services, Mobility, and National Security Systems (NSS).
- Encompasses a significant portfolio of reference implementations, test tools, and supporting IT systems to aid both test execution and data collection/analysis.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: MRTFB Improvements and Operations	47.478	55.005	56.538
Description: Information Technology and National Security Systems (IT/NSS), Command and Control (C2), Defense reform initiatives, and the Department of Defense's (DoD's) migration towards more agile development and acquisition of IT capabilities by providing Test and Evaluation (T&E) support, including infrastructure, testing capabilities and events, policies and processes to Regional Combatant Commands (COCOMS), Military Services, DoD Agencies, other Federal Government agencies, private industry, Coalition partners and allies.			
FY 2019 Plans: As an MRTFB, JITC will continue to operate the DISA IT Test infrastructure standardized test bed at Fort George G. Meade, MD and Fort Huachuca, AZ. JITC will continue to support the Agency and the Department by expanding the use of cloud technologies			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T40 / Major Range Test Facility Base Operations

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
to provide seamless distributed testing services and efficient use of testing equipment and resources. JITC will continue to maintain technical workforce, support base operations, communications, and operating expenses at each location.			
<i>FY 2020 Plans:</i> As an MRTFB, JITC will continue to operate the DISA IT Test infrastructure standardized test bed at Fort George G. Meade, MD and Fort Huachuca, AZ. JITC will continue to support the Agency and the Department by expanding the use of cloud technologies to provide seamless distributed testing services and efficient use of testing equipment and resources. JITC will continue to maintain technical workforce, support base operations, communications, and operating expenses at each location.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase of +\$1.533 from FY 2019 to FY 2020 will provide additional infrastructure, network bandwidth and instrumentation to support development and testing of enterprise systems and Cyber capabilities in a replicated DODIN environment.			
Accomplishments/Planned Programs Subtotals	47.478	55.005	56.538

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

N/A

Remarks

D. Acquisition Strategy

A T&E Mission Support Services (MSS) cost plus and firm fixed price contract provides T&E support by performing a wide range of non-personal services to encompass testing, scientific, engineering, logistic, administrative, and ancillary support of the DISA T&E missions. The T&E MSS contract provides maximum flexibility and allow for expansion and contraction of staff years as workload dictates. An additional contract is a Federal Preferential Sole Source Procurement set-aside which provides consolidated facilities support.

E. Performance Metrics

Major Range Test Facility Base (MRTFB) Operations sustain the infrastructure, capabilities and services of DISA's MRTFB. While maintaining a focus on improving automation, instrumentation and virtualization, this MRTFB is working toward ensuring assets support customers with testing on demand services to enable rapid delivery of enhanced military capabilities. Specific metrics are described below:

- 5. Provide configuration changes to the MRTFB infrastructure NLT 5 days after formal customer service request received.
Measure/Goal: 90%
FY 2018 Actual: 91%
FY 2019 Target: 95%
FY 2020 Target: 90%

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T40 / Major Range Test Facility Base Operations

6. Complete new configuration additions (equipment installs) NLT 14 days after receipt of customer requirements form.

Measure/Goal: 90%
FY 2018 Actual: 50%
FY 2019 Target: 95%
FY 2020 Target: 90%

7. Availability of enterprise service test capabilities T&E enclave.

Measure/Goal: 95%
FY 2018 Actual: 100%
FY 2019 Target: 95%
FY 2020 Target: 95%

8. Availability of the Tactical Data Link Standard Conformance test tool to various DoD platforms (e.g., weapons systems).

Measure/Goal: 100%
FY 2018 Actual: 95%
FY 2019 Target: 95%
FY 2020 Target: 95%

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T40 / Major Range Test Facility Base Operations
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation 1	C/T&M	Northrop Grumman Mission System : Ft. Huachuca, AZ	75.279	-		-		-		-		-	0.000	75.279	-
Test and Evaluation 2	C/T&M	Interop Joint Venture : Ft. Huachuca, AZ	99.188	-		-		-		-		-	0.000	99.188	-
Test and Evaluation 3	C/T&M	Northrop Grumman Information Technology : Ft. Huachuca, AZ	49.746	-		-		-		-		-	0.000	49.746	-
Test and Evaluation 4	C/Various	VARIOUS - pending development of query : VARIOUS	54.481	-		-		-		-		-	0.000	54.481	-
Test and Evaluation 5	Option/CPFF	ALION SCIENCE & TECHNOLOGY CORP : Various	0.410	0.207	Oct 2017	-		-		-		-	0.000	0.617	-
Test and Evaluation 6	Option/CPFF	AMERICAN SYSTEMS COPR : Various	1.036	0.523	Oct 2017	-		-		-		-	0.000	1.559	-
Test and Evaluation 7	Option/CPFF	MANTECH TELECOMMUNICATIONS AND INFORMATION : Various	6.583	3.320	Oct 2017	-		-		-		-	0.000	9.903	-
Test and Evaluation 8	Option/CPFF	OBERON ASSOCIATES : Various	9.957	3.023	Oct 2017	-		-		-		-	0.000	12.980	-
Test and Evaluation 9	Option/CPFF	TASC, INC. : Various	2.626	1.325	Oct 2017	-		-		-		-	0.000	3.951	-
Test and Evaluation 10	Option/CPFF	BEACON GROUP SW, INC : Various	16.193	5.170	Oct 2017	7.711	Oct 2018	-		-		-	0.000	29.074	-
Test and Evaluation 11	Option/CPFF	Multiple : Various	-	-		13.001	Oct 2018	30.226	Oct 2019	-		30.226	Continuing	Continuing	Continuing
Test and Evaluation 12	C/CPFF	Various : Various	16.728	8.658	Oct 2017	8.961	Oct 2018	-		-		-	0.000	34.347	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T40 / Major Range Test Facility Base Operations	

FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
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

Develop and Implement Interoperability test systems to support warfighters	
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FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
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

Develop and Implement Interoperability test systems to support warfighters	
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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T40 / Major Range Test Facility Base Operations

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Develop and Implement Interoperability test systems to support warfighters	1	2017	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0301144K / <i>Joint/Allied Coalition Information Sharing</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	86.059	5.801	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
NND: <i>Multinational Information sharing</i>	86.059	5.801	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

Through the Combined Enterprise Regional Information Exchange System (CENTRIXS) and Pegasus, the Multinational Information Sharing (MNIS) Program enables secure sharing of operational and intelligence information and enhances collaboration between United States (US) forces, trusted allies and other multinational partners. This effort also increases overall combat effectiveness by leveraging capabilities and information from all partners and reducing the possibility of fratricide. These coalition information sharing systems are in direct support of the Department of Defense’s (DoD’s) strategic goals to “Win our Nation’s Wars” and “Deter conflict and promote security”. The MNIS program supports five Combatant Commands (COCOMs) with connectivity in 89 nations, the North Atlantic Treaty Organization, 11 Bilateral agreements and 150 sites with over 80,000 users worldwide. MNIS also evaluates new technologies and develops tactics, techniques and procedures to facilitate the integration of emerging technologies and capabilities into operational multinational information sharing capability. The integration of new technology for CENTRIXS and Pegasus is accomplished through research, integration, and testing using the Combined Federated Battle Laboratory Network.

A planned improvement to the CENTRIXS coalition network, Common Mission Network Transport (CMNT), will provide distinct and permanent transport capabilities; enabling network operation centers to prioritize command and control information more efficiently. CMNT supports DoD instruction 8110.1 guidance for integrating CENTRIXS and other operational networks into existing DoD general service communications infrastructure as a separate network servicing all DoD MNIS requirements. This capability provides a common transport for encrypted traffic. CMNT will be the established encrypted network to facilitate the movement of virtual private network traffic between segments.

The MNIS emerging capability, Unclassified Information Sharing Services (UISS), extends US information sharing capabilities to mission partners providing enterprise-level solutions that allow COCOMs to share unclassified information with US Government agencies and non-traditional partners such as, host nations, intergovernmental organizations, and nongovernmental organizations. The employment concept for the UISS is to implement enterprise Web-based, “non-mil” platform, available to as broad a community as needed to support mission operations, with worldwide, 24 hour-a-day, seven day-a-week access, to any user with an Internet connection, including web-enabled mobile personal devices. Using an Internet-based capability and an integrated suite of commercial-off-the-shelf collaboration tools the UISS capability will enable unclassified information exchanges and ad-hoc communications for shared communities of interest and issue-specific groups among and across organizations and individuals.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0301144K / <i>Joint/Allied Coalition Information Sharing</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	6.104	0.000	0.000	-	0.000
Current President's Budget	5.801	0.000	0.000	-	0.000
Total Adjustments	-0.303	0.000	0.000	-	0.000
• Congressional General Reductions	-0.122	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.181	-			

Change Summary Explanation

The decrease in FY 2018 is due to the congressional general reduction Federally Funded Research & Development Centers (FFRDC) of -\$0.122 and the decrease -\$0.181 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0301144K / <i>Joint/Allied Coalition Information Sharing</i>				Project (Number/Name) NND / <i>Multinational Information sharing</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
NND: <i>Multinational Information sharing</i>	86.059	5.801	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Multinational Information Sharing (MNIS) Program is a portfolio of four coalition information sharing capabilities designed to enable and improve sharing of operational and intelligence information among United States (US) forces and multinational partners.

1) Combined Enterprise Regional Information Exchange System (CENTRIXS), supports intelligence and classified operations at the Secret Releasable level. There are multiple, cryptographically-isolated CENTRIXS enclaves serving various communities of interest (COI) that support multinational efforts including Overseas Contingency Operations and counter-narcotics operations. CENTRIXS is regionally focused and combatant command (COCOM) centric. The MNIS Program Management Office provides selected centralized services from two Defense Enterprise Computing Centers for five of the 40+ CENTRIXS networks/COIs, and engineering support for standardized solutions.

2) Pegasus connects the national Command and Control (C2) systems of Combined Communications Electronics Board (CCEB) Nations including Australia, Canada, New Zealand, United Kingdom and the US, using commercial-off-the-shelf security appliances and cross domain solutions that facilitate situational awareness and operational planning/execution. Pegasus has a strategic focus and is member nation centric.

3) The Combined Federated Battle Laboratory Network (CFBLNet) provides a controlled coalition Research, Development, Trials and Assessment coalition information sharing “sandbox” for the US, CCEB Nations, North Atlantic Treaty Organization (NATO), and other mission essential nations. This sandbox is used to evaluate new technologies and to develop tactics, techniques and procedures that facilitate the transition of promising technologies and capabilities into operational multinational information sharing capability enhancements. CFBLNet's direct customers are the CCEB nations’ military operational and intelligence entities led by their US counterparts at the COCOM and Agency levels. It is being used for the Coalition Warrior Interoperability Demonstrations, NATO missile defense initiatives, and by the Intelligence, Surveillance and Reconnaissance community to test capabilities prior to deployment.

4) The Unclassified Information Sharing Service (UISS) extends US information sharing capabilities to mission partners, enterprise-level solutions that allow COCOMs to share unclassified information with other US Government agencies, host nations, inter-governmental organizations, non-governmental organizations, and other partners.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Multinational Information Sharing	5.801	-	-
Description: Through the CENTRIXS and Pegasus, the MNIS Program enables secure sharing of operational and intelligence information and enhances collaboration among US forces, most trusted allies and additional multinational partners. The MNIS			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0301144K / <i>Joint/Allied Coalition Information Sharing</i>	Project (Number/Name) NND / <i>Multinational Information sharing</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Program also initiated a capability to support enhancements for the UISS-All Partners Access (APAN). UISS-APAN migrated existing systems supporting coalition sharing to an enterprise solution hosted on a DISA Defense Enterprise Computing Center. UISS-APAN capability will satisfy COCOM needs for tools and technology to support collaboration with non-traditional partners for humanitarian missions.			
Accomplishments/Planned Programs Subtotals	5.801	-	-

C. Other Program Funding Summary (\$ in Millions)											
			FY 2020	FY 2020	FY 2020						Cost To
Line Item	FY 2018	FY 2019	Base	OCO	Total	FY 2021	FY 2022	FY 2023	FY 2024	Complete	Total Cost
• O&M, DW/0301144K: <i>O&M, DW</i>	45.562	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
• Proc, DW/0301144K: <i>Proc, DW</i>	0.708	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy
Performance-based contracts are primarily used for this support. MNIS maximizes the use of competitive awards and uses various contract types, employs large and small businesses, and is focused to achieve agency socio-economic goals and incorporate DoD acquisition reform initiatives. MNIS evaluates performance by conducting thorough Post-award Contract Reviews, monthly Contract Performance Reviews, and monthly In-Process Reviews.

E. Performance Metrics
Measure:
-% of design, testing and integration activities for MNIS classified technology refresh projects complete (9 Nodes) – 100%

Performance Metric:
-Information Assurance (Classified)
FY18 Estimate: Expected to Meet / Actual: 100% Completed

Methodology:
-Technology Refreshes Projects – 100%
-Direct traffic with 99.99% accuracy for chat, email, Voice over Internet Protocol (VOIP), file transfer, data storage and web service.

Measure:
-Number of CFBLNet Exercises/Events hosted

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0301144K / <i>Joint/Allied Coalition Information Sharing</i>	Project (Number/Name) NND / <i>Multinational Information sharing</i>
<p>Performance Metric: -Annual number of CFBLNet Exercises hosted \geq 2 Exercises Hosted (Empire Challenge & Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX)) FY18 Estimate: Expected to Meet / Actual: 2 Exercises Completed</p> <p>-Annual number of Test Bed Exercise \geq 16 Test Events Hosted (Estimate): Met FY18 Estimate: Expected to Meet / Actual: 100% Completed</p> <p>Methodology: -Number of exercises hosted per Fiscal Year</p> <p>Measure: Cloud integration, Development, Integration, Testing (Unclassified)</p> <p>Performance Metric: % of Cloud Development, Testing, Integration and Implementation Complete = 100% FY18 Estimate: Expected to Meet / Actual: 100% Completed</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0301144K / <i>Joint/Allied Coalition Information Sharing</i>	Project (Number/Name) NND / <i>Multinational Information sharing</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cross Domain Solutions Ops Capabilities Spt	C/CPFF	HAI/Raytheon : Alexandria, VA	11.781	-		-		-		-		-	0.000	11.781	-
Cross Domain Chat - develop & tech services	C/CPFF	Harris Corporation : Alexandria, VA	15.149	-		-		-		-		-	0.000	15.149	-
Cross Domain Solutions -- operational capabilities support	C/CPFF	CACI : Chantilly, VA	0.650	-		-		-		-		-	0.000	0.650	-
Subtotal			27.580	-		-		-		-		-	0.000	27.580	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Federally Funded Research Develop Center (FFRDC)	C/CPFF	MITRE : Arlington VA	9.128	0.329	Oct 2017	-		-		-		-	0.000	9.457	-
Program Support	C/CPFF	Ingenium and SAIC : Upper Marlboro & DC	1.522	-		-		-		-		-	0.000	1.522	-
Engineering Support	C/CPFF	Raytheon : Arlington, VA	9.580	-		-		-		-		-	0.000	9.580	-
DoD Services	MIPR	Various - SPAWAR and Pacific : Warfighting Ctr Hawaii	4.110	-		-		-		-		-	0.000	4.110	-
Project Planning and Management	C/CPFF	Harris Corporation : Alexandria, VA	5.315	-		-		-		-		-	0.000	5.315	-
Engineering Support	C/CPFF	CACI : Chantilly, VA	1.068	-		-		-		-		-	0.000	1.068	-
Project Planning	C/CPFF	SPAWAR : San Diego	1.892	-		-		-		-		-	0.000	1.892	-
Engineering Support	C/CPIF	ARMDEC : Redstone Arsenal, AL	3.689	-		-		-		-		-	0.000	3.689	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0301144K / <i>Joint/Allied Coalition Information Sharing</i>	Project (Number/Name) NND / <i>Multinational Information sharing</i>
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Classified	MIPR	---- : ----	9.069	-		-		-		-		-	0.000	9.069	-
Engineering Support	C/CPFF	BAH : McLean, VA	-	0.721	May 2018	-		-		-		-	0.000	0.721	-
Engineering T&E Hardware	C/CPFF	Primere : Primere	-	0.612	Jul 2018	-		-		-		-	0.000	0.612	-
Coalition T&E	C/CPFF	JITC : Ft. Meade	-	0.769	Jan 2018	-		-		-		-	0.000	0.769	-
SETA Engineering	C/FFP	BAH : McLean	-	0.600	Sep 2018	-		-		-		-	0.000	0.600	-
Engineering Support	MIPR	Various - SPAWAR and Pacific Warfighting Ctr : Hawaii	-	2.576	Nov 2017	-		-		-		-	0.000	2.576	-
Engineering Support	C/CPFF	Soliel : Vienna, VA	-	0.194	Jul 2018	-		-		-		-	0.000	0.194	-
Subtotal			45.373	5.801		-		-		-		-	0.000	51.174	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Coalition Lab T&E, IAVA STIG	MIPR	JITC : Fort Meade, MD	13.106	-		-		-		-		-	0.000	13.106	-
Subtotal			13.106	-		-		-		-		-	0.000	13.106	N/A

Project Cost Totals	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
	86.059	5.801	0.000	-	-	-	0.000	91.860	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0301144K / <i>Joint/Allied Coalition Information Sharing</i>	Project (Number/Name) NND / <i>Multinational Information sharing</i>	

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
MULTINATIONAL INFORMATION SHARING (MNIS) - Current Systems																												
CENTRIX Capability																												
CMNT																												
JITC Testing Security/C&A																												
CFBLNet																												
UIS																												

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
MULTINATIONAL INFORMATION SHARING (MNIS) - Current Systems																												
CENTRIX Capability																												
CMNT																												
JITC Testing Security/C&A																												
CFBLNet																												
UIS																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0301144K / <i>Joint/Allied Coalition Information Sharing</i>	Project (Number/Name) NND / <i>Multinational Information sharing</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MULTINATIONAL INFORMATION SHARING (MNIS) - Current Systems</i>				
CENTRIX Capability	1	2017	4	2018
CMNT	1	2017	4	2018
JITC Testing Security/C&A	1	2017	4	2018
CFBLNet	1	2017	4	2018
UIS	1	2017	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0302016K / <i>National Military Command System-Wide Support</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	7.828	1.863	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
S32: <i>NMCS Command Center Engineering</i>	7.828	1.863	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

The National Military Command System (NMCS), operated by the Chairman of the Joint Chiefs of Staff, provides the President, Secretary of Defense, and other national senior leaders the ability to maintain situational and operational awareness and command and control of military forces in all crisis and/or national emergency contingencies. DISA's NMCS engineering program meets the NMCS systems engineer responsibilities, per Department of Defense Directive (DoDD) S-5100.44 and Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3280.01B, to provide the Joint Staff with operationally efficient and cost-effective engineering solutions to ensure that components and facilities satisfy operational requirements including emergency messaging, situational awareness, crisis action, and information management.

The NMCS engineering program is vital in supporting the government's ability to safeguard national security and respond to contingencies globally and/or nuclear war. NMCS engineering focuses on implementing collaborative tools into current and crisis operations areas, integrating adequate back-up storage and recovery of voice, video and data across the continental United States to support key leaders, transitioning nuclear command and control to Internet Protocol based networks, migrating data and voice network to next generation satellites, implementing modern cryptological devices, and utilizing wireless networking to support warning systems and situational awareness. In addition, NMCS engineering continues to maintain the NMCS Reference Guide required by DoDD S-5100.44 and to develop engineering and test plans for the installation of hardware and software systems utilized within the NMCS.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	1.863	0.000	0.000	-	0.000
Current President's Budget	1.863	0.000	0.000	-	0.000
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

No vertical change statement required.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0302016K / <i>National Military Command System-Wide Support</i>				Project (Number/Name) S32 / <i>NMCS Command Center Engineering</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S32: <i>NMCS Command Center Engineering</i>	7.828	1.863	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The National Military Command System (NMCS), operated by the Chairman of the Joint Chiefs of Staff, provides the President, Secretary of Defense, and other national senior leaders the ability to maintain situational and operational awareness and command and control of military forces in all crisis and/or national emergency contingencies. DISA's NMCS engineering program meets the NMCS systems engineer responsibilities, per Department of Defense Directive (DoDD) S-3710.01 and Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3280.01C, to provide the Joint Staff with operationally efficient and cost-effective engineering solutions to ensure that components and facilities satisfy operational requirements including emergency messaging, situational awareness, crisis action, and information management.

The NMCS engineering program is vital in supporting the government's ability to safeguard national security and respond to contingencies globally and/or nuclear war. NMCS engineering focuses on implementation of collaborative tools into current and crisis operations areas, the integration of adequate back-up storage and recovery of voice, video and data across the continental United States to support key leaders, transition of nuclear command and control to Internet Protocol (IP)-based networks, migration of data and voice network to next generation satellites, implementation of modern crypto-logical devices, and the utilization of wireless networking to support warning systems and situational awareness. In addition, NMCS engineering continues to maintain the NMCS Reference Guide (NRG) required by DoDD S-3710.01 and to develop engineering and test plans for the installation of hardware and software systems utilized within the NMCS.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: NMCS Systems Engineering	1.863	-	-
Accomplishments/Planned Programs Subtotals	1.863	-	-

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• O&M, DW/PE	4.306	5.882	5.999	-	5.999	6.095	6.163	6.317	-	Continuing	Continuing
0302016K: O&M, DW											

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302016K / <i>National Military Command System-Wide Support</i>	Project (Number/Name) S32 / <i>NMCS Command Center Engineering</i>

D. Acquisition Strategy

During FY2018 a full and open competition will be conducted for an NLCC Systems Engineering and Technical Assistance (SETA) contract to provided programmed support to Joint System Engineering and Integration Office (JSEIO) in FY2018 as follow-on to the previous contract with Raytheon, Arlington, VA.

E. Performance Metrics

The JSEIO conducts regularly scheduled In-progress Program Reviews (IPRs) and Configuration Control Board (CCB) meetings to monitor status of engineering projects/tasks. Each current project/task is evaluated in terms of how well the technical work is progressing and how allocated resources are being utilized. Adjustments to resources, schedules, and technical directions are made, as required. Future projects/tasks are also discussed, thereby ensuring an integrated approach is maintained across all related project/task areas. To further increase the utility of the IPR/CCB structure, the Joint Staff customer participates in the project/task reviews. The result of this approach is a truly integrated effort of NMCS Engineering, contractor, and Joint Staff working together to achieve common program goals. Suitable products are delivered within allocated resources and delivered on schedule 90% of the time.

The NMCS is on track to and met its FY 2018 metrics by delivering suitable products on schedule and within allocated resources 100% of the time.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency												Date: March 2019				
Appropriation/Budget Activity 0400 / 7				R-1 Program Element (Number/Name) PE 0302016K / National Military Command System-Wide Support					Project (Number/Name) S32 / NMCS Command Center Engineering							
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Engineering Support	C/CPFF	Raytheon E-Sys : Arlington VA	7.828	1.863	Jan 2018	-		-		-		-	0.000	9.691	-	
Subtotal			7.828	1.863		-		-		-		-	0.000	9.691	N/A	
Project Cost Totals			7.828	1.863		0.000		-		-		-	0.000	9.691	N/A	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302016K / <i>National Military Command System-Wide Support</i>	Project (Number/Name) S32 / <i>NMCS Command Center Engineering</i>
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FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
NMCS																												
Maintenance/Update of NMCS Reference Guide (ongoing-real-time)																												
Maintenance/Update of the Primary Control Center (PCC) Toolkit																												
Completion of Study: Network Computer Communication (NC2) over Internet Protocol (IP)																												
Completion of Super High Frequency (SHF) Upgrade																												
Inspection/Maintenance of High-Altitude Electromagnetic Pulse (HEMP) sites in the National Capital Region (NCR)																												
Moderinize Non-Secure Conferencing Networks																												
Implement PCC Dashboard																												
Milstar Cryptological Modernization																												

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
NMCS																												
Maintenance/Update of NMCS Reference Guide (ongoing-real-time)																												
Maintenance/Update of the Primary Control Center (PCC) Toolkit																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302016K / <i>National Military Command System-Wide Support</i>	Project (Number/Name) S32 / <i>NMCS Command Center Engineering</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NMCS				
Maintenance/Update of NMCS Reference Guide (ongoing-real-time)	1	2017	4	2018
Maintenance/Update of the Primary Control Center (PCC) Toolkit	1	2017	2	2018
Completion of Study: Network Computer Communication (NC2) over Internet Protocol (IP)	1	2017	2	2018
Completion of Super High Frequency (SHF) Upgrade	1	2017	1	2018
Inspection/Maintenance of High-Altitude Electromagnetic Pulse (HEMP) sites in the National Capital Region (NCR)	4	2017	4	2018
Moderinize Non-Secure Conferencing Networks	4	2017	1	2018
Implement PCC Dashboard	4	2017	1	2018
Milstar Cryptological Modernization	4	2017	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0302019K / <i>Defense Info. Infrastructure Engineering and Integration</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	145.582	20.059	16.121	15.798	-	15.798	16.226	16.453	16.787	17.000	Continuing	Continuing
E65: <i>Modeling and Simulation</i>	92.243	11.409	4.343	3.896	-	3.896	4.071	4.154	4.243	4.322	Continuing	Continuing
T62: <i>DoD Information Network (DODIN) Systems Engineering and Support</i>	53.339	8.650	11.778	11.902	-	11.902	12.155	12.299	12.544	12.678	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Information Infrastructure Engineering and Integration effort encompasses two projects: Modeling and Simulation and DoD Information Network (DODIN) Systems Engineering and Support. There are two major activities under the Modeling and Simulation project: Modeling and Simulation and DODIN Enterprise Wide Systems Engineering (EWSE).

The DODIN EWSE activity resolves near term (one to three years) high-priority technical issues defined by DoD Chief Information Officer (DoD CIO) and Defense Information Systems Agency (DISA), that impact operational capabilities affecting DODIN End-to-End (E2E) interoperability and performance.

The Modeling and Simulation project provides architecture, systems engineering and E2E analytical functions for DISA and its customers, ensuring integrated capabilities to fulfill warfighter mission requirements. Ongoing beneficiaries of these capabilities include DoD CIO, the DISA Network Services Directorate, the DISA Enterprise Services Directorate, Program Executive Office-Mission Assurance, the Defense Information Systems Network Command Center and Joint Communications Simulation System users in DoD.

The DODIN Systems Engineering and Support project performs discovery, research, development and experimentation of emerging and commercial technologies through the Office of the Chief Technology Officer (OCTO) to fill capability shortfalls and technology gaps across the Future Years Defense Program (FYDP). The OCTO identifies these gaps/shortfalls, pursues leading innovative solutions from industry, academia, and the Federal sector, and engages industry partners for commercial best practices. The OCTO Develops technology forecasts and innovation roadmaps for existing and nascent DISA Programs in the following areas: Process/Automation, Cloud, Cyber Security, End-User Devices, Communication (DODIN/Mobile/End-User Devices). The OCTO conducts technical system engineering reviews and oversight of DISA and DoD enterprise products and services. The OCTO performs early identification of technology needs and explores, develops, and delivers recommended emerging technologies to the DISA Requirements & Analysis Office.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0302019K / <i>Defense Info. Infrastructure Engineering and Integration</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	21.564	16.561	15.719	-	15.719
Current President's Budget	20.059	16.121	15.798	-	15.798
Total Adjustments	-1.505	-0.440	0.079	-	0.079
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.634	-0.440			
• Adjustment	-0.871	-	0.079	-	0.079

Change Summary Explanation

The decrease in FY 2018 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs (-\$0.634) and due to completion of the major phases of two projects, QUICKWIN and LIFI. QUICKWIN delivered tablets with the same DISANet office automation solution, functionality, and security as DISANet laptops, including implementation of the DoD PKI Purebred derived credential concept instead of CAC cards, with key attestation and root of trust (RoT) (-\$0.871).

The decrease in FY 2019 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs (-\$0.440).

The increase of +\$0.079 in FY 2020 is due to the expansion of technical system engineering reviews and oversight of DISA and DoD enterprise products and services for Return on Investment (ROI) analysis, analysis of alternatives, and mission partner support.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / <i>Defense Info. Infrastructure Engineering and Integration</i>	Project (Number/Name) E65 / <i>Modeling and Simulation</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
<i>E65: Modeling and Simulation</i>	92.243	11.409	4.343	3.896	-	3.896	4.071	4.154	4.243	4.322	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Modeling and Simulation project provides architecture, systems engineering and end-to-end (E2E) analytical functions for the Defense Information Systems Agency (DISA) and its customers, ensuring integrated capabilities to fulfill warfighter mission requirements. Modeling and Simulation activities support the Department of Defense (DoD) communications planning and investment strategy, including: application performance assessments, contingency planning, network capacity planning and diagnostics, and systems-level modeling and simulation. Project efforts provide across-theater information awareness for Combatant Commands through application solutions for integrated networks, including DoD's missions in Afghanistan and the Defense Information Systems Network (DISN) by: (1) supporting the development and implementation of DoD Information Network (DODIN) Enterprise Wide Systems Engineering (EWSE) processes essential to evolving the DODIN in a manner that enables interoperability and E2E performance for critical DODIN programs; (2) developing standardized DISA systems analyses and integration processes to improve systems integration across DISA for all DISA developed communication systems and services; and (3) providing the underlying modeling and simulation and analytical support for E2E DISA and DoD systems engineering and assessment.

Project efforts provide DoD decision makers with services and a suite of tools capable of identifying key points of impact on DoD command and control information systems and recommending trade-offs within the DODIN configuration with regard to prioritized performance, availability, and security. This effort will reduce the risk in products deployed to the warfighter through improved network performance and traffic analysis, and an efficient means of troubleshooting and subsequent redesign.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Modeling and Simulation	11.409	4.343	3.896
FY 2019 Plans: Will develop modeling and simulation tools to analyze planned changes to the DISN optical and Internet Protocol (IP) core network, data centers, internet and commercial cloud computing gateways, and network security solutions. Will develop capabilities for analysis of software defined networking. Will perform test and evaluation of DISN Internet Access Point security solutions with government and contracted labor support. Will research technologies and solutions that can be transitioned to operations and will demonstrate feasibility through solutions analysis and proof-of-concept development and test. Will perform product and solution assessments using developed modeling tools to provide technical solutions for IT capabilities to ensure compatibility and interoperability with the DISN, data centers, and JIE solution architectures. Will develop application performance monitoring framework to support reliable operation of enterprise services and applications.			
FY 2020 Plans: Will provide architecture and model development to Cyber Development architecture for developing future DODIN cyber architecture and cyber portfolio management. This task will develop DoD Cybersecurity Analysis and Review (DoDCAR) analysis			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / <i>Defense Info. Infrastructure Engineering and Integration</i>	Project (Number/Name) E65 / <i>Modeling and Simulation</i>
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B. Accomplishments/Planned Programs (\$ in Millions)

<p>tools for implementing DoDCAR based cyber architecture and system assessment methods. This effort will develop modeling and simulation tools to analyze planned changes to the DISN optical and IP core network, data centers, internet and commercial cloud computing gateways, and network security solutions. Will develop capabilities for analysis of software defined networking. Will perform test and evaluation of DISN Internet Access Point security solutions with government and contracted labor support. Will research technologies and solutions that can be transitioned to operations and will demonstrate feasibility through solutions analysis and proof-of-concept development and test. Will perform product and solution assessments using developed modeling tools to provide technical solutions for IT capabilities to ensure compatibility and interoperability with the DISN, data centers, and JIE solution architectures. Will develop application performance monitoring framework to support reliable operation of enterprise services and applications.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease of -\$0.447 is due to the completion of pilot assessments on innovative and emerging technologies.</p>	FY 2018	FY 2019	FY 2020
Accomplishments/Planned Programs Subtotals	11.409	4.343	3.896

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0302019K: <i>Operation & Maintenance, Defense-Wide</i>	15.606	16.437	16.579	-	16.579	16.911	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

EWSE uses contractors to assist/supplement the Government lead/team for technical activities. Subject matter experts in both large and small businesses are sought for the engineering support. Firm fixed price contracts with one option year are typically used in open competition. Furthermore, technical work with Federally Funded Research and Development Centers (FFRDCs) such as MITRE and MIT Lincoln Lab are established and coordinated when the Government can leverage their expertise and R&D in the key technology.

Modeling and Simulation uses a range of contractors for modeling support to the various projects. Contractors range from small to large business, predominantly using open competition methods and Firm Fixed Price (FFP) tasks and utilizing multi-year (base plus option years) contracts where possible. Support includes network modeling tool and processes development to adapt to ever-evolving OSD/DISA programs and projects, analyses, capacity planning, and network redesign using the models. Some specific support (e.g., integration with proprietary software) will require contracting with OPNET (e.g., sole source). FFRDCs are also considered depending upon the task.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / <i>Defense Info. Infrastructure Engineering and Integration</i>	Project (Number/Name) E65 / <i>Modeling and Simulation</i>

E. Performance Metrics

DISN core transport bandwidth sufficiency, tied to capacity planning and activation of bandwidth in the DISN optical core to keep at least 25% spare capacity, to allow for provisioning of unforeseen requirements and rerouting under outages.

DISN IP Core bandwidth sufficiency tied to capacity planning and activation of IP bandwidth to maintain average bandwidth utilization of DISN IP Core and NIPRNet backbone circuits under 65% during daily peak periods.

DISN SIPRNet bandwidth sufficiency tied to capacity planning and activation of IP bandwidth to maintain average bandwidth utilization of SIPRNet backbone circuits under 50% during daily peak periods.

The EWSE projects will be measured by the number of technical studies performed with associated systems engineering artifacts (market research reports, technology assessments, solutions analyses, etc.) that are developed to support DODIN capabilities; and the number of proof-of-concept demonstrations or pilots executed to support viability of the technical approach/recommendation. These products will be coordinated with the stakeholders, users and/or Program Management Offices (PMO) to ensure EWSE provides the right deliverables for solution development decisions.

FY 2018 planned target: Will complete 2 technical studies, 6 engineering artifacts, and 2 concept demonstrations. / Actual: Completed 2 technical studies, 6 engineering artifacts and 2 concept demonstrations.

FY 2019 planned target: Will complete 2 technical studies, 6 engineering artifacts, and 2 concept demonstrations.

FY 2020 planned target: Will complete 2 technical studies, 6 engineering artifacts, and 2 concept demonstrations.

The Modeling and Simulation project provides architecture, systems engineering and E2E analytical functions for DISA and its customers, ensuring integrated capabilities to fulfill warfighter mission requirements. Ongoing beneficiaries of these capabilities include DoD Enterprise Activities, the DODIN and DISA applications, as well as engineering capabilities support to programs and projects to address technical and engineering solutions to activities such as information assurance and cyber security; mobility and cloud technologies and warfighter and mission support activities.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / Defense Info. Infrastructure Engineering and Integration	Project (Number/Name) E65 / Modeling and Simulation
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development 1	SS/FFP	OPNET Tech, Inc : Bethesda, MD	8.506	1.449	Aug 2018	0.342	Oct 2018	0.124	Feb 2020	-		0.124	Continuing	Continuing	Continuing
Product Development 2	C/CPFF	APPTIS : Chantilly, VA	1.822	1.812	Aug 2018	0.418	Oct 2018	-		-		-	Continuing	Continuing	Continuing
Product Development 3	SS/FFP	Falls Church, VA : Falls Church, VA	1.312	-		-		-		-		-	0.000	1.312	-
Product Development 4	C/FFP	Booz Allen, Hamilton : McLean, VA	4.333	0.648	Aug 2018	0.250	Oct 2018	0.120	Feb 2020	-		0.120	Continuing	Continuing	Continuing
Product Development 5	C/FFP	NRL : Washington, DC	0.100	-		-		-		-		-	0.000	0.100	-
Product Development 6	C/CPFF	Soliel, LLC : Reston, VA	3.862	-		-		-		-		-	0.000	3.862	-
Product Development 7	C/FFP	COMPTEL : Arlington, VA	2.805	-		-		-		-		-	0.000	2.805	-
Product Development 8	C/CPFF	COMPTEL : Arlington, VA	0.926	-		-		-		-		-	0.000	0.926	-
Product Development 9	C/CPFF	MIT Lincoln Labs : Cambridge, MA	11.439	1.860	Dec 2017	-		-		-		-	0.000	13.299	-
Product Development 10	MIPR	Various : Various	9.501	1.767	Dec 2017	-		-		-		-	0.000	11.268	-
Enterprise Wide Systems Engineering 11	C/FFP	Northrop Grumman : Fairfax, VA	1.784	-		-		-		-		-	0.000	1.784	-
Clear Sky Pilot	C/CPFF	AFRL Terremark : Various	24.083	-		-		-		-		-	0.000	24.083	-
Narus	C/CPFF	AFRL : Rome, NY	1.450	-		-		-		-		-	0.000	1.450	-
Cyber Accelerator	C/CPFF	DTIC : Alexandria, VA	7.516	-		-		-		-		-	0.000	7.516	-
Commercial Integration Demonstration	C/CPFF	DTIC : Alexandria, VA	2.750	-		-		-		-		-	0.000	2.750	-
Web Content Filtering: Perimeter Defense Integration	C/FFP	Oberon Associates : Ft. Meade, MD	1.854	-		-		-		-		-	0.000	1.854	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / Defense Info. Infrastructure Engineering and Integration	Project (Number/Name) E65 / Modeling and Simulation
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Host Based Security Ops Assessment	C/FFP	Summit Technologies, Inc : Ft Meade, MD	0.700	-		-		-		-		-	0.000	0.700	-
Secure Configuration Management Ops Assessment	C/FFP	Cyber Security research and Solutions Corp : Ft Meade	0.964	-		-		-		-		-	0.000	0.964	-
Product Development 11	C/CPFF	Johns Hopkins University Applied Physics : Laurel, MD	0.450	0.350	Oct 2017	0.141	Oct 2018	-		-		-	0.000	0.941	-
Engineering Technical Services	MIPR	Axom Technologies : Fort Meade	0.502	0.478	Oct 2017	0.201	Oct 2018	-		-		-	0.000	1.181	-
Requirements Analysis/ Program Management: Civilian Pay	MIPR	Various : Various	1.445	0.092	Oct 2017	0.072	Oct 2018	0.520	Feb 2020	-		0.520	Continuing	Continuing	Continuing
Cloud Hosted Shared Services	C/FFP	Nisga's Data Systems LLC : Herndon, VA	1.350	-		-		-		-		-	0.000	1.350	-
Cloud/ Gateway Pilot	C/FFP	Alvarez and Associates : Tysons Corner, VA	0.304	-		-		-		-		-	0.000	0.304	-
Cloud/ Gateway Pilot	C/FFP	BY Light Professional IT Services : : Arlington, VA	0.413	-		-		-		-		-	0.000	0.413	-
Subtotal			90.171	8.456		1.424		0.764		-		0.764	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IP Network Modeling	SS/FFP	Riverbed : Bethesda, MD	-	1.056	Sep 2018	1.200	Sep 2019	1.576	Sep 2020	-		1.576	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / <i>Defense Info. Infrastructure Engineering and Integration</i>	Project (Number/Name) E65 / <i>Modeling and Simulation</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Horizontal Engineering</i>																												
Horizontal Engineering																												
<i>Modeling and Simulation Applications</i>																												
Modeling and Simulation Applications																												

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Horizontal Engineering</i>																												
Horizontal Engineering																												
<i>Modeling and Simulation Applications</i>																												
Modeling and Simulation Applications																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / <i>Defense Info. Infrastructure Engineering and Integration</i>	Project (Number/Name) E65 / <i>Modeling and Simulation</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Horizontal Engineering</i>				
Horizontal Engineering	1	2017	4	2024
<i>Modeling and Simulation Applications</i>				
Modeling and Simulation Applications	1	2017	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0302019K / Defense Info. Infrastructure Engineering and Integration				Project (Number/Name) T62 / DoD Information Network (DODIN) Systems Engineering and Support			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
T62: DoD Information Network (DODIN) Systems Engineering and Support	53.339	8.650	11.778	11.902	-	11.902	12.155	12.299	12.544	12.678	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The DoD Information Network (DODIN) Systems Engineering and Support project aligns with the updated DISA Strategic Plan, which includes the Chief Technology Officer's Outlook and a Technology Watchlist. The Watchlist identifies key technology areas that are essential for Defense Information Systems Agency (DISA) including: Process/Automation, Cloud, Cyber Security, End-User Devices, and Communication (DODIN, Mobile/End-User Devices).

The DODIN Systems Engineering and Support Project ensure the technical strategies for the Defense Information Systems Agency (DISA) are in line with the DoD IT Efficiency strategy and the latest Department of Defense Chief Information Office (DoD CIO) Capabilities Planning Guidance (CPG) through the Office of the Chief Technology Officer (OCTO). These strategies will establish the foundation for DISA's technology investments and technical development. The OCTO leverages emerging technology to drive efficiencies and cost savings to the DoD, the Warfighter, and other Federal Agencies, and provides actionable, decision-oriented information to the Secretary of Defense, Joint Staff, Military Services, Combatant Commands, and other mission partners in satisfying DoD mission objectives.

Cyber security and cloud computing present critical near term challenges, especially the ability to securely leverage commercial cloud service offerings. The OCTO's partnership with Defense Advanced Research Projects Agency (DARPA) will assess and transition technologically relevant and mature solutions. Included are applications with a security wrapper that detect and mitigate cyberattacks; smart routing and managed reputation capability; embedded system defense capabilities; and resilient and intrusion-tolerant network capabilities.

Partnerships with industry, academia, and the Federal sectors will produce requisite cyber measures and ensure optimal use of commercial cloud services. The OCTO will conduct technology assessments, process improvements, as well as the analysis and review of potential technology solutions, products, capabilities and services to ensure consistency with DODIN architecture and standards. Enabled by the Technology Assessment Framework (TAF) and the DISA Technology Information Repository (DTIR), the OCTO will perform "quick looks" and deeper technology evaluations to provide critical awareness, characterization, and suitability of specific technologies. These include the assessments of advanced cloud management capabilities; physical containers to enable mobile data center; emerging open source Storage Service Application Programming Interfaces (APIs) and/or abstractions and global standards for storage services; analytic platform performance baselines of emerging commercial analytic platform products; advanced approaches to Continuity of Operations (COOP) in a hybrid cloud environment; and the next generation software defined networks for automating and virtualizing the DODIN. The Agency's internal innovation suggestion program, DISArruptive, previously resourced by available government civilian time, will be revamped in FY2019 with relaunch by FY20 to deliver technical expertise and including training for potential innovators and innovation suggestion technical support including limited test conduct, instrumentation, or test materials.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / <i>Defense Info. Infrastructure Engineering and Integration</i>	Project (Number/Name) T62 / <i>DoD Information Network (DODIN) Systems Engineering and Support</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Title: Department of Defense Information Network (DODIN) Systems Engineering and Support</p> <p>FY 2019 Plans: The CTO will expand its focus on laboratory prototyping known as Software Defined Everything (SDE) which is based on the notion of using software to keep redefining itself, rather than being locked into operating in a specific way. It is easily reconfigurable and extensible software that rapidly morphs to adapt to newly emerging situations. SDE will serve as an enabler to leverage capabilities from five principal areas. These five areas are; Process/Automation, Cloud, Cyber Security, End-User Devices, Communication (DODIN, Mobile/End-User Devices). CTO will conduct technical assessments for future cloud computing technologies and innovative service delivery models, mobile devices, application development and vetting best practices, and next generation virtualized Software Defined Networks (SDN) for automating and virtualizing the DODIN. CTO will partner with commercial partners, academia, technical analysis centers, as well as organizations within the Intelligence Community, to bring state of the art capabilities to the DISA/DoD resulting in better communications and monitoring tools, enterprise services and improved end-user services and capabilities. CTO will continue to pursue and refine methods, processes and strategies to assist in the acceleration of capability into the operational environment. Develop revision to DISAruptive process, develop training support curriculum, and update user portal.</p> <p>FY 2020 Plans: Perform discovery, research, development and experimentation of emerging and commercial technologies to fill capability shortfalls and technology gaps across the Future Years Defense Program (FYDP). Identify gaps/shortfalls, pursues leading innovative solutions from industry, academia, and the Federal sector, and engages industry partners for commercial best practices. Develop technology forecasts and innovation roadmaps for existing and nascent DISA Programs in the following areas: Process/Automation, Cloud, Cyber Security, End-User Devices, Communication (DODIN/Mobile/End-User Devices). Early identification of technology need and explores, develops, and delivers recommended emerging technologies to the DISA Requirements & Analysis Office. Operationalize DISAruptive enhancements, begin training support curriculum, and begin R&D support to innovative ideas received through the DISAruptive portal.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The increase of +\$0.124 from FY2019 to FY2020 is due to innovation identification and integration.</p>	8.650	11.778	11.902
Accomplishments/Planned Programs Subtotals	8.650	11.778	11.902

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / <i>Defense Info. Infrastructure Engineering and Integration</i>	Project (Number/Name) T62 / <i>DoD Information Network (DODIN) Systems Engineering and Support</i>

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

Line Item	FY 2018	FY 2019	FY 2020	FY 2020	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Cost To	
			Base	OCO	Total					Complete	Total Cost
• O&M, DW/PE 0302019K: <i>Operation & Maintenance, Defense-Wide</i>	2.773	2.814	2.899	-	2.899	2.962	3.035	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Market research during the acquisition process includes a review of DISA contracts, other DoD contract vehicles, and other Federal Government agency contracts which are advertised for Government-wide usage. This market research also includes consideration of small businesses including minority/women owned (8A) businesses, Historically Black Colleges and Universities, mentor/protégé and other specialized contract vehicles and processes. Market research evaluates all contractors available from DISA sources for their ability to deliver the products specifically required for the unique program efforts. The program works collaboratively with vendors to obtain generic cost data for planning and analysis purposes. Past and current contract prices for similar work and other government-wide agency contracts provide additional sources of information. Quotes from multiple sources help provide averages for more realistic cost estimates. DISA makes a concerted effort to award many of its contracts to small businesses. Additionally, many of the DISA contracts are awarded with multiple option periods. These have the benefit of fixing labor costs over an extended period and minimizing the administrative costs associated with re-issuing short-term contracts.

E. Performance Metrics

Number of Technology Assessments

Performance is measured by the number of technologies assessed and the technologies transitioned or presented to DISA decision-making bodies such as the Service Portfolio Council (SPC) for acquisition decisions. The assessments identify, promote, channel and align technology research and investments. The objectives are to satisfy warfighter requirements by addressing capability gaps, to improve operational effectiveness and efficiency, and to reduce the time needed to field emerging technologies.

Measure/Goal: Number of technology assessments instantiated within the CTO Technology Environment. Number of research initiatives designed, developed, demonstrated, and transitioned or presented to DISA decision-making bodies such as the SPC for acquisition decisions.

FY 2018 Target: 12 Assessed and 8 transitioned / Actual: 12 Assessed and 8 transitioned.

FY 2019 Target: 12 Assessed and 8 transitioned.

FY 2020 Target: 12 Assessed and 8 transitioned.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / Defense Info. Infrastructure Engineering and Integration	Project (Number/Name) T62 / DoD Information Network (DODIN) Systems Engineering and Support
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering and Technical Services	FFRDC	MITRE : McLean, VA	11.410	1.500	Oct 2017	1.323	Oct 2018	1.323	Oct 2019	-		1.323	Continuing	Continuing	Continuing
Industry Tech Res	C/FFP	Gartner : Various	0.249	-		-		-		-		-	0.000	0.249	-
GIG Technical Insertion Engineering	C/FFP	SRA, Inc. : Fairfax, VA	1.211	-		-		-		-		-	0.000	1.211	-
Product Development	C/Various	Raytheon : Various	1.601	-		-		-		-		-	0.000	1.601	-
DAMA-C	MIPR	Defense Micro-electronics Activity : Various	11.794	-		-		-		-		-	0.000	11.794	-
Thin Engineering Support	MIPR	MIT Lincoln Labs : Lexington, MA	4.260	-		-		-		-		-	0.000	4.260	-
Engineering and Technical Support	C/FFP	Moya Technologies, Inc. : Various	1.212	-		-		-		-		-	0.000	1.212	-
Engineering Technical Services	MIPR	Various : Chambersburg, PA	3.315	-		1.084	Jul 2019	2.000	Jan 2020	-		2.000	Continuing	Continuing	Continuing
Product Development	C/FFP	Science and Technology Associates, Inc : Arlington, VA	2.091	-		-		-		-		-	0.000	2.091	-
Product Development	MIPR	SPAWAR : Charleston, SC	0.376	-		-		-		-		-	0.000	0.376	-
Product Development	MIPR	NSA : Ft. Meade, MD	0.691	-		-		-		-		-	0.000	0.691	-
Engineering Technical Services	C/FFP	TWM : Falls Church, VA	0.202	-		-		-		-		-	0.000	0.202	-
Product Development	C/FFP	SOLERS : Arlington, VA	2.373	0.650	Jul 2018	-		-		-		-	0.000	3.023	-
Product Development	C/FFP	Booz Allen Hamilton : McLean, VA	0.500	0.562	Jan 2018	-		-		-		-	0.000	1.062	-
Product Development	MIPR	JITC : Ft. Meade, MD	0.351	-		-		-		-		-	0.000	0.351	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / Defense Info. Infrastructure Engineering and Integration	Project (Number/Name) T62 / DoD Information Network (DODIN) Systems Engineering and Support
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering Technical Services	MIPR	Various : Ft. Meade, MD	3.953	0.528	Oct 2017	-		-		-		-	0.000	4.481	-
Engineering Technical Services	C/Various	IV2: IT Consulting Services, LLC : Jackson, WY	1.674	-		-		-		-		-	0.000	1.674	-
Engineering Technical Services	C/FFP	Information Assurance TWM Follow On : Various	0.741	-		-		-		-		-	0.000	0.741	-
Engineering Technical Services	C/CPFF	TIE NEMS: B&D Consulting : Various	0.564	-		-		-		-		-	0.000	0.564	-
Engineering Technical Services	C/Various	Tapestry Technologies, INC : Various	1.637	1.536	Mar 2018	-		-		-		-	0.000	3.173	-
Management Services - Civilian Pay	Various	Various : Ft. Meade, MD	3.134	3.294	Oct 2017	-		-		-		-	0.000	6.428	-
Engineering Technical Services	C/FFP	PMPC-Itility LLC : Ft. Meade, MD	-	0.580	Mar 2018	0.227	Mar 2019	0.229	Mar 2020	-		0.229	Continuing	Continuing	Continuing
Information Assurance	C/CPFF	Tapestry Tech : Chambersburg, PA	-	-		0.583	Jan 2019	0.600	Jan 2020	-		0.600	Continuing	Continuing	Continuing
Sys Engineering	C/CPFF	Various : Ft. Meade, MD	-	-		3.650	Mar 2019	2.124	Mar 2020	-		2.124	Continuing	Continuing	Continuing
Management Services - Civilian Pay	C/CPFF	Various : Ft. Meade	-	-		4.911	Oct 2018	4.897	Oct 2019	-		4.897	Continuing	Continuing	Continuing
Program Management and Knowledge Management	C/FFP	TBD : TBD	-	-		-		0.229	Mar 2020	-		0.229	Continuing	Continuing	Continuing
(DODIN) Systems Engineering and Support	C/FFP	TBD : TBD	-	-		-		0.500	Mar 2020	-		0.500	Continuing	Continuing	-
Subtotal			53.339	8.650		11.778		11.902		-		11.902	Continuing	Continuing	N/A
Project Cost Totals			53.339	8.650		11.778		11.902		-		11.902	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency							Date: March 2019			
Appropriation/Budget Activity 0400 / 7			R-1 Program Element (Number/Name) PE 0302019K / Defense Info. Infrastructure Engineering and Integration			Project (Number/Name) T62 / DoD Information Network (DODIN) Systems Engineering and Support				
	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / Defense Info. Infrastructure Engineering and Integration	Project (Number/Name) T62 / DoD Information Network (DODIN) Systems Engineering and Support	

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
Technical Direction Agent (TDA)																												
Technical Direction Agent (TDA)																												
Engineering Support																												
Engineering Support																												
Industry/University Technical Research																												
Industry/University Technical Research																												
Technology Assessments																												
Technology Assessments																												
DISA Ruptive																												
DISA Ruptive																												
Research and Development for technical solutions																												
Research and Development for technical solutions																												

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Technical Direction Agent (TDA)																												
Technical Direction Agent (TDA)																												
Engineering Support																												
Engineering Support																												
Industry/University Technical Research																												
Industry/University Technical Research																												
Technology Assessments																												
Technology Assessments																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / Defense Info. Infrastructure Engineering and Integration	Project (Number/Name) T62 / DoD Information Network (DODIN) Systems Engineering and Support
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>DISA Ruptive</i>																												
DISA Ruptive																												
<i>Research and Development for technical solutions</i>																												
Research and Development for technical solutions																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0302019K / <i>Defense Info. Infrastructure Engineering and Integration</i>	Project (Number/Name) T62 / <i>DoD Information Network (DODIN) Systems Engineering and Support</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Technical Direction Agent (TDA)				
Technical Direction Agent (TDA)	1	2017	4	2023
Engineering Support				
Engineering Support	1	2017	4	2023
Industry/University Technical Research				
Industry/University Technical Research	1	2017	4	2023
Technology Assessments				
Technology Assessments	1	2017	4	2023
DISA Ruptive				
DISA Ruptive	4	2020	3	2024
Research and Development for technical solutions				
Research and Development for technical solutions	4	2019	3	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303126K / <i>Long-Haul Communications - DCS</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	270.497	23.090	14.353	11.166	-	11.166	11.891	11.681	11.923	12.144	Continuing	Continuing
PC01: <i>Presidential and National Voice Conferencing/</i>	96.558	5.262	3.047	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
T82: <i>DISN Systems Engineering Support</i>	173.939	17.828	11.306	11.166	-	11.166	11.891	11.681	11.923	12.144	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Information Systems Network (DISN) is the Department of Defense's (DoD's) consolidated worldwide telecommunications capability that provides secure, end-to-end information transport for DoD operations. It also provides the warfighter and the Combatant Commands (COCOMs) with a robust Command, Control, Communications, Computing, and Intelligence infrastructure to support DoD net-centric missions and business requirements. The Defense Red Switch Network (DRSN) is a DoD Secure Voice, Command and Control Network that is controlled and directed by the Joint Staff and the Office of the Secretary of Defense. It provides multi-level secure, rapid, ad hoc, voice calling and conferencing capability to the President, Secretary of Defense, Services, COCOMs, subordinate organizations (military and civilian) and coalition allies. DRSN also supports the Presidential and National Voice Conferencing (PNVC) (formerly known as National Emergency Action Decision Network (NEADN)) and the Enhanced Pentagon Capability/Survivable Emergency Conferencing Network. These funds support three major efforts:

DISN Systems Engineering Support: This effort includes engineering for Networking capabilities and optical transport capabilities to ensure the essential operations of a robust and secure DISN; refreshing the systems that instrument and automate the operations, administration, maintenance and provisioning functions and creating a single DISN-wide view for network managers and operators.

PNVC: The PNVC provides selected system engineering for continued development and testing of the PNVC equipment for senior leaders. The PNVC system provides a military, satellite-based, survivable, secure, and near toll-quality voice conferencing capability for the President, Secretary of Defense, Chairman, Joint Chiefs of Staff, and other senior national/military leaders anywhere in the world as needed. Funding supports the acquisition activities for the PNVC baseband equipment, including critical and essential engineering required to develop new vocoder and cryptographic and audio-summing equipment.

DoD Mobility: The Mobility Program will lead the development of an Enterprise Solution to support Controlled Unclassified Information (CUI) and leverage commercial carrier infrastructure to provide entry points for both classified and unclassified wireless capabilities. Continued evolution and expansion, within the Department, of the DoD Mobility program will allow for increased mobile services in direct support of the warfighter and the COCOMs.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303126K / <i>Long-Haul Communications - DCS</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	15.428	14.769	14.174	-	14.174
Current President's Budget	23.090	14.353	11.166	-	11.166
Total Adjustments	7.662	-0.416	-3.008	-	-3.008
• Congressional General Reductions	-0.050	-0.416			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.190	-			
• Adjustment	8.902	-	-3.008	-	-3.008

Change Summary Explanation

Increase in FY 2018 of +\$7.662 IS due to the increase to PNVC for radiation and survivable testing requirements for airborne version of the baseband interface group crypto, integration, security and software updates (+\$6.416) and an increase of +\$2.486 to fund Milestone 4 & 5 of Assured Identity which supports prototype demonstration and assigned attributes (dedicated Security, device attestation, pilot device configuration & purebred application enhancements) for granting mobile access to DoD mission critical information and information sharing systems. These increases were offset by a decrease of -\$1.190 which reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and a congressional general reduction for Federally Funded Research & Development Centers (FFRDC) of -\$0.050.

Decrease in FY 2019 of -\$0.416 is due to the congressional general reduction Federally Funded Research & Development Centers (FFRDC).

Decrease in FY 2020 of -\$3.008 due primarily to the functional transfer of PNVC to the Air Force.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS				Project (Number/Name) PC01 / Presidential and National Voice Conferencing/			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
PC01: Presidential and National Voice Conferencing/	96.558	5.262	3.047	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Presidential and National Voice Conferencing (PNVC) (formerly called National Emergency Action Decision Network (NEADN)) provides system engineering, development and testing of the equipment for senior leaders. The PNVC system provides a military satellite-based, world-wide, survivable, secure, and near toll-quality voice conferencing capability for the President, Secretary of Defense, Chairman, Joint Chiefs of Staff, and other senior national/military leaders. By implementing new technology capabilities (e.g. Ethernet-Framing and higher data rate), this project provides improved performance to the survivable voice conferencing capability. This project supports the acquisition activities for the PNVC baseband equipment, including engineering required to develop new vocoder, cryptographic and audio-summing equipment.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Presidential and National Voice Conferencing (PNVC)	5.262	3.047	-
Description: Presidential and National Voice Conferencing (PNVC) Systems Engineering conduct analyses for continuity of NEADN voice conferencing for national/military leaders through PNVC deployment. Program continues engineering, technical analysis, development, and coordination to ensure terminal, baseband, and satellite synchronization for voice conferencing amongst senior leaders.			
FY 2019 Plans: Continue to support PNVC integration and testing and fielding of expanded capability and upgrades at PNVC sites. This includes systems engineering and testing support to the various platforms receiving the capability. Fund Engineering change proposals for software as needed to respond to user feedback.			
FY 2019 to FY 2020 Increase/Decrease Statement: The decrease of -\$3.047 from FY 2019 to FY 2020 is attributed to the functional transfer of PNVC to the Air Force.			
Accomplishments/Planned Programs Subtotals	5.262	3.047	-

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• Procurement, DW/PE 0303126K: <i>Procurement, Defense-Wide</i>	1.246	1.386	-	-	-	-	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) PC01 / Presidential and National Voice Conferencing/

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

N/A

D. Acquisition Strategy

The audio equipment development activities are incorporated into the sole source DRSN sustainment contract. For the development of the Baseband Interface Group (BIG) cryptographic device, NSA will perform an assisted acquisition for DISA using a competitively awarded fixed price contract. Engineering support for PNVC is provided by task orders competitively awarded on existing DoD contracts and Federally Funded Research and Development Contracts (FFRDC) support.

E. Performance Metrics

PNVC project metrics track the development status of program acquisition documents, as required by the component executive. These documents include: Project Execution Plan, Concept of Operations Acquisition Strategy, Capability Production Document, System Engineering Plan and other documents required by the DISA's Component Acquisition Executive. Additionally, for management and system engineering support vendors, monthly reports are critical to tracking overall programmatic and engineering progress and the percent of total deliverables received on time.

For product development activities, effective progress is measured based upon the task order milestones in the form of development reviews and weekly progress meetings. As end items (hardware and software) become available for test, additional measures will be available. Specifically, the percentage of successfully verified requirements out of the number tested and the number of critical trouble reports outstanding longer than six months, will be tracked.

Performance Metrics:

Project Support Deliverables received on time

FY 2018 (expected result): 100% / Actual: 100%

FY 2019 (expected result): 100%

Product Deliverable Milestones completed on time

FY 2018 (expected result): 100% / Actual: 100%

FY 2019 (expected result): 100%

Successfully Tested Requirements:

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / <i>Long-Haul Communications</i> - DCS	Project (Number/Name) PC01 / <i>Presidential and National Voice Conferencing/</i>
FY 2018 (expected result): 95% / Actual: 95%		
FY 2019 (expected result): 95%		
Number of Critical Trouble Reports greater than 6 months old		
FY 2018 (expected result): Less than 4 / Actual: 8		
FY 2019 (expected result): Less than 4		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) PC01 / Presidential and National Voice Conferencing/
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BIG Development Preparation	MIPR	NSA : Various	36.206	-		-		-		-		-	0.000	36.206	-
MSD-III Development	C/T&M	Raytheon : Largo, FL	18.479	-		-		-		-		-	0.000	18.479	-
PNVC Baseband Equipment	Various	Various : Various	9.300	-		-		-		-		-	0.000	9.300	-
Systems Engineering	FFRDC	MITRE : McLean, VA	0.423	-		-		-		-		-	0.000	0.423	-
PNVC Baseband Airborne variant ECP	C/CPFF	Raytheon : Largo, FL	16.880	-		-		-		-		-	0.000	16.880	-
Subtotal			81.288	-		-		-		-		-	0.000	81.288	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PNVC Software enhancements	C/CPFF	Raytheon : Florida	1.999	-		0.785	Feb 2019	-		-		-	0.000	2.784	-
PNVC Software enhancements	C/CPFF	General Dynamics : NSA	2.889	2.527	Jun 2018	0.562	Feb 2019	-		-		-	0.000	5.978	-
Systems Engineering	C/CPFF	Booz Allen Hamilton : McLean, VA	4.015	0.852	Mar 2018	0.900	Mar 2019	-		-		-	0.000	5.767	-
Systems Engineering	FFRDC	Aerospace Corporation : Falls Church, VA	1.000	0.595	Oct 2017	0.350	Oct 2018	-		-		-	0.000	1.945	-
Systems Engineering	FFRDC	Mitre : McLean, VA	0.950	0.460	Oct 2017	0.450	Oct 2018	-		-		-	0.000	1.860	-
Test and Evaluation	Various	605th : TES	0.540	-		-		-		-		-	0.000	0.540	-
Test and Evaluation	Various	Miscel : BBK	0.852	0.828	Dec 2017	-		-		-		-	0.000	1.680	-
Subtotal			12.245	5.262		3.047		-		-		-	0.000	20.554	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) PC01 / Presidential and National Voice Conferencing/

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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

PNVC System Testing	
PNVC System	██████████
N/A	
PNVC System Engineering and Management Support	██████████

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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

PNVC System Testing	
PNVC System	██████████
N/A	
PNVC System Engineering and Management Support	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / <i>Long-Haul Communications</i> - DCS	Project (Number/Name) PC01 / <i>Presidential and National Voice Conferencing/</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>PNVC System Testing</i>				
PNVC System	1	2017	4	2019
<i>N/A</i>				
PNVC System Engineering and Management Support	1	2017	2	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS				Project (Number/Name) T82 / DISN Systems Engineering Support			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
T82: DISN Systems Engineering Support	173.939	17.828	11.306	11.166	-	11.166	11.891	11.681	11.923	12.144	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The DISN Systems Engineering Support project encompasses four activities:

Next Generation Networking Technologies (formally known as Internet Protocol (IP) and Optical Transport Technology Refresh): Provides engineering technical expertise to support and integrate newer, more efficient technologies required to replace end of lifecycle equipment and to achieve more efficient Networking technologies. These new technologies provide protected and assured services for critical support to the warfighter as well as other DoD and federal customers.

Element Management System (EMS): Provides operational and network operating systems that instrument and automate the operations, administration, maintenance and provisioning functions creating a single DISN-wide view for network managers and operators. EMS is a component of the DISN Operational Support Systems (OSS).

Peripheral and Component Design (Secure Voice Switches): This equipment satisfies unique military requirements for multi-level security (i.e., extensive conferencing/conference management capabilities and features, and gateway functions) that are not available in commercial products.

DoD Mobility: The Mobility Program will lead the development of an Enterprise Solution to support Controlled Unclassified Information (CUI) and leverage commercial carrier infrastructure to provide entry points for both classified and unclassified wireless capabilities. Continued evolution and expansion, within the Department, of the DoD Mobility program will allow for increased mobile services in direct support of the warfighter and the COCOMs.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Next Generation Networking Technologies (formally known as Internet Protocol (IP) and Optical Transport Technology Refresh	5.203	5.080	5.061
Description: Provides engineering technical expertise to support and integrate newer, more efficient technologies required to replace end of lifecycle equipment and to achieve more efficient Networking technologies. These new technologies provide protected and assured services for critical support to the warfighter as well as other DoD and federal customers.			
FY 2019 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) T82 / DISN Systems Engineering Support

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>The DISN will continue to perform Research, Test and Evaluation activities in Software Environment, Next Generational Networking to include Gray networks and all associated encryption technologies.</p> <p>FY 2020 Plans: The DISN will continue to perform Research, Test and Evaluation activities in Software Environment, Next Generational Networking to include Gray networks and all associated encryption technologies.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The decrease of -\$0.019 from FY 2019 to FY 2020 is due to a slightly reduced effort on networking technologies.</p>			
<p>Title: Peripheral and Component Design</p> <p>Description: This equipment satisfies unique military requirements for multi-level security (i.e., extensive conferencing/conference management capabilities and features, and gateway functions) that are not available in commercial products.</p> <p>FY 2019 Plans: Support upgrades to switch software for Information Assurance (IA)/Cybersecurity improvements and continued integration of IP trunking and IP line-side and gateway functions in evolving system to meet Risk Management Framework (RMF) and Nuclear Command, Control, and Communications (NC3) requirements.</p> <p>FY 2020 Plans: Support upgrades to switch software for IA/Cybersecurity improvements and continued integration of IP trunking and IP line-side and gateway functions in evolving system to meet RMF and NC3 requirements.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The decrease of -\$0.104 from FY 2019 to FY 2020 is attributed to fewer Defense Red Switch Network (DRSN) HW/SW component enhancements.</p>	-	1.731	1.627
<p>Title: Mobility</p> <p>Description: DoD Mobility: The Mobility Program will lead the development of an Enterprise Solution to support Controlled Unclassified Information (CUI) and leverage commercial carrier infrastructure to provide entry points for both classified and unclassified wireless capabilities. Continued evolution and expansion, within the Department, of the DoD Mobility program will allow for increased mobile services in direct support of the warfighter and the COCOMs.</p> <p>FY 2019 Plans: Developmental and production testing of new-model commercial mobile devices per product baseline, carrier, and platform authenticated against the Mobile Device Manager. Security, interoperability, and functional evaluation of mobile applications. Production testing of the applications development framework and integration testing for infrastructure components, including</p>	6.725	4.495	4.478

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) T82 / DISN Systems Engineering Support

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
additional gateway instances supporting secret and top secret domains as well as any commercial off-the-shelf (COTS) component technology refresh requirements against the end-to-end architecture.			
FY 2020 Plans: Developmental and production testing of new-model commercial mobile devices per product baseline, carrier, and platform authenticated against the Mobile Device Manager. Security, interoperability, and functional evaluation of mobile applications. Production testing of the applications development framework and integration testing for infrastructure components, including additional gateway instances supporting secret and top secret domains as well as any COTS component technology refresh requirements against the end-to-end architecture.			
FY 2019 to FY 2020 Increase/Decrease Statement: The decrease of -\$0.017 from FY 2019 to FY 2020 is due to a reduction in the amount of engineering required as the unclassified capability transitions to sustainment.			
Title: Presidential and National Voice Conferencing (PNVC) Description: Presidential and National Voice Conferencing (PNVC) Systems Engineering conduct analyses for continuity of NEADN voice conferencing for national/military leaders through PNVC deployment. Program continues engineering, technical analysis, development, and coordination to ensure terminal, baseband, and satellite synchronization for voice conferencing amongst senior leaders.	5.900	-	-
Accomplishments/Planned Programs Subtotals	17.828	11.306	11.166

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• O&M/PE0303126K: <i>Operation & Maintenance, Defense-Wide</i>	41.102	51.725	123.058	-	123.058	127.029	128.714	131.137	134.971	Continuing	Continuing
• Procurement/PE0303126K: <i>Procurement, Defense-Wide</i>	137.457	150.674	17.574	-	17.574	31.634	30.719	32.393	33.110	Continuing	Continuing

Remarks

D. Acquisition Strategy

Products acquired for EMS requirements are professional services, network management software, supporting hardware, and development tools. Professional services will be procured through existing contracts available to DISA. The DISA Computing Services will be used for hardware and software leased managed services, as well as the National Aeronautics and Space Administration (NASA) enterprise equipment contracting vehicle when necessary and applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / <i>Long-Haul Communications</i> - DCS	Project (Number/Name) T82 / <i>DISN Systems Engineering Support</i>

The Internet Protocol (IP) enabling of the DRSN Digital Small Switch (DSS-2A) switch, Secure voice conference management improvements, High Altitude Electromagnetic Pulse (HEMP) Phone and related DRSN components will use an existing Air Force Command and Control Switching Systems (CCSS) Depot Support contract with the Secure Voice Switch systems manufacturer (Raytheon) to perform the development and modification work, system integration and testing support.

The Mobility initiative supports systems engineering and development of a DoD Mobility solution. The focus is on acquisitions to support the program across the DoD to include scheduling, delivery approach, and risk management. This also includes the vision and phased approach to unified capabilities for classified and unclassified wireless capabilities to meet DoD needs.

E. Performance Metrics

Funds support tech insertion and deployment of two DoD Mobility Classified Capability (DMCC) gateways which will include Top Secret (TS) and Secret capabilities in the remaining CONUS and OCONUS areas requiring gateways to ensure adequate load balancing of mobile device usage on the DoD Mobility Architecture. Will also support evaluation of tech insertion of classified and unclassified data at multiple sites both CONUS and OCONUS. DoD Mobility will evaluate and test the centralized mobility management components for the classified components. Funds will provide support for test and evaluation (T&E) of centralization of the mobile device hardware, software, middleware, and Mobile Device Management (MDM) associated capabilities integration efforts. Will provide for T&E of DoD Mobility Non-classified Internet Protocol Router Network (NIPRNet) & Secret Internet Protocol Router Network (SIPRNet) Suite insertion efforts to include mobile VPN and authentication, mobile devices, and mobile applications. Will provide for T&E of mobile devices including prototypes for next generation classified devices and additional commercial mobile devices to test their interoperability across the enterprise. Additionally, funds will support T&E of mobile applications to ensure mobile applications are verified and validated prior to hosting on the MAS. Will support testing of commercial mobile devices and certification and accreditation approval. Funds will support quarterly testing and evaluation of various Mobile Initiatives; follow up testing against the Mobile Device Management (MDM); verification and validation testing of devices used against the MDM; and requirements testing to ensure Mobility's requirements have been met. DoD Mobility will continue to evolve detailed Implementation Plans, Concept of Operations and Standard Operating Procedures for DMCC Capabilities.

FY 2018 (Actual): 100% successful developmental and production testing of new-model commercial mobile devices per product baseline, per carrier, per platform authenticated against the Mobile Device Manager. Successful security, interoperability, and functional evaluation of at least of 85% of mobile applications requested to be approved and available in the hosted Mobile Application Store. 100% successful production testing of the applications development framework and integration testing for infrastructure components, including additional gateway instances supporting secret and top secret domains as well as any COTS component technology refresh requirements against the end-to-end architecture.

FY 2019 (Estimated): 100% successful developmental and production testing of new-model commercial mobile devices per product baseline, per carrier, per platform authenticated against the Mobile Device Manager. Successful security, interoperability, and functional evaluation of at least of 85% of mobile applications requested to be approved and available in the hosted Mobile Application Store. 100% successful production testing of the applications development framework and integration testing for infrastructure components, including additional gateway instances supporting secret and top secret domains as well as any COTS component technology refresh requirements against the end-to-end architecture.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / <i>Long-Haul Communications</i> - DCS	Project (Number/Name) T82 / <i>DISN Systems Engineering Support</i>
<p>FY 2020 (Estimated): 100% successful developmental and production testing of new-model commercial mobile devices per product baseline, per carrier, per platform authenticated against the Mobile Device Manager. Successful security, interoperability, and functional evaluation of at least of 85% of mobile applications requested to be approved and available in the hosted Mobile Application Store. 100% successful production testing of the applications development framework and integration testing for infrastructure components, including additional gateway instances supporting secret and top secret domains as well as any COTS component technology refresh requirements against the end-to-end architecture.</p> <p>Long Haul Communications Percent of On Time Delivery Project Support Deliverables received on time FY 2018 (expected result): 100% / Actual: 100% Completed FY 2019 (expected result): 100% FY 2020 (expected result): 100%</p> <p>Percent of Deliverable Milestones Completed On Time Product Deliverable Milestones completed on time FY 2018 (expected result): 100% / Actual: 100% Completed FY 2019 (expected result): 100% FY 2020 (expected result): 100%</p> <p>Percent of Requirements Tested Successfully Tested Requirements FY 2018 (expected result): 100% / Actual: 100% Completed FY 2019 (expected result): 100% FY 2020 (expected result): 100%</p> <p>Number of trouble reports less than 6 months Critical Trouble Reports > 6 months old FY 2018 (expected result): 100% / Actual: 100% Completed FY 2019 (expected result): 100% FY 2020 (expected result): 100%</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) T82 / DISN Systems Engineering Support
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering for DSRN Components & Peripherals	Various	Raytheon : Florida	13.794	-		1.731	Mar 2019	1.627	Mar 2020	-		1.627	Continuing	Continuing	Continuing
Systems Engineering for IP Enabling DSS-2A Secure Voice Switch	C/T&M	Raytheon : Florida	21.440	-		-		-		-		-	0.000	21.440	-
Engineering & Technical Services for Information Sharing Services for Voice	C/T&M	SAIC : VA	2.774	-		-		-		-		-	0.000	2.774	-
Engineering & Technical Services for Network Mgmt Solutions for New DISN Element Technologies	C/T&M	Various : VA	2.026	-		-		-		-		-	0.000	2.026	-
Single Sign On	C/T&M	SAIC : Various	1.397	-		-		-		-		-	0.000	1.397	-
System Engineering for VoSIP	C/T&M	Various : Various	1.218	-		-		-		-		-	0.000	1.218	-
Space Vehicle Upload	SS/CPFF	Iridium : McLean, VA	12.635	-		-		-		-		-	0.000	12.635	-
Gateway Improvement	SS/CPFF	Iridium : McLean, VA	13.565	-		-		-		-		-	0.000	13.565	-
Field Application Tool	MIPR	NSWC : Dahlgren	6.635	-		-		-		-		-	0.000	6.635	-
DTCS Handset	SS/CPFF	Iridium : McLean, VA	5.850	-		-		-		-		-	0.000	5.850	-
Command and Control Handset	SS/CPFF	Iridium : McLean, VA	7.275	-		-		-		-		-	0.000	7.275	-
Alt. Supplier Development	MIPR	NSWC : Dahlgren, VA	3.450	-		-		-		-		-	0.000	3.450	-
Radio Only Interface	MIPR	NSWC : Dahlgren, VA	2.525	-		-		-		-		-	0.000	2.525	-
Remote Control Unit	SS/CPFF	Iridium : McLean, VA	2.100	-		-		-		-		-	0.000	2.100	-
Type 1 Security	SS/CPFF	Iridium : McLean, VA	6.455	-		-		-		-		-	0.000	6.455	-
Vehicle Integration	MIPR	NSWC : Dahlgren, VA	3.185	-		-		-		-		-	0.000	3.185	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) T82 / DISN Systems Engineering Support
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering for IP and Optical Technology Refresh	Various	DITCO : Various	8.717	-		-		-		-		-	0.000	8.717	-
Engineering & Technical Services for Web Based Mediation	C/T&M	Apptis : VA	1.168	-		-		-		-		-	0.000	1.168	-
System Engineering and Technical Services for ISOM	Various	DITCO : Various	2.915	-		-		-		-		-	0.000	2.915	-
Serialized Asset Management - OSS	C/T&M	SAIC : VA	0.822	-		-		-		-		-	0.000	0.822	-
Gateways - Mobility	C/FFP	Various : Various	7.107	-		-		-		-		-	0.000	7.107	-
Thin Client Solution - Mobility	C/Various	Various : Various (MDM)	2.154	-		-		-		-		-	0.000	2.154	-
New Field Communications	C/FFP	Various : Various	0.550	-		-		-		-		-	0.000	0.550	-
National Conference Management	MIPR	USAF : Raytheon	4.514	-		-		-		-		-	0.000	4.514	-
IP Enable DRSN	MIPR	USAF : Raytheon	1.562	-		-		-		-		-	0.000	1.562	-
HEMP Phone Development	MIPR	USAF : Raytheon	0.869	-		-		-		-		-	0.000	0.869	-
100G Optical	Various	Various : Various	0.337	-		-		-		-		-	0.000	0.337	-
Defense Production Act III Optical Networking	Various	Various : Various	2.666	-		-		-		-		-	0.000	2.666	-
DoD Mobility Capability Service Assurance	C/FFP	Various (JITC, HYPHONI) : Various	2.316	-		-		-		-		-	0.000	2.316	-
System Engineering & Future Technology Support	SS/CPFF	SPAWAR : Charleston	-	2.420	Feb 2018	-		-		-		-	0.000	2.420	-
System Engineering Support DMCC/DMUC	C/FFP	BAH : Annapolis Junction MD	-	2.000	Feb 2018	1.972	Feb 2019	1.339	Feb 2020	-		1.339	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) T82 / DISN Systems Engineering Support
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DIUx-Mobility APP Vetting and MSM tools (MTD)	MIPR	TBD : TBD	-	-		2.237	Feb 2019	-		-		-	0.000	2.237	-
MES-C-DMCC Buildout/ VDI	SS/CPFF	APRIVA/SPAWAR : APRIVA/SPAWAR	-	-		-		1.139	Oct 2019	-		1.139	Continuing	Continuing	-
Subtotal			142.021	4.420		5.940		4.105		-		4.105	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IT Support - Mobility	C/FFP	Arieds, LLC : Ft. Meade	2.300	-		-		-		-		-	0.000	2.300	-
NS2 SE Support - Mobility	C/FFP	APPTIS : Ft. Meade	0.311	-		-		-		-		-	0.000	0.311	-
IT Support - Mobility	Various	Various : Various	3.000	-		-		1.050	Oct 2019	-		1.050	Continuing	Continuing	-
PNVC Software enhancements	C/CPFF	General Dynamics : NSA	-	5.900	Jun 2018	-		-		-		-	0.000	5.900	-
Subtotal			5.611	5.900		-		1.050		-		1.050	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Certification Testing	Various	JITC : Various	8.242	-		-		-		-		-	0.000	8.242	-
Test & Evaluation Support - Mobility	Various	JITC : Ft. Meade	5.907	-		0.286	Feb 2019	0.950	Oct 2019	-		0.950	Continuing	Continuing	-
Integration, Test ann Modification - Mobility	Various	Various : Various	7.158	-		-		-		-		-	0.000	7.158	-
DISN Tech Refresh	Various	Various : Various	5.000	5.203	Jan 2018	5.080	Jan 2019	5.061	Dec 2019	-		5.061	Continuing	Continuing	-
Various	Various	Various : Various	-	2.305	Jan 2018	-		-		-		-	0.000	2.305	-
Subtotal			26.307	7.508		5.366		6.011		-		6.011	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) T82 / DISN Systems Engineering Support

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
DRSN																												
DRSN																												
OSS																												
OSS																												
Technology Refresh																												
Technology Refresh																												
DISN Tech Refresh																												
Mobility																												
Lab Purchase (Gateways, NIPR, SIPR, TS Enclave)																												
DoD Mobility Gateways - Architecture Support																												
NIPR Enclave (MDM, MAS)																												
SIPR Enclave (MDM, MAS)																												
TS Enclave (MDM, MAS)																												
MDM & MAS Operational Testing																												
Virtual Desktop Infrastructure (VDI)																												
PNVC																												
DISN Tech Refresh																												

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
DRSN																												
DRSN																												
OSS																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) T82 / DISN Systems Engineering Support
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024																								
	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																					
OSS																																																	
Technology Refresh																																																	
Technology Refresh																																																	
DISN Tech Refresh																																																	
Mobility																																																	
Lab Purchase (Gateways, NIPR, SIPR, TS Enclave)																																																	
DoD Mobility Gateways - Architecture Support																																																	
NIPR Enclave (MDM, MAS)																																																	
SIPR Enclave (MDM, MAS)																																																	
TS Enclave (MDM, MAS)																																																	
MDM & MAS Operational Testing																																																	
Virtual Desktop Infrastructure (VDI)																																																	
PNVC																																																	
DISN Tech Refresh																																																	

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303126K / Long-Haul Communications - DCS	Project (Number/Name) T82 / DISN Systems Engineering Support

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
DRSN				
DRSN	1	2017	4	2023
OSS				
OSS	1	2017	4	2017
Technology Refresh				
Technology Refresh	1	2015	4	2021
DISN Tech Refresh	1	2017	4	2024
Mobility				
Lab Purchase (Gateways, NIPR, SIPR, TS Enclave)	1	2017	4	2018
DoD Mobility Gateways - Architecture Support	1	2017	4	2024
NIPR Enclave (MDM, MAS)	1	2017	4	2017
SIPR Enclave (MDM, MAS)	1	2017	4	2017
TS Enclave (MDM, MAS)	1	2017	4	2020
MDM & MAS Operational Testing	1	2017	4	2024
Virtual Desktop Infrastructure (VDI)	4	2018	3	2020
PNVC	4	2018	4	2019
DISN Tech Refresh	1	2019	3	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303131K / <i>Minimum Essential Emergency Communications Network (MEECN)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	166.181	15.855	17.579	17.383	-	17.383	17.715	18.017	18.458	18.802	Continuing	Continuing
T64: <i>Special Projects</i>	70.985	0.000	5.481	5.558	-	5.558	5.564	5.562	5.673	5.778	Continuing	Continuing
T70: <i>Strategic C3 Support</i>	95.196	15.855	12.098	11.825	-	11.825	12.151	12.455	12.785	13.024	Continuing	Continuing

A. Mission Description and Budget Item Justification

Minimum Essential Emergency Communications Network (MEECN) provides the Nuclear Command, Control, and Communications (NC3) Engineer with plans and procedures, systems analysis, operational assessments, systems engineering, and development of concepts of operation and architectures. The NC3 System provides connectivity from the President and the Secretary of Defense through the National Military Command System to nuclear execution forces integral to fighting a “homeland-to-homeland,” as well as theater nuclear war. MEECN includes the Emergency Action Message dissemination systems and those systems used for integrated Tactical Warning/Attack Assessment, presidential decision-making conferencing, force report back, re-targeting, force management, and requests for permission to use nuclear weapons. Efforts assure positive control of nuclear forces and connectivity between the Secretary of Defense, military forces, and an informed decision-making linkage between the President, the Secretary of Defense, and the Combatant Commands. MEECN ensures our national leadership has proper command and control of our forces during times of national emergency, up to and including nuclear war.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	15.855	17.579	17.383	-	17.383
Current President's Budget	15.855	17.579	17.383	-	17.383
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

No vertical change statement required.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303131K / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) T64 / <i>Special Projects</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
T64: <i>Special Projects</i>	70.985	0.000	5.481	5.558	-	5.558	5.564	5.562	5.673	5.778	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The mission is performing classified work. All aspects of this project are classified and require special access. Detailed information on this project is not contained in this document.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Special Projects	0.000	5.481	5.558
Description: Program is classified and exhibit will be provided under a separate cover.			
FY 2019 Plans: Program is classified and exhibit will be provided under a separate cover.			
FY 2020 Plans: Program is classified and exhibit will be provided under a separate cover.			
FY 2019 to FY 2020 Increase/Decrease Statement: Program is classified and exhibit will be provided under a separate cover.			
Accomplishments/Planned Programs Subtotals			5.558

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

N/A

Remarks

D. Acquisition Strategy

Program is classified and exhibit will be provided under a separate cover.

E. Performance Metrics

Program is classified and exhibit will be provided under a separate cover.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303131K / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) T64 / <i>Special Projects</i>

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Classified</i>	
Classified	

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303131K / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) T64 / <i>Special Projects</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Classified				
Classified	1	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303131K / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) T70 / <i>Strategic C3 Support</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
T70: <i>Strategic C3 Support</i>	95.196	15.855	12.098	11.825	-	11.825	12.151	12.455	12.785	13.024	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the mission of the Nuclear Command, Control, and Communications (NC3) Systems Engineer to the Joint Staff and Executive Leadership. It also provides NC3 expertise to the Department of Defense (DoD) Chief Information Officer (CIO) National Leadership Command Capability (NLCC) Management Office. Systems Analysis supports long range planning and vulnerability assessments to ensure the NC3 System is adequate under all conditions of stress or war and recommends investment strategies to evolve the Nuclear Command and Control System to achieve desired capabilities. Operational Assessments of fielded systems and weapon platforms provide the sole means for verification of NC3 systems' performance in support of plans and procedures, operation orders, training, equipment, and end-to-end system configuration. Assessments provide strategic and theater level C3 interfaces into the NC3 System. Supporting efforts assure positive control of nuclear forces and connectivity between the Secretary of Defense and strategic and theater forces. Systems Engineering provides the Senior Leadership C3 System with technical and management advice, planning and engineering support, and Test & Evaluation. Leading Edge Command, Control, Communications, Computers, and Intelligence technology is assessed for all communication platforms supporting executive travelers and senior leaders to include the interoperability of hardware and operational procedures. These technology elements support the President's and other DoD command centers and aircraft (e.g., Air Force One and the National Airborne Operations Center).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Systems Engineering, Analysis and Architecture	15.855	12.098	11.825
FY 2019 Plans: Will continue oversight and configuration control of the NLCC functional baseline. Will continue to identify NLCC capability gaps, and develop engineering courses of action to close those gaps. Will continue to shape plans for future NLCC capabilities, perform end-to-end testing of fielded capabilities, and perform operational assessments of current capabilities to provide quantitative measures of ongoing system performance and operational efficiency. Will continue to develop the NLCC Reference Architecture, its associated NLCC Roadmap, and the technical architecture patterns that will guide future solution architecture development.			
FY 2020 Plans: Will continue oversight and configuration control of the NLCC functional baseline. Will continue to identify NLCC capability gaps, and develop engineering courses of action to close those gaps. Will continue to shape plans for future NLCC capabilities, perform end-to-end testing of fielded capabilities, and perform operational assessments of current capabilities to provide quantitative			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303131K / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) T70 / <i>Strategic C3 Support</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
measures of ongoing system performance and operational efficiency. Will continue to develop the NLCC Reference Architecture, its associated NLCC Roadmap, and the technical architecture patterns that will guide future solution architecture development.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease of -\$0.273 in FY 2019 to FY 2020 is attributed to changes to the Polo Hat theatre and Paul Revere operational assessments required. Additional information is classified and provided under separate cover.			
Accomplishments/Planned Programs Subtotals	15.855	12.098	11.825

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• O&M, PE 0303131K: O&M	23.494	19.027	19.331	-	19.331	19.989	20.246	20.942	22.947	Continuing	Continuing

Remarks

D. Acquisition Strategy

Full and open competition resulted in contract vehicles with Raytheon, Arlington, VA; Science Applications Int'l Corporation (SAIC), McLean, VA; and Pragmatics, Mclean, VA.

E. Performance Metrics

Performance is measured by compliance with contract deliverables schedules for specifically included products, such as: operational assessment plans, operational assessment reports; recommended revisions to the Joint Staff's Emergency Action Procedures (EAP-CJCS) Volumes VI and VII; updates to NC3 System Description documents and Nuclear C3 Architecture Diagrams. In addition, performance of the NC3 System is directly measured by the operational assessments funded by this program element. These periodic assessments evaluate the connectivity used for the five functions of Nuclear command and control: Situation Monitoring, Planning, Decision Making, Force Execution, and Force Management. Performance of the SLC3S-Airborne fleet is measured by the technical assessment results documented in the assessment reports. Assessment results are used by the Joint Staff and the DoD CIO to direct changes in system engineering and integration, programmatic execution, and training.

Specific performance metrics include the following:

Provide engineering products in all task areas that satisfy DoD/CIO and Joint Staff needs within allocated resources 90% of the time.

Conduct assessments of the NC3 system and the SLC3S that provide actionable results and recommendations for the Joint Staff and DoD/CIO to pursue improvements to these capabilities 90% of the time.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303131K / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) T70 / <i>Strategic C3 Support</i>

MEECN is on track to achieve the FY 2018, FY 2019, and FY 2020 targets of provisioning the Joint Staff requirements within the allocated resources 90% of the time.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency											Date: March 2019				
Appropriation/Budget Activity 0400 / 7				R-1 Program Element (Number/Name) PE 0303131K / <i>Minimum Essential Emergency Communications Network (MEECN)</i>					Project (Number/Name) T70 / <i>Strategic C3 Support</i>						

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering 1	C/CPAF	SAIC : McLean, VA	21.699	-		-		-		-		-	0.000	21.699	-
Systems Engineering 2	C/CPAF	Raytheon Company : Arlington, VA	35.600	-		-		-		-		-	0.000	35.600	-
Systems Engineering 3	C/CPFF	Pragmatics : McLean, VA	10.080	-		-		-		-		-	0.000	10.080	-
Systems Engineering 4	C/FP	Raytheon Company : Arlington, VA	19.047	5.200	Feb 2018	6.050	Feb 2019	6.050	Feb 2020	-		6.050	Continuing	Continuing	Continuing
Systems Engineering 5	C/CPFF	BAH : Falls Church, VA	4.273	-		-		-		-		-	0.000	4.273	-
Systems Engineering 6	C/CPFF	Harris Corporation : Melbourne, FL	2.500	-		-		-		-		-	0.000	2.500	-
Systems Engineering 7	C/CPAF	Carson Engineering : Bethesda, MD	1.056	-		-		-		-		-	0.000	1.056	-
System Engineering 8	C/FFP	MITRE Corp : McLean, VA	0.941	1.332	Oct 2017	1.000	Oct 2018	1.000	Oct 2019	-		1.000	Continuing	Continuing	Continuing
System Engineering 9	C/FFP	JHU APL : Laurel, MD	-	2.500	Apr 2018	1.000	Apr 2019	0.551	Apr 2020	-		0.551	Continuing	Continuing	Continuing
System Engineering 10	C/FFP	Various : Various	-	1.342	Aug 2018	-		-		-		-	0.000	1.342	-
System Engineering	C/CPFF	Jacob FNS : Arlington, Va	-	-		4.048	Oct 2018	4.224	Dec 2019	-		4.224	Continuing	Continuing	Continuing
Systems Engineering & Integration	C/CPFF	Verizon : Arlington, VA	-	5.481	Oct 2017	-		-		-		-	0.000	5.481	-
Subtotal			95.196	15.855		12.098		11.825		-		11.825	Continuing	Continuing	N/A
Project Cost Totals			95.196	15.855		12.098		11.825		-		11.825	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303131K / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) T70 / <i>Strategic C3 Support</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
NLCC Program Tracking Report (formally known as NC3 Program Tracking Report)																												
NLCC Program Tracking Report	[REDACTED]																											
Systems Analysis Documents																												
Systems Analysis Documents	[REDACTED]																											
NLCC Reference Architecture (formally known as NC3 Reference Architecture)																												
NLCC Reference Architecture	[REDACTED]																											
Operational Assessments																												
Operational Assessments	[REDACTED]																											
NLCC Portfolio Roadmap																												
NLCC Portfolio Roadmap	[REDACTED]																											
NLCC System Engineering and Integration																												
NLCC System Engineering and Integration	[REDACTED]																											
NLCC Target Architecture																												
NLCC Target Architecture	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303131K / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	Project (Number/Name) T70 / <i>Strategic C3 Support</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NLCC Program Tracking Report (formally known as NC3 Program Tracking Report)				
NLCC Program Tracking Report	1	2018	3	2024
Systems Analysis Documents				
Systems Analysis Documents	1	2018	4	2024
NLCC Reference Architecture (formally known as NC3 Reference Architecture)				
NLCC Reference Architecture	1	2018	4	2024
Operational Assessments				
Operational Assessments	1	2018	4	2024
NLCC Portfolio Roadmap				
NLCC Portfolio Roadmap	1	2018	1	2024
NLCC System Engineering and Integration				
NLCC System Engineering and Integration	1	2018	1	2024
NLCC Target Architecture				
NLCC Target Architecture	4	2018	3	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303140K / <i>Information Systems Security Program</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	19.611	42.796	-	42.796	12.904	8.422	8.470	8.601	Continuing	Continuing
IA3: <i>Information Systems Security Program</i>	0.000	0.000	19.611	42.796	-	42.796	12.904	8.422	8.470	8.601	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Information Systems Security Program (ISSP) mission focuses on developing Department of Defense (DoD) enterprise solutions to Combatant Commands, Services, and Defense-wide agencies to ensure critical mission execution in the face of cyber attacks. The ISSP ensures that, the network, the computing centers, and core enterprise services will evolve to better support a joint cybersecurity/information assurance model that has common enterprise-scale perimeter defenses and will support a broad range of sharing policies from completely unclassified to tightly-held within a classified community. The ISSP will test and develop active-active defensive capabilities; test and integrate software defined networking and orchestration closed-loop security; perform research, development and engineering of emerging cyber situational awareness technologies; harden the network by providing architecture support, systems engineering and analytical functions for Endpoint and Perimeter defense capabilities; cyber IT infrastructure and automation support to deploy enterprise-wide next generation identity technologies; and develop and evolve an integrated cyber domain security workforce to be on the leading edge of defensive capabilities.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	0.000	19.611	12.596	-	12.596
Current President's Budget	0.000	19.611	42.796	-	42.796
Total Adjustments	0.000	0.000	30.200	-	30.200
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	-	-	30.200	-	30.200

Change Summary Explanation

The increase of +\$30.200 in FY 2020 is due to +\$36.000 of additional funding for Identity, Credential, and Access Management (ICAM) and the Secure Application Development Program. The funding will be used to develop and implement the Automated Account Management data sharing and automation and Master User Record (MUR) for the automated account provisioning effort within ICAM (+\$28.000); resource R&D innovation efforts to evaluate commercial meta/virtual directory data synchronization services in alignment with identity management, credentialing, active authentication, federation, and automated authorization for the federalized authentication services within ICAM (+\$2.000); and support innovation activities and mission priorities for secure application

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	PE 0303140K / <i>Information Systems Security Program</i>

development and quantitative analysis tools within the Secure Application Development program (+\$6.000). This is offset by a decrease of -\$5.800 in FY 2020 is due to the implementation of a standard information technology (IT) enterprise patch management capability.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0303140K / <i>Information Systems Security Program</i>				Project (Number/Name) IA3 / <i>Information Systems Security Program</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
IA3: <i>Information Systems Security Program</i>	0.000	0.000	19.611	42.796	-	42.796	12.904	8.422	8.470	8.601	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Information Systems Security Program (ISSP) mission focuses on developing Department of Defense (DoD) enterprise solutions to Combatant Commands, Services, and Defense-wide agencies to ensure critical mission execution in the face of cyber attacks. The ISSP ensures that, the network, the computing centers, and core enterprise services will evolve to better support a joint cybersecurity/information assurance model that has common enterprise-scale perimeter defenses and will support a broad range of sharing policies from completely unclassified to tightly-held within a classified community. The ISSP will test and develop active-active defensive capabilities; test and integrate software defined networking and orchestration closed-loop security; perform research, development and engineering of emerging cyber situational awareness technologies; harden the network by providing architecture support, systems engineering and analytical functions for Endpoint and Perimeter defense capabilities; cyber IT infrastructure and automation support to deploy enterprise-wide next generation identity technologies; and develop and evolve an integrated cyber domain security workforce to be on the leading edge of defensive capabilities.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>Title: Zero-Day Network Defense Email Capability</p> <p>Description: Zero-Day Network Defense (ZND) Email Capability Technology Assessment/Evaluation for Tech Refresh.</p> <p>FY 2019 Plans: Conduct Technology Assessment/Evaluation in support of Zero-Day Network Defense (ZND) Email Tech Refresh.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The decrease of -\$4.500 from FY 2019 to FY 2020 represents one-time funding in FY 2019 for technology evaluation in support of the Zero Day Net Defense (ZND) email capability on the Non-Classified Internet Protocol Router Network (NIPRNet). The evaluation supports research and engineering solutions for enhanced malware analysis, preventative spear-phishing and perimeter attacks within the Department of Defense Information Network (DODIN), design of layered defenses against adversary Tactics, Techniques, and Procedures (TTPs) and testing of automated machine to machine processes of cyber situational awareness at the five email gateways.</p>	-	4.500	-
<p>Title: DoD Cyber Security Range (CSR)</p> <p>Description: The DoD Cyber Security Range (CSR) provides a multi-classification level, operationally realistic, DODIN representative, cyber security environment to sustain and enhance the professional development of the DoD cyber security workforce.</p>	-	1.811	1.337

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303140K / <i>Information Systems Security Program</i>	Project (Number/Name) IA3 / <i>Information Systems Security Program</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p><i>FY 2019 Plans:</i> Continue providing the IA Range platform to test new Cybersecurity efforts using the CS Range; Increase capability to leverage CS Range for training and capstone events; Increase capability for remote access to CS Range for testing, training and exercises. Implement Joint Regional Security Stacks (JRSS) Cloud Learning Environment improvements, JRSS Management System (JMS) Enhancements, and replicate the tactical network boundaries of the four services.</p> <p><i>FY 2020 Plans:</i> Continue providing the Cybersecurity (CS) / Information Assurance (IA) Range platform to test new Cybersecurity efforts using the CS Range; Continue to support capability to leverage CS Range for training and capstone events; Support capability for remote access to CS Range for testing, training and exercises. Implement Joint Regional Security Stacks (JRSS) Cloud Learning Environment improvements, JRSS Management System (JMS) Enhancements, and replicate the tactical network boundaries of the four services.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease of -\$0.474 from FY 2019 to FY 2020 is attributable to reduced testing and simulation requirements for the operational networks within the Cybersecurity Range.</p>			
<p><i>Title:</i> Endpoint Security Solutions (ESS)</p> <p><i>Description:</i> Endpoint Security Solutions (ESS) provides counters exploitation and destructive malware, contain exploited threats, and make indicators of attack/compromise visible to the operator; fully supports friendly forces operating in contested cyber environments. Provides Asset Inventory Management Modules (AIMM) to provide near-real time situational awareness of devices. Provides Digital Policy Management System (DPMS) to facilitate development and maintenance of Cybersecurity/Information Assurance Standards. Provides Assured Compliance Assessment Solution (ACAS) to assess the configuration compliance of networks and systems against DoD and all known vulnerabilities.</p> <p><i>FY 2019 Plans:</i> Provide software licensing necessary to perform the Automated Patch Management (APM) Proof of Concept, technical expertise necessary to deploy this APM solution, and additional infrastructure investment to provide an updated platform for the APM effort to be successful.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease of -\$3.000 from FY 2019 to FY 2020 represents one-time funding in FY 2019 for a standard information technology (IT) enterprise patch management capability proof of concept.</p>	-	3.000	-
<p><i>Title:</i> Cyber HQs Support</p>	-	10.300	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303140K / <i>Information Systems Security Program</i>	Project (Number/Name) IA3 / <i>Information Systems Security Program</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Description: Preserves User Activity Monitoring (UAM) capability in countering insider threats at nine Combatant Commands.</p> <p>FY 2019 Plans: Perform engineering and provide software licensing/maintenance in support of the User Activity Monitoring (UAM) capability in countering insider threats at nine Combatant Commands.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The decrease -\$10.300 from FY 2019 to FY 2020 is attributed to the transition of engineering and software licensing/maintenance of DoD User Activity Monitoring (UAM) capability into Operations and Sustainment in countering insider threats for the nine Combatant Commands.</p>			
<p>Title: Cyber Innovation and Technology</p> <p>Description: Provide research and development, conduct technology assessments, rapidly produce prototypes using commercial solutions, validate assumptions, and provide empirical data to drive real time enterprise solutions and decisions in assisting DoD requirement owners for enterprise fielding of innovative gap fillers to address cyber capabilities and militarization of commercial information assurance capabilities tactical edge. All project undertaken directly increase information sharing capabilities and assure C2 functionality against a common operating picture. The program will leverage its robust IT infrastructure to develop small prototypes to find cost saving initiatives across the DODIN in an effort to provide the DoD with faster more reliable communications capabilities. These solutions will look to provide enhanced warfighting technology and research development programs improving the protection, survivability, mobility and combat effectiveness of the DoD.</p> <p>FY 2020 Plans: Assess at least two capabilities as directed by senior leadership, with focus on Blockchain and Next Generation Identify and Authentication commercial capabilities emphasizing enhancements and integrations of innovative technologies, to enhance enterprise level services for all DoD entities keeping the agency and DoD at the forefront of IT capabilities. DISA capabilities to be leveraged include DoD Mobility Classified Capability/Unclassified Capability (DMCC/UC), DoD Public Key Infrastructure (PKI), JRSS, NETOPS, Perimeter and Endpoint programs and transport to include terrestrial.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The increase of +\$11.459 from FY 2019 to FY 2020 is due to the establishment of Cyber Innovation Funds supporting cyber innovation and technology assessment of 2 cyber capabilities. Increase will also be used to improve the security of application development by deploying DevSecOps software/model/platforms on NIPRNet and SIPRNet.</p>	-	-	11.459
<p>Title: Identity, Credential, and Access Management (ICAM)</p>	0.000	-	30.000

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303140K / <i>Information Systems Security Program</i>	Project (Number/Name) IA3 / <i>Information Systems Security Program</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Description: Develop and deploy Identity, Credential, and Access Management (ICAM) efforts associated with automated account provisioning and auditability and federalized authentication services that support credentials for DoD and non-DoD personnel.</p> <p>FY 2020 Plans: Conduct the Master User Record (MUR) pathfinder effort and several Automated Account Provisioning (AAP) use-case Pilots.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The increase of +\$30.000 in is due to a +\$28,000 increase to develop and implement the Automated Account Management data sharing and automation and Master User Record (MUR) for the automated account provisioning effort within ICAM and a +\$2,000 increase to resource R&D innovation efforts to evaluate commercial meta/virtual directory data synchronization services in alignment with identity management, credentialing, active authentication, federation, and automated authorization for the federalized authentication services within ICAM.</p>			
Accomplishments/Planned Programs Subtotals	0.000	19.611	42.796

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

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Conduct Technology Assessment/Evaluation in support of Zero-Day Network Defense (ZND) Email Tech Refresh. Performance objectives include 60% of Defense Enterprise Email (DEE) Mailboxes protected, 0% bypassed emails, and capability to handle up to 43% unique attachments to total threats detected.

Continue providing the IA Range platform to test new Cybersecurity efforts using the CS Range; Increase capability to leverage CS Range for training and capstone events; Increase capability for remote access to CS Range for testing, training and exercises. Implement Joint Regional Security Stacks (JRSS) Cloud Learning Environment improvements, JRSS Management System (JMS) Enhancements, and replicate the tactical network boundaries of the four services. Annual objectives include 15 test and evaluation events, 9 training events, and support of 5 exercise events.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303140K / <i>Information Systems Security Program</i>	Project (Number/Name) IA3 / <i>Information Systems Security Program</i>
<p>Provide engineering expertise and software licensing/maintenance in support of the User Activity Monitoring (UAM) capability in countering insider threats at Ten CCMDs (USSOCOM, USAFRICOM, USCENTCOM, USEUCOM, USCYBERCOM, USNORTHCOM, USPACOM, USSOUTHCOM, USSTRATCOM, and USTRANSCOM).</p> <p>Acquire software licensing necessary to perform the Automated Patch Management (APM) Proof of Concept, technical expertise necessary to deploy this APM solution, and infrastructure investment to provide an updated platform for the APM effort to be successful.</p> <p>Two cyber architecture model and DODIN assessments to programs per fiscal Year</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303140K / <i>Information Systems Security Program</i>	Project (Number/Name) IA3 / <i>Information Systems Security Program</i>
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ZND Technology Assessment/Evaluation for email capability Tech Refresh	C/FFP	TBD : TBD	-	-		4.500	Feb 2019	-		-		-	0.000	4.500	-
DoD Cyber Security Range (CSR) Virtual Training Environment	C/FFP	ManTech : Fairfax, VA	-	-		1.198	Feb 2019	-		-		-	0.000	1.198	-
DoD Cyber Security Range (CSR) Virtual Training Environment - Re-compete	C/FFP	TBD : TBD	-	-		0.483	Jun 2019	1.207	Sep 2020	-		1.207	Continuing	Continuing	-
DoD Endpoint Security Solutions (ESS)	C/FFP	TBD : TBD	-	-		3.000	Jan 2019	-		-		-	0.000	3.000	-
Cyber HQs Support	C/FFP	TBD : TBD	-	-		10.300	Jan 2019	-		-		-	0.000	10.300	-
Joint Information Operations Range (JIOR) Connection	C/FFP	TBD : TBD	-	-		0.130	Jan 2019	0.130	Sep 2020	-		0.130	Continuing	Continuing	-
DISA EA Model Development for Cyber Security and Network Technical Domains, DODCAR Cyber Analysis Tool Development	C/FFP	TBD : TBD	-	-		-		0.459	Jan 2020	-		0.459	Continuing	Continuing	-
Deployment of Blockchain and Next Generation Identity	C/FFP	TBD : TBD	-	-		-		6.000	Jan 2020	-		6.000	Continuing	Continuing	-
Cyber Innovation and Technology	C/FFP	TBD : TBD	-	-		-		5.000	Mar 2020	-		5.000	Continuing	Continuing	-
Identity, Credential, and Access Management (ICAM)	C/FFP	TBD : TBD	-	-		-		30.000	Mar 2020	-		30.000	Continuing	Continuing	-
Subtotal			-	-		19.611		42.796		-		42.796	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency								Date: March 2019			
Appropriation/Budget Activity 0400 / 7			R-1 Program Element (Number/Name) PE 0303140K / <i>Information Systems Security Program</i>				Project (Number/Name) IA3 / <i>Information Systems Security Program</i>				
	Prior Years	FY 2018	FY 2019		FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	-	19.611		42.796	-	42.796	Continuing	Continuing	N/A	

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303140K / <i>Information Systems Security Program</i>	Project (Number/Name) IA3 / <i>Information Systems Security Program</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Zero-Day Network Defense Email Capability</i>				
Zero-Day Network Defence (ZND) Email Capability Technology Assessment/ Evaluation for Tech Refresh	4	2018	4	2019
<i>Cyber HQs Support</i>				
Test new Cybersecurity efforts using the CS Range	4	2018	4	2024
Increase capability to leverage CS Range for training and capstone events;	4	2018	4	2024
Increase capability for remote access to CS Range for testing, training and exercises.	4	2018	4	2024
Implement Joint Regional Security Stacks (JRSS) Cloud Learning Environment improvements	4	2018	4	2024
JRSS Management System (JMS) Enhancements	4	2018	4	2024
Replicate the tactical network boundaries of the four services.	4	2018	4	2024
<i>Architecture and Model development</i>				
DODCAR WG Support	2	2020	3	2024
<i>Innovation and Technology</i>				
Block Chain Cyber Innovation Technology Assessment	3	2020	3	2024
Next Gen Identity Tool Suite Cyber Innovation Technology Assessment	3	2020	3	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	531.529	41.126	46.900	25.218	-	25.218	33.075	17.990	18.408	18.601	Continuing	Continuing
CC01: <i>Global Command and Control System-Joint (GCCS-J)</i>	531.529	41.126	46.900	25.218	-	25.218	33.075	17.990	18.408	18.601	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Global Command and Control System-Joint (GCCS-J) funds a Joint Command and Control (JC2) portfolio which includes: GCCS-J, Joint Planning and Execution Services (JPES), and JC2 Architecture.

The GCCS-J Program is the Department of Defense (DoD) Joint C2 system of record. It incorporates core planning and assessment tools required by Combatant Commanders and their subordinate Joint Task Force Commanders while meeting the readiness support requirements of the Services. GCCS-J is used by all nine Combatant Commands (COCOMs) at sites around the world, supporting joint and coalition operations. The Services rely heavily on GCCS-J components to reduce their command and control (C2) operational costs. It provides support for commanders and staffs as they conduct joint and multinational operations by providing a fused picture of the battle space within an integrated system that is supporting joint warfighter needs today. GCCS-J is currently focused on sustainment, synchronization, and modernization to meet emerging operational needs by modifying and enhancing elements or capabilities in order to implement new requirements, enhance functionality, increase efficiency and lower operating and deployment costs while taking advantage of the progress made by current operational systems and technologies. The GCCS-J program is also executing incremental modernization of C2 capabilities using the Joint Requirements Oversight Council (JROC) approved needs.

JPES is a portfolio of capabilities supporting joint policies, processes, procedures, and reporting structures. It is supported by communications and information technology used by the Joint Planning and Execution Community (JPEC). JPEC uses these capabilities to monitor the following activities: planning, execute mobilization, deployment, employment and sustainment, redeployment, and demobilization. At full maturity, the JPES capabilities will be integrated with other adaptive planning and execution systems to facilitate the rapid development and sustainment of plans and a seamless, dynamic transition to execution in a net-centric environment. One of the key capabilities residing within the JPES portfolio of sustaining the existing Joint Operational Planning and Execution System (JOPES) while modernization of JOPES is planned and implemented. The JPES portfolio also includes a core set of infrastructure services consisting of the JPES Framework (JFW) and a variety of mission applications to include Joint Force Projection (JFP), Joint Capabilities Requirements Manager (JCRM) and eventually the capabilities that will replace JOPES.

JC2 Architecture is a reference architecture that aligns closely to the DoD Information Enterprise Architecture. The JC2 Architecture describes architectural and operational concepts, technical constructs, and is a repository for valuable reference information relating to C2 standards and information security. It is the authoritative source of information and technical direction for the JC2 arena.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	42.687	46.900	40.218	-	40.218
Current President's Budget	41.126	46.900	25.218	-	25.218
Total Adjustments	-1.561	0.000	-15.000	-	-15.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.262	-			
• Adjustment	-0.299	-	-15.000	-	-15.000

Change Summary Explanation

The decrease of -\$1.561 in FY 2018 is due to SBIR/STTR transfer (-\$1.262) and a 25-28% reduction of the operational capabilities requested by the user community (-\$0.299) . 6.0.1.0 reached FOC in 1st quarter FY19, with capabilities that are equal or slightly better than the previous version 4.3 (to be sunset FY 19/20); there was/is additional operational capabilities identified by the user community (COCOMS and Services) to be built based on changing/emerging threats. The decrease of -\$15.000 in FY 2020 is attributed to a program re-baseline due to contract delays for baseline infrastructure.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>				Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
CC01: <i>Global Command and Control System-Joint (GCCS-J)</i>	531.529	41.126	46.900	25.218	-	25.218	33.075	17.990	18.408	18.601	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Global Command and Control System – Joint (GCCS-J) is DoD’s Joint Command and Control (JC2) system of record and provides the foundation for migration of service-unique C2 systems into a Joint, interoperable environment. The Defense Information System Agency’s (DISAs) portfolio includes funding to support GCCS-J, Joint Planning and Execution Services (JPES), and the development and sustainment of the JC2 Architecture. GCCS-J incorporates the core planning and assessment tools required by combatant commanders and their subordinate Joint Task Force Commanders while meeting the readiness support requirements of the Services. Adaptive Planning and Execution Joint Planning Services are being developed to modernize the adaptive planning functions in a net centric environment. DISA continues to provide support for the operational system to ensure continued access to information integration and decision-support capabilities that enable the exercise of authority and direction over assigned and attached forces, in a net-centric, collaborative information environment. Additionally, DISA provides critical C2 capabilities to the Commander-in-Chief, Secretary of Defense, National Military Command Center, Combatant Commands (COCOMs), Joint Force Commanders, and Service Component Commanders.

JPES is a set of capabilities that address components of the DOD’s Adaptive Planning Roadmap (13 December 2005) and Adaptive Planning Roadmap II (5 March 2008). JPES produces enhancements to the Joint Operations Planning and Execution System (JOPES), focused adaptive planning capabilities, and provides a set of core infrastructure services necessary to provide the warfighter a fully interoperable environment where functionality can be easily added as mission needs dictate.

The JC2 Architecture is a foundational element of JC2 capabilities for the Department. The JC2 Architecture provides a set of net-centric tenets associated with data, functional service and the C2 infrastructure that describes architectural and operational concepts, technical constructs, and is a repository for valuable reference information relating to C2 standards and information security. Each year, the DISA architecture team produces a transitional architecture that documents the current state of C2 capabilities, anticipated changes/enhancements either in progress or planned by the JC2 community.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Development and Strategic Planning	25.860	41.622	20.286
Description: Develop, publish, and execute a GCCS-J migration and modernization strategy that achieves the following GCCS-J Modernization objectives in accordance with Joint C2 Mission operational priorities and the DoD’s JC2 Reference Architecture:			
<ul style="list-style-type: none"> • Continue to decompose applicable existing applications into services • Limit local deployment and move as much to the enterprise as possible • Continue to expose data and scale services to support an enterprise implementation 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>	Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> Continue to evolve more economical hardware and software architecture without impact to the operational user or Family of Systems (FoS)/interface partners Reduce overall sustainment cost through use of more cost effective and appropriate Commercial-off-the-Shelf (COTS) and Hardware (HW) products Evolve to use of agile development practices Consolidation of clients and tools <p>FY 2019 Plans: Will modernize the current GCCS-J operational systems while maintaining synchronization across DoD of GCCS-J, joint interfaces and the GCCS Family of Systems, enhance the security posture of GCCS-J applications; and deliver and sustain the final installment of the GCCS-J "must-haves" capabilities. The GCCS-J "must haves" is the set of capabilities identified by the Joint Staff and C2 community as absolutely critical to allow GCCS-J sites to migrate away from the current costly legacy hardware and COTS platform to more cost effective solutions. The modernization effort will improve the current GCCS-J system's limitations and its ability to address current and projected cybersecurity and the increasing fragility of old code that puts the joint warfighter (front line to President) at risk jeopardizing operations and increasing fratricide risk.</p> <p>FY 2020 Plans: Cyber security analysis, research and development is an ongoing aspect of the software lifecycle required to keep the system securely deployed. Continue to maintain the synchronization across DoD of GCCS-J, joint interfaces and the GCCS Family of Systems; continue to deliver capabilities as prioritized by the warfighter; and meet emerging operational priorities. Will continue the development work towards IOC and full operational capability (FOC) with the infrastructure framework, the software development kit (SDK) and system visualization. This will allow the FOC capabilities to build upon and interface with the framework.</p> <p>Additionally, start the FOC development with the following capabilities for the GCCS-JE System: - Data Management, Admin & Support, Situational Awareness, Mission Support, and Force Protection.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The decrease of -\$21.336 from FY 2019 to FY 2020 is due to deferred capability development of GCCS-JE requirements, to include Force Protection, Mission Preparation and Post Mission Support, delayed schedule for interface evolution and delivery of a critical enterprise cloud-based solution to the warfighter.</p>				
Title: Joint Planning and Execution Services (JPES)		15.266	5.278	4.932
Description: JPES is a collection of capabilities supporting joint policies, processes, procedures, and reporting structures, that are supported by communications and information technology used by the JPEC. JPEC uses these capabilities to monitor, plan, and				

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>	Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
execute: mobilization, deployment, employment, sustainment, redeployment, and demobilization activities associated with joint operations.			
<i>FY 2019 Plans:</i> Continue to modernize JPES improving performance on the Framework, develop additional data services, develop additional enhancements to the user interface to support new user requirements.			
<i>FY 2020 Plans:</i> Continue to maintain, fix and enhance performance on JPES, Newsgroups, JCRM and Preferred Forces Generation (PFG). and develop any additional data services.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease of -\$0.346 from FY 2019 to FY 2020 is due to completing the major workload to JOPES Modernization projects.			
Accomplishments/Planned Programs Subtotals	41.126	46.900	25.218

C. Other Program Funding Summary (\$ in Millions)												
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>	
• PE 0303150K: <i>Operation & Maintenance, Defense-Wide</i>	82.207	92.415	93.315	-	93.315	90.559	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Use of performance-based contract awards is maximized while use of Time and Material contracts is minimized to those providing programmatic support versus software development, integration, or testing. All development, integration, and migration efforts within the portfolio are primarily supported through Cost Reimbursable Task Orders issued under competitively awarded contracts. Acquisition Strategies are structured to retain contractors capable of satisfying cost, schedule, and performance objectives. Contract awards incorporate provisions requiring contractors to establish and manage specific earned value data. This strategy mitigates risk by requiring monthly Contract Performance Reviews (CPRs) and utilizing award fee contracts where appropriate to incentivize performance. Both GCCS-J and JPES apply formal acquisition rigor to include reporting requirements, as appropriate, by acquisition program designation.

E. Performance Metrics

Activity: Effectively communicate with external command and control systems

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>	Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>
<p>FY 2018 (Actual): 100% successful test of new critical system interfaces, as well as continued 100% successful test of critical current system interfaces. MET: Successfully conducted critical interface testing during the GCCS-J 6.0.1.0 Operational Test and USINDOPACOM and USCENTCOM. Successfully tested and demonstrated the new Situational Awareness Services - Enhanced (SAS-E) capability and interface at USCENTCOM in 4Qtr FY18.</p> <p>FY 2019 (Estimated): Expected to Meet</p> <p>FY 2020 (Target): Expected to Meet</p> <p>Activity: Fuse select C2 capabilities into a comprehensive, interoperable system eliminating the need for inflexible, duplicative, stovepipe C2 systems.</p> <p>FY 2018 (Actual): Successful fielding of GCCS-J Global Release 6.X. MET: Successfully tested and released four GCCS-J 6.0.x.x releases in FY18 (6.0.0.6, 6.0.0.7, 6.0.0.8, and 6.0.0.9) -- each provided additional C2 capabilities to the warfighter.</p> <p>FY 2019 (Estimated): Expected to Meet</p> <p>FY 2020 (Target): Expected to Meet</p> <p>Activity: Development of JOPES Framework (JFW) Release 5</p> <p>FY 2018 (Actual): Successfully completed improvements/expansion of JPES Framework (JFW) services providing enhanced system administration tools for monitoring and managing the JFW infrastructure and new data services. Estimated: 95%</p> <p>FY 2019 (Estimated): Successfully complete improvements/expansion of JPES Framework (JFW) services providing enhanced system administration tools for monitoring and managing the JFW infrastructure and new data services. Estimated: 50%</p> <p>FY 2020 Target: Successfully complete improvements/expansion of JPES Framework (JFW) services providing enhanced system administration tools for monitoring and managing the JFW infrastructure and new data services. Estimated: 50%</p> <p>Activity: Modernize GCCS-J infrastructure components to reduce overall costs (COTS & HW), increase scalability and performance through shift to enterprise deployment. Reduce release cycles through agile development and deployment.</p> <p>FY 2018 (Actual): Achieve Fielding Decision Review (FDR) for Agile Client Release 8 (R8). Estimated: 100%. MET: Agile Client Release 8 successful released.</p> <p>FY 2019 (Estimated): Achieve Fielding Decision Review (FDR) for Data Virtualization Layer Phase II. FY19 Estimated: 100%</p> <p>FY 2020 Target: N/A; Not completed change of development strategy</p> <p>Activity: Incrementally Develop, Test, and Field GCCS-J 6.0.x "Critical Must Have" Capabilities to the 53 Critical Sites designated by the Joint Staff J3. FY19 - Release and deploy GCCS-J 6.0.1.0 to the operational community, satisfying 100% of the "Critical Must Have" capabilities.</p> <p>FY 2018 Target: N/A</p> <p>FY 2019 (Estimated): Expected to Meet</p> <p>FY 2020 (Estimated): Expected to Meet</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>	Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>

Activity: Complete development and deployment of JOPES Modernization - JPES (Joint Planning & Execution System) Phase 1

FY 2018 Target: Successful development of JPES and deployment to the milCloud 1.0 environment. Estimated: 86% / Actual 93.5%

FY 2019 (Estimated): Successfully complete the development and deployment of JPES Phase 1; Achieve Fielding Decision Review (FDR) for JPES. Estimated: 100%

FY 2020 (Estimated): Successfully deploy JPES to the milCloud 2.0 environment; Expected to meet

Activity: Modernize GCCS-J To Provide a Cloud Based, Mobile, Enterprise Delivery of Legacy GCCS-J Capabilities (GCCS-J Enterprise). FY 19 - Field the GCCS-J Enterprise Initial Operating Capability.

FY 2018 Target: N/A

FY 2019 (Estimated): Expected to Meet

FY 2020 (Estimated): Expected to Meet

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>	Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development 1	C/CPFF	NGMS : Reston, VA	20.289	-		-		-		-		-	0.000	20.289	-
Product Development 2	FFRDC	MITRE : McLean, VA	7.077	-		-		-		-		-	0.000	7.077	-
Product Development 3	SS/FFP	Dynamic Systems : Los Angeles, CA	3.189	-		-		-		-		-	0.000	3.189	-
Product Development 4	C/CPFF	Pragmatics : McLean, VA	31.239	-		-		-		-		-	0.000	31.239	-
Product Development 6	C/CPIF	BAH : McLean, VA	3.369	-		-		-		-		-	0.000	3.369	-
Product Development 7	C/CPIF	JPES Framework : Various	19.554	-		-		-		-		-	0.000	19.554	-
Product Development 8	C/CPFF	RTB Development : Various	13.116	-		-		-		-		-	0.000	13.116	-
Product Development 9	C/CPFF	IGS Development : Various	12.398	-		-		-		-		-	0.000	12.398	-
Product Development 10	C/CPFF	SAIC : Falls Church, VA	4.826	-		-		-		-		-	0.000	4.826	-
Product Development 11	MIPR	SSC : San Diego, CA	13.317	-		-		-		-		-	0.000	13.317	-
Product Development 12	C/CPFF	NGMS : Reston, VA	67.014	-		-		-		-		-	0.000	67.014	-
Product Development 13	MIPR	NGIT : Various	1.772	-		-		-		-		-	0.000	1.772	-
Product Development 14	C/CPFF	NGMS : Reston, VA	86.191	-		0.700	Oct 2018	0.700	Oct 2019	-		0.700	Continuing	Continuing	Continuing
Product Development 15	C/CPIF	Booz Allen Hamilton : McLean, VA	3.283	-		-		-		-		-	0.000	3.283	-
Product Development 16	C/CPFF	Booz Allen Hamilton : Various	3.685	-		-		-		-		-	0.000	3.685	-
Product Development 17	C/CPAF	Booz Allen Hamilton : Falls Church, VA	1.229	-		-		-		-		-	0.000	1.229	-
Product Development 18	C/CPAF	AB Floyd : Alexandria, VA	12.477	-		-		-		-		-	0.000	12.477	-
Product Development 19	C/CPAF	Femme Comp Inc : Chantilly, VA	7.249	-		-		-		-		-	0.000	7.249	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>	Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development 20	C/CPFF	SAIC : Falls Church, VA	5.876	-		-		-		-		-	0.000	5.876	-
Product Development 21	C/CPIF	Booz Allen Hamilton : McLean, VA	5.865	-		-		-		-		-	0.000	5.865	-
Product Development 22	MIPR	JDISS : Various	6.039	-		-		-		-		-	0.000	6.039	-
Product Development 23	C/FFP	NGMS : Reston, VA	4.790	-		-		-		-		-	0.000	4.790	-
Product Development 24	MIPR	SPAWAR : Charleston, SC	10.034	0.721	Sep 2018	-		1.681	Sep 2020	-		1.681	Continuing	Continuing	Continuing
Product Development 25	MIPR	Dept of Energy, Army Research Lab, PD Intelligence Fusion, GSA/FAS : Various	5.710	-		-		-		-		-	0.000	5.710	-
Product Development 26	C/CPAF	Tactical 3-D COP : Various	3.200	-		-		-		-		-	0.000	3.200	-
Product Development 27	SS/FFP	JITC : Various	20.400	-		-		-		-		-	0.000	20.400	-
Product Development 28	C/CPFF	JCRM : McLean, VA	8.600	-		-		-		-		-	0.000	8.600	-
Product Development 30	C/CPFF	Systems Engineering and Integration : Various	9.630	4.400	Sep 2018	4.200	Sep 2019	4.200	Sep 2020	-		4.200	Continuing	Continuing	Continuing
Product Development 31	C/Variou	GCCS-J : Various	5.367	-		-		-		-		-	0.000	5.367	-
Product Development 32	C/CPFF	GCCS-JE Capabilities Development : Various	-	10.500	Feb 2018	11.500	Sep 2019	-		-		-	0.000	22.000	-
Product Development 33	C/Variou	JPES : Various	4.673	-		-		-		-		-	0.000	4.673	-
Engineering Services and Integration 29	SS/FFP	GCCS-J : Various	6.782	-		-		-		-		-	0.000	6.782	-
I3 Engineering Services & SW Development	C/Variou	NGIT : Various	1.811	-		-		-		-		-	0.000	1.811	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>	Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development 29	C/FFP	JOPES modernization : Washington, DC	10.248	-		-		-		-		-	0.000	10.248	-
Product Development 34	C/CPFF	JPES Solution : Falls Church, VA	0.000	7.400	Jan 2018	4.524	Jan 2019	6.374	Jan 2020	-		6.374	Continuing	Continuing	Continuing
Product Development	C/CPFF	GCCS-JE OTA : McLean, VA	0.000	16.005	Feb 2018	23.947	Feb 2019	8.579	Feb 2020	-		8.579	Continuing	Continuing	Continuing
Subtotal			420.299	39.026		44.871		21.534		-		21.534	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Support 1	C/T&M	Oracle : Various	1.003	-		-		-		-		-	0.000	1.003	-
Support 2	C/CPFF	JC2 Common Interface : Various	4.808	-		-		-		-		-	0.000	4.808	-
Support Costs - Engineering Support 3	FFRDC	MITRE : Various	0.754	-		-		1.382	Nov 2019	-		1.382	Continuing	Continuing	Continuing
Support Costs - Engineering Support 4	C/CPFF	Pragmatics : McLean, VA	3.799	-		-		-		-		-	0.000	3.799	-
Support Costs - Engineering Support 5	C/CPFF	IPA : College Park, MD	0.283	-		-		-		-		-	0.000	0.283	-
Support Cost 6	C/FFP	STA : Falls Church, VA	2.772	-		-		-		-		-	0.000	2.772	-
Support Costs	C/CPFF	GCCS-J : Various	4.557	-		-		-		-		-	0.000	4.557	-
Support Cost 7	C/FFP	Pragmatics : McLean, VA	3.564	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			21.540	-		-		1.382		-		1.382	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>	Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation 1	C/CPFF	SAIC : Falls Church, VA	0.744	-		-		-		-		-	0.000	0.744	-
Test & Evaluation 2	MIPR	JITC : Ft. Huachuca, AZ	31.065	1.500	Sep 2018	0.800	Oct 2018	1.700	Oct 2019	-		1.700	Continuing	Continuing	Continuing
Test & Evaluation 3	MIPR	DIA : Various	9.104	-		0.629	Jan 2019	-		-		-	Continuing	Continuing	Continuing
Test & Evaluation 4	MIPR	DAA : Various	3.752	0.600	Sep 2018	0.600	Sep 2019	0.602	Oct 2019	-		0.602	Continuing	Continuing	Continuing
Test & Evaluation 5	C/CPFF	SAIC : Falls Church, VA	9.681	-		-		-		-		-	0.000	9.681	-
Test & Evaluation 6	C/CPAF	SAIC : Falls Church, VA	23.133	-		-		-		-		-	0.000	23.133	-
Test & Evaluation 7	C/CPFF	Pragmatics : McLean, VA	0.308	-		-		-		-		-	0.000	0.308	-
Test & Evaluation 8	MIPR	JITC : Various	0.005	-		-		-		-		-	0.000	0.005	-
Test & Evaluation 9	MIPR	JITC : Various	0.897	-		-		-		-		-	0.000	0.897	-
Test & Evaluation 10	MIPR	DISA FSO : Various	1.059	-		-		-		-		-	0.000	1.059	-
Test & Evaluation 11	MIPR	TEMC Test Support : Various	0.229	-		-		-		-		-	0.000	0.229	-
Test & Evaluation 12	MIPR	DISA TEMC : Falls Church, VA	0.971	-		-		-		-		-	0.000	0.971	-
Test & Evaluation 13	MIPR	STRATCOM : Offut, NE	1.155	-		-		-		-		-	0.000	1.155	-
Test & Evaluation 14	MIPR	DISA FSO : Falls Church, VA	1.200	-		-		-		-		-	0.000	1.200	-
Test & Evaluation 15	C/CPFF	TQI : Falls Church, VA	1.698	-		-		-		-		-	0.000	1.698	-
Test & Evaluation 16	C/CPFF	TQI : Falls Church, VA	0.494	-		-		-		-		-	0.000	0.494	-
Test & Evaluation 17	MIPR	Slidell : Various	0.436	-		-		-		-		-	0.000	0.436	-
Subtotal			85.931	2.100		2.029		2.302		-		2.302	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>	Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>	

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
Development and Strategic Planning																												
Integration and Test																												

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Development and Strategic Planning																												
Integration and Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System</i>	Project (Number/Name) CC01 / <i>Global Command and Control System-Joint (GCCS-J)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Development and Strategic Planning	1	2017	4	2024
Integration and Test	1	2017	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303153K / <i>Defense Spectrum Organization</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	184.265	8.377	7.457	21.698	-	21.698	9.836	9.251	8.292	8.446	Continuing	Continuing
JS1: <i>Joint Spectrum Center</i>	184.265	8.377	7.457	21.698	-	21.698	9.836	9.251	8.292	8.446	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Spectrum Organization (DSO) provides a full array of electromagnetic spectrum services and capabilities, ranging from short notice on-the-ground operational support at the forward edge, to long range planning in pursuit of national strategic objectives. These services/capabilities are in direct support of Combatant Commanders, the Department of Defense (DoD) Chief Information Officer, Military Services, and Defense Agencies. The DSO is the focal point for electromagnetic spectrum analysis and the development of integrated spectrum plans and strategies to address current and future needs for DoD spectrum access. In addition, DSO serves as DoD's spectrum advocate at national and international forums and conducts extensive outreach to both industry and government. DSO also implements enterprise spectrum management capabilities to enhance spectrum efficiency and agility to improve spectrum-dependent capabilities in support of United States and Coalition operations. This includes acquiring, implementing and sustaining the Global Electromagnetic Spectrum Information System (GEMSIS) which provides an integrated catalog of joint net-centric spectrum management tools and services. Electromagnetic Spectrum Management enables information dominance through effective spectrum operations.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	8.750	7.570	9.698	-	9.698
Current President's Budget	8.377	7.457	21.698	-	21.698
Total Adjustments	-0.373	-0.113	12.000	-	12.000
• Congressional General Reductions	-0.044	-0.113			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.259	-			
• Adjustment	-0.070	-	12.000	-	12.000

Change Summary Explanation

The decrease of -\$0.373 in FY 2018 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs (-\$0.259), a congressional general reduction for the Federally Funded Research and Development Centers (FFRDC) of -\$0.044, and decrease of -\$0.070 that will result in fewer Hazards of Electromagnetic Radiation to Ordnance (HERO) electromagnetic environmental effects surveys conducted.

The decrease of -\$0.113 in FY 2019 is due to a congressional general reduction (FFRDC).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303153K / <i>Defense Spectrum Organization</i>
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The increase of +\$12.000 in FY 2020 is to begin foundational efforts in support of electromagnetic (EM) battle management (EMBM) to enable effective joint electromagnetic spectrum (EMS) operations. The funds support the integration of data feeds and analytics with the Joint Spectrum Data Repository (JSDR) to provide holistic spectrum situational awareness and are critical to understanding the EM operating environment and to inform military decision-makers. Spectrum maneuverability will be critical to future military operations engaging near-peer adversaries and will be dependent on a clear understanding of the spectrum operational environment.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303153K / <i>Defense Spectrum Organization</i>	Project (Number/Name) JS1 / <i>Joint Spectrum Center</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
<i>JS1: Joint Spectrum Center</i>	184.265	8.377	7.457	21.698	-	21.698	9.836	9.251	8.292	8.446	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Spectrum Center (JSC), which is a division of Defense Spectrum Organization (DSO), designs, develops, and maintains Department of Defense (DoD) automated spectrum management systems, evaluation tools, and databases. The databases are the prime sources of information for DoD use of the electromagnetic (EM) spectrum. The JSC provides technical measurement and analysis in support of DoD spectrum policy decisions to ensure the development, acquisition, and operational deployment of systems are compatible with other spectrum dependent systems operating within the same EM environment (EME). Additional efforts focus on improving future warfighter EM spectrum utilization through technological innovation, and influencing research and development emerging technology efforts.

Improved spectrum support includes the Global Electromagnetic Spectrum Information System (GEMSIS), a net centric capability that will provide commanders with an increased common picture of spectrum situational awareness of friendly and hostile forces while transparently deconflicting competing mission requirements for spectrum use. This capability will enable the transformation from the current preplanned and static assignment strategy into autonomous and adaptive spectrum operations.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Advanced Spectrum Tools	0.883	0.883	0.883
<p>Description: The Joint Spectrum Data Repository and Tools program supports development of spectrum management tools, spectrum modeling and simulation capabilities, spectrum database development, and spectrum data transformation and standardization. This program provides the Combatant Commands (COCOMs) and Military Services with the spectrum management tools and associated databases to manage spectrum resources at the strategic and operational level. It also provides the DoD acquisition community with analytical tools to conduct Electromagnetic Environmental Effects (E3) analyses and Spectrum Supportability Risk Assessments (SSRA).</p> <p>FY 2019 Plans: Will continue to make enhancements to Spectrum Technology and Testbed Initiative in support of Spectrum Engineering Analysis and Relocation efforts. Supports evaluation of future and existing spectrum analysis tools.</p> <p>FY 2020 Plans: Will continue to make enhancements to Spectrum Technology and Testbed Initiative in support of Spectrum Engineering Analysis and Relocation efforts. Supports evaluation of future and existing spectrum analysis tools.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303153K / <i>Defense Spectrum Organization</i>	Project (Number/Name) JS1 / <i>Joint Spectrum Center</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
No change statement required.			
<p>Title: DoD Electromagnetic Environmental Effects (E3) Program</p> <p>Description: The DoD E3 Program supports the Joint Capabilities Integration and Development System (JCIDS) process and the DoD acquisition process to ensure that E3 control and spectrum supportability are incorporated into the development, testing, and procurement of information technology and National Security Systems. The E3 Program also supports the development of the Joint Ordnance E3 Risk Assessment Database (JOERAD) and Hazards of Electromagnetic Radiation to Ordnance (HERO) electromagnetic environmental effects surveys in support of the COCOMs and Joint Task Forces. JOERAD develops algorithms and provides analytical capabilities to perform real-time risk assessments to evaluate platform/system safety and identify equipment limitations in the operational EM environment. JOERAD enables operators to make critical decisions about the hazards associated with the use of ordnance within complex EM environments. A SSRA is performed by program managers and materiel developers on all programs that are acquiring or incorporating spectrum-dependent systems or equipment per DoDI 4650.1. These assessments encompassed regulatory, technical, and operational spectrum and E3 issues and associated risks.</p> <p>FY 2019 Plans: Will continue to conduct Joint Ordnance Commanders Group (JOCG) HERO Subgroup meetings, support the JOCG Executive Steering Committee and develop and maintain the Services' HERO susceptibility data records. Will conduct forward deployed base HERO surveys for the COCOMs/Services, and CONUS based equipment which emits radio frequencies (emitter) surveys for ordnance safety database validation and update the DoD ordnance Radio Frequency (RF) safety requirements. Will update MIL-HDBK-235, "Electromagnetic Environment (EME) Profiles" and develop EME (profiles to address blue force jammer and electronic warfare environments. Will conduct monthly DoD E3 Integrated Product Team (IPT) Meetings. Will provide technical support to DoD CIO, the Joint Staff, and other DoD Components on E3, spectrum, hazards of EM radiation matters. Will review JCIDS and Information Support Plan (ISP) acquisition documents assigned by the Joint Staff and DoD CIO and update guidance instructions as necessary. Will provide E3 and SS training to the DoD Components and develop/maintain training curricula at the Defense Acquisition University.</p> <p>FY 2020 Plans: Will continue to conduct JOCG HERO Subgroup meetings, support the JOCG Executive Steering Committee and develop and maintain the Services' HERO susceptibility data records. Will conduct forward deployed base HERO surveys for the COCOMs/ Services, and CONUS based emitter surveys for ordnance safety database validation and update the DoD ordnance RF safety requirements. Will update MIL-HDBK-235, "EME Profiles" and develop EME profiles to address blue force jammer and electronic warfare environments. Will conduct monthly DoD E3 Integrated Product Team (IPT) Meetings. Will provide technical support to DoD CIO, the Joint Staff, and other DoD Components on E3, spectrum, hazards of EM radiation matters. Will review JCIDS and</p>	3.315	3.315	4.203

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303153K / <i>Defense Spectrum Organization</i>	Project (Number/Name) JS1 / <i>Joint Spectrum Center</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>ISP acquisition documents assigned by the Joint Staff and DoD CIO and update guidance instructions as necessary. Will provide E3 and SS training to the DoD Components and develop/maintain training curricula at the Defense Acquisition University.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The increase of +\$0.888 from FY 2019 to FY 2020 is attributed to additional forward deployed base HERO surveys for COCOMs/ Services and any CONUS based emitter surveys for ordnance safety database validation. This will also allow for an increase in the number of E3 and SS training events delivered to DoD Components.</p>			
<p>Title: Emerging Spectrum Technologies (EST)</p> <p>Description: DSO has the responsibility to investigate emerging spectrum related technologies and evaluate their applicability to improve future warfighter EM spectrum utilization through technological innovation. The goal of the EST program is to identify the opportunities and risks associated with emerging spectrum-related technologies in the early stages of the technology development, influence and lead technology development in order to maximize DoD spectrum utilization, and ensure that spectrum policies incorporate optimal technology to meet DoD mission requirements. Within EST there is an increased focus on Dynamic Spectrum Access (DSA). DSA is realized through wireless networking architectures and technologies that enable wireless devices to dynamically adapt their spectrum access according to criteria such as policy constraints, spectrum availability, propagation environment, and application performance requirements.</p> <p>FY 2019 Plans: Will continue collaboration efforts with the Science and Technology community (including Assistant Secretary of Defense for Research and Engineering (ASDR&E), Service Labs and Defense Advance Research Projects Agency (DARPA)) to develop and execute the technology roadmaps and integration strategies that result in system flexibility and operational agility. Revisions will be made to the current spectrum management architecture to reflect transforming spectrum operations through application of EST in accordance with the new DoD EMS Spectrum Strategy. Prototype capabilities that provide increased operational agility will be developed and demonstrated. Continue to develop initiatives that include the roadmap, standards, architecture, and business processes to exploit and/or minimize the impact of emerging technologies on DoD spectrum operations.</p> <p>FY 2020 Plans: Will continue collaboration efforts with the Science and Technology community (including ASDR&E, Service Labs and DARPA) to develop and execute the technology roadmaps and integration strategies that result in system flexibility and operational agility. Revisions will be made to the current spectrum management architecture to reflect transforming spectrum operations through application of EST in accordance with the new DoD EMS Spectrum Strategy. Prototype capabilities that provide increased operational agility will be developed and demonstrated. Will continue to develop initiatives including the roadmap,</p>	3.342	2.453	3.800

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303153K / <i>Defense Spectrum Organization</i>	Project (Number/Name) JS1 / <i>Joint Spectrum Center</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
standards, architecture, and business processes to exploit and/or minimize the impact of emerging technologies on DoD spectrum operations. <i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase of +\$1.347 from FY 2019 to FY 2020 is due to an increase in the number of prototype assessments that will be accomplished during FY 2020.			
<i>Title:</i> Global Electromagnetic Spectrum Information System (GEMSIS) <i>Description:</i> The GEMSIS is a net centric capability that will provide operational commanders with an increased common picture of spectrum situational awareness of friendly and hostile forces while transparently deconflicting competing mission requirements for spectrum use. This capability will enable the transformation from the current preplanned and static assignment strategy into autonomous and adaptive spectrum operations. <i>FY 2019 Plans:</i> Will continue SPECTRUM XXI (SXXI) Legacy, End-to-End Supportability System (E2ESS), and Joint Spectrum Data Repository (JSDR) maintenance and version releases. <i>FY 2020 Plans:</i> Will continue SXXI Legacy, E2ESS, and JSDR maintenance and version releases. <i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase of +\$12.006 in FY 2019 to 2020 is due to adjustments in contract requirements to support software version releases and to begin foundational electromagnetic (EM) battle management (EMBM) efforts to enable effective joint electromagnetic spectrum (EMS) operations.	0.837	0.806	12.812
Accomplishments/Planned Programs Subtotals	8.377	7.457	21.698

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• O&M, DW/PE 0303153K: O&M, DW	34.392	34.409	34.270	-	34.270	34.902	35.743	36.408	36.930	Continuing	Continuing
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303153K / <i>Defense Spectrum Organization</i>	Project (Number/Name) JS1 / <i>Joint Spectrum Center</i>

D. Acquisition Strategy

Engineering support services are provided by the use of a contract. No in-house government capability exists, nor is it practical to develop one that can provide the expertise necessary to fulfill the mission and responsibilities of DSO. Full and open competition was used for the current contract with EXELIS, Inc. GEMSIS' acquisition approach is to obtain capabilities by adopting existing capabilities, buying commercial products, or developing new capabilities by delivering incrementally within the context of a streamlined and adaptive acquisition approach.

E. Performance Metrics

1. Provide engineering support to DoD Components to ensure E3 and spectrum supportability requirements are addressed during the acquisition life-cycle meeting at least 90% of program suspenses.
2. Execute effective emerging spectrum technologies evaluation process that generates timely and relevant products evaluating at least 3 technologies per quarter.
3. Provide technical E3 and spectrum engineering support upon request from the Combatant Commands, their components and the Military Services with a minimum 98% response rate.
4. Develop an operational Joint spectrum management system that delivers at least 90% of products on schedule in accordance with objective scheduled events and deliverables as approved in the Acquisition Program Baseline- Schedule Status of systems.

All metric results are classified.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303153K / <i>Defense Spectrum Organization</i>	Project (Number/Name) JS1 / <i>Joint Spectrum Center</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical Engineering Services 1	C/FFP	Multi : Various	167.451	8.051	Oct 2017	7.127	Oct 2018	9.368	Nov 2019	-		9.368	Continuing	Continuing	Continuing
Technical Engineering Services 2	MIPR	Various : Various	5.443	0.326	Oct 2017	0.330	Oct 2018	12.000	Oct 2019	-		12.000	Continuing	Continuing	Continuing
Subtotal			172.894	8.377		7.457		21.368		-		21.368	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation	MIPR	JITC : Ft. Huachuca	2.312	-		-		-		-		-	0.000	2.312	-
Subtotal			2.312	-		-		-		-		-	0.000	2.312	N/A

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management Services	FFRDC	MITRE : Ft. Monmouth, NJ	9.059	-		-		0.330	Nov 2019	-		0.330	Continuing	Continuing	Continuing
Subtotal			9.059	-		-		0.330		-		0.330	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		184.265	8.377	7.457	21.698	-	21.698	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303153K / <i>Defense Spectrum Organization</i>	Project (Number/Name) JS1 / <i>Joint Spectrum Center</i>	

FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
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

Joint Spectrum Center	
Spectrum Tool (SXXI, Coalition Joint Spectrum Management Planning Tool (CJSMPT), JSDR) Version Releases	
JOERAD Releases	
Emerging Spectrum Technology Research Projects	
Spectrum Data Sharing Capability Deployments	
Increment Two GEMSIS	
E3 Program Outputs	

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
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

Joint Spectrum Center	
Spectrum Tool (SXXI, Coalition Joint Spectrum Management Planning Tool (CJSMPT), JSDR) Version Releases	
JOERAD Releases	
Emerging Spectrum Technology Research Projects	
Spectrum Data Sharing Capability Deployments	
Increment Two GEMSIS	
E3 Program Outputs	

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303153K / <i>Defense Spectrum Organization</i>	Project (Number/Name) JS1 / <i>Joint Spectrum Center</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Joint Spectrum Center				
Spectrum Tool (SXXI, Coalition Joint Spectrum Management Planning Tool (CJSMPT), JSDR) Version Releases	3	2017	4	2024
JOERAD Releases	3	2017	4	2024
Emerging Spectrum Technology Research Projects	3	2017	4	2024
Spectrum Data Sharing Capability Deployments	3	2017	4	2024
Increment Two GEMISIS	1	2017	4	2019
E3 Program Outputs	1	2017	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303228K I <i>Joint Information Environment</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	2.789	4.550	7.947	18.077	-	18.077	2.882	2.947	3.021	3.077	Continuing	Continuing
JE1: <i>Joint Regional Security Stacks</i>	2.789	4.550	7.947	18.077	-	18.077	2.882	2.947	3.021	3.077	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Information Environment (JIE) construct is a consolidated secure and defensible environment across DoD. This is comprised of unified, consolidated and shared information technology (IT) infrastructure, enterprise services, and standardized security architectures throughout the Department of Defense Information Network (DODIN) to achieve full spectrum superiority, improve mission effectiveness, increase security and realize IT efficiencies.

The target objective state of JIE is a DODIN that optimizes the use of DoD's IT assets from the administrative and operational planning at the Pentagon to the tactical edge; to include our mission partners through converging communications, computing, enterprise services, and defense of the DODIN that can be leveraged for all Department missions.

When implemented, JIE will reduce DoD's Total Cost of Ownership (TCO), improved security by reducing the attack surface of our networks, and enable Combatant Commands/Services/Agencies (CC/S/A) to more efficiently access information to perform their missions from any authorized IT device, any time, from anywhere in the world.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	4.689	7.947	2.797	-	2.797
Current President's Budget	4.550	7.947	18.077	-	18.077
Total Adjustments	-0.139	0.000	15.280	-	15.280
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.139	-			
• Adjustment	-	-	15.280	-	15.280

Change Summary Explanation

Decrease in FY 2018 of -\$0.139 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 7: <i>Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303228K / <i>Joint Information Environment</i>	

Increase in FY 2020 of +\$15.280 primarily due to support architecture development and conduct developmental test and evaluation on pilot capability for the next-generation JRSS. The funding will also support testing of additional enhancements to JRSS 2.0 capabilities, integration/testing of tech refresh items into architecture, as well as development and testing of (DoD Cyber Situational Awareness Analytic Capabilities) CSAAC analytics.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0303228K / Joint Information Environment				Project (Number/Name) JE1 / Joint Regional Security Stacks			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
JE1: Joint Regional Security Stacks	2.789	4.550	7.947	18.077	-	18.077	2.882	2.947	3.021	3.077	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Regional Security Stack (JRSS) is a joint DoD security architecture deployed regionally throughout the world. Each of the 23 NIPR and 25 SIPR stacks is comprised of complementary defensive security solutions that remove redundant Information Assurance (IA) protections; leverages enterprise defensive capabilities with standardized security suites; protects the enclaves after the separation of server and user assets; and provides the tool sets necessary to monitor and control all security mechanisms throughout DoD's Joint Information Environment. The JRSS Management System (JMS) is the management and operational control suite/capability for the JRSS. While the JMS is treated as a related effort, it requires its own experience and evaluation strategy as the JMS is a selection of best of breed capabilities. The JMS is a system-of-systems designed to centralize and enhance the management of the JRSS components and achieve economies of scale by using DoD common suites/infrastructure. The savings are realized by coupling the JRSS and JMS. The JRSS collapses replicated IT security functionality for all Department of Defense (DoD) components into relatively few regionally located stacks. The JMS provides Centralized Network Management of the JRSS with a standard interoperable set of capabilities across DoD. JMS provides visibility and control over network transport and associated security systems. It enables monitoring and analysis of relevant fault and performance data to determine the impact on current operations and trend analysis. This centralized capability allows standardization of policies, procedures and configurations of critical network transport assets. The JMS enables DoD Components to maintain Title 10 required management and visibility of their IT security while providing high level visibility to CYBERCOM. Cyber Operations can take proactive actions to ensure the uninterrupted availability and protection of system and network information.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Joint Regional Security Stacks	4.550	7.947	18.077
Description: The Joint Regional Security Stack (JRSS) is a joint DoD security architecture deployed regionally throughout the world. Each of the 23 NIPR and 25 SIPR stacks is comprised of complementary defensive security solutions that remove redundant Information Assurance (IA) protections; leverages enterprise defensive capabilities with standardized security suites; protects the enclaves after the separation of server and user assets; and provides the tool sets necessary to monitor and control all security mechanisms throughout DoD's Joint Information Environment.			
FY 2019 Plans: Will provide integration, testing, and development of JRSS/JMS hardware/software to support tech refresh of end-of-support/end-of-life appliances. Support the development and testing of DoD Cyber Situational Awareness Analytic Capabilities (CSAAC) analytics.			
FY 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency	Date: March 2019
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Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303228K / <i>Joint Information Environment</i>	Project (Number/Name) JE1 / <i>Joint Regional Security Stacks</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Will provide integration, testing, and development of JRSS/JMS hardware/software to support tech refresh of end-of-support/end-of-life appliances. Support the development and testing of DoD Cyber Situational Awareness Analytic Capabilities (CSAAC) analytics. FY 2019 to FY 2020 Increase/Decrease Statement: The increase of +\$10.130 from FY 2019 to FY 2020 is attributed to architecting, piloting, and testing the proof-of-concept/next generation version of the Joint Regional Security Stack (JRSS).			
Accomplishments/Planned Programs Subtotals	4.550	7.947	18.077

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

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

The Joint Regional Security Stack (JRSS) is a joint DoD security architecture deployed regionally throughout the world. Each of the 23 NIPR and 25 SIPR stacks is comprised of complementary defensive security solutions that remove redundant Information Assurance (IA) protections; leverages enterprise defensive capabilities with standardized security suites; protects the enclaves after the separation of server and user assets; and provides the tool sets necessary to monitor and control all security mechanisms throughout DoD's Joint Information Environment. The JRSS Management System (JMS) is the management and operational control suite/capability for the JRSS. While the JMS is treated as a related effort, it requires its own experience and evaluation strategy as the JMS is a selection of best of breed capabilities. The JMS is a system-of-systems designed to centralize and enhance the management of the JRSS components and achieve economies of scale by using DoD common suites/infrastructure. The JMS provides Centralized Network Management of the JRSS with a standard interoperable set of capabilities across DoD. JMS provides visibility and control over network transport and associated security systems. It enables monitoring and analysis of relevant fault and performance data to determine the impact on current operations and trend analysis. This centralized capability allows standardization of policies, procedures and configurations of critical network transport assets. The JMS enables DoD Components to maintain Title 10 required management and visibility of their IT security while providing high level visibility to CYBERCOM. Cyber Operations can take proactive actions to ensure the uninterrupted availability and protection of system and network information.

FY 2018 Actual: 100% successful testing of new pre-production capabilities for Full Packet Capture analytics (e.g. ArcSight and Splunk log); JMS 1.5 data orchestrator aggregation; and JRSS 1.5 active stack capabilities through the Joint Interoperability Test Command. MET

FY 2019 Target: 100% successful testing of JRSS tech refresh hardware/software and testing of six medium complexity analytics.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303228K / <i>Joint Information Environment</i>	Project (Number/Name) JE1 / <i>Joint Regional Security Stacks</i>

FY 2020 (Estimated): 100% successful testing of JRSS tech refresh hardware/software and testing of six medium complexity analytics.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303228K / <i>Joint Information Environment</i>	Project (Number/Name) JE1 / <i>Joint Regional Security Stacks</i>	

FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>JIE</i>	
<i>JIE</i>	

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>JIE</i>	
<i>JIE</i>	

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303228K / <i>Joint Information Environment</i>	Project (Number/Name) JE1 / <i>Joint Regional Security Stacks</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>JIE</i>				
JIE	1	2017	1	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303267K / <i>Auctioned Spectrum Relocation Fund</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	15.804	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
JS1: <i>Auctioned Spectrum Relocation Fund</i>	-	15.804	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

Funding supports Spectrum relocation and sharing activities.

B. Program Change Summary (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	15.804	0.000	0.000	-	0.000
Total Adjustments	15.804	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	15.804	-	-	-	-

Change Summary Explanation

Increase of +\$15.804 in FY 2018 represent funds received during execution through a transfer from OMB.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303267K / <i>Auctioned Spectrum Relocation Fund</i>	Project (Number/Name) JS1 / <i>Auctioned Spectrum Relocation Fund</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
<i>JS1: Auctioned Spectrum Relocation Fund</i>	-	15.804	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Funding supports Spectrum relocation and sharing activities.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Auctioned Spectrum Relocation Fund	15.804	0.000	0.000
Description: Funding supports Spectrum relocation and sharing activities			
FY 2019 Plans: N/A			
FY 2020 Plans: N/A			
FY 2019 to FY 2020 Increase/Decrease Statement: N/A			
Accomplishments/Planned Programs Subtotals	15.804	0.000	0.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303267K / <i>Auctioned Spectrum Relocation Fund</i>	Project (Number/Name) JS1 / <i>Auctioned Spectrum Relocation Fund</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Auctioned Spectrum Relocation Fund</i>																												
Support spectrum relocation activities																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303267K / <i>Auctioned Spectrum Relocation Fund</i>	Project (Number/Name) JS1 / <i>Auctioned Spectrum Relocation Fund</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Auctioned Spectrum Relocation Fund</i>				
Support spectrum relocation activities	1	2018	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303430K / <i>Federal Investigative Services Information Technology</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	75.000	41.743	55.400	44.001	-	44.001	14.500	9.801	9.906	10.094	Continuing	Continuing
KA1: <i>Federal Investigative Services Information Technology</i>	75.000	41.743	55.400	44.001	-	44.001	14.500	9.801	9.906	10.094	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Develop an enterprise Information Technology (IT) architecture and data strategy for modernizing Investigative capabilities supporting background investigations (BI) (replacing capabilities such as Office of Personnel Management (OPM)'s eAdjudication and eApplication). Provides a new, secure infrastructure and investigative support system for DoD and Federal Agencies utilizing web/cloud based capabilities and robust cybersecurity. Leverages DoD's cybersecurity capabilities and national security focus to protect government and contractors' personal and investigative information. Supports the distributed adjudication processes with built-in security; active governance structure, and a new national security culture based on process improvement/change management.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	50.000	39.400	9.556	-	9.556
Current President's Budget	41.743	55.400	44.001	-	44.001
Total Adjustments	-8.257	16.000	34.445	-	34.445
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-5.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	16.000			
• SBIR/STTR Transfer	-1.479	-			
• Reprogrammings	-	-	21.000	-	21.000
• Adjustment	-1.778	-	13.445	-	13.445

Change Summary Explanation

Decrease of -\$8.257 in FY 2018 is due to congressional directed reduction of -\$5.000, transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs of -\$1.479, and reduction of -\$1.778 due a delay in Investigation Management (IM) correcting the investment profile for execution.

Increase of +16.000 in FY 2019 is due to reprogramming funds from Operations and Maintenance (O&M) to Research, Development, Testing and Evaluation (RDT&E) to fund Defense Manpower Data Center (DMDC) capabilities that are part of a larger development effort.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303430K / <i>Federal Investigative Services Information Technology</i>
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Increase of +\$34.445 in FY 2020 is to develop built-in sustainment features and advance metrics, and enhance the secure data warehouse; includes oversight and management product work, specifies the initial hardware, provides requirements for development, provides support for requirement accomplishment, coordination, data protection, conduct testing, and after completion to retain all responsibility of application enhancements (+\$13.445). Also, the increase of + \$21.000 is due to the reprogramming from O&M to RDT&E for IM development to provide the business logic, work flow, rules, algorithms, etc. for case initiation through closure. Funding is required for a new, transformational continuous evaluation (CE) capability that includes machine learning and natural language processing as part of an Artificial Intelligence Platform as a Service. The full architectural stack includes an underlying Data Brokerage as a Service and is being constructed as a prototype application to replace the DoD's existing CE application. In addition to development capabilities, additional funding is required for build-out of Agile pipeline that includes Development Security Operations which includes Cyber and Test activities to maintain Agile sprint and increment cadence.

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>Title: Background Investigation Information Technology Systems</p> <p>Description: Implements the decision by the Interagency Deputies Committee and the Office of Management and Budget (OMB) to transfer responsibility for the development and sustainment of new Federal Government background investigation information technology (IT) system(s) from the OPM to the DoD beginning in FY 2017.</p> <p>FY 2019 Plans: DoD will continue to enhance and improve the capability of the Initial Operational Capability (IOC) schedule for delivery at the end of FY18 to achieve full operational capability (FOC) at the end of FY19 by adding automation pulls from various data sources; providing capability for insider threat analysis; development and deployment of continuous evaluation capabilities; and tailoring to non-DoD systems. The FOC system will continue to defend against cyber-attacks and improve defensibility. This FOC system will provide the full suite of background investigation services to the whole federal government, not just DoD.</p> <p>FY 2020 Plans: DoD will continue to enhance and improve the capabilities. As part of an Agile development process, the National Background Investigation System will deploy additional releases in FY20 to improve automation of the background investigative process, improve analytic to address insider threat analysis and improve continuous evaluation capabilities and develop capabilities to meet additional Federal Agencies requirements. The system will continue to defend against cyber-attacks and improve defensibility by meeting new and evolving threats.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The decrease of -\$11.399 from FY 2019 to FY 2020 is the result of the completion of all initial major developmental implementation and testing activities to include: initial demonstration of Investigative Case Management, the switching over of</p>	41.743	55.400	44.001

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303430K / <i>Federal Investigative Services Information Technology</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
vetting adjudication to the new E-Application Subject system, and meeting user requirements for the Position Designation tool (that assesses the duties and responsibilities of government employees).			
Accomplishments/Planned Programs Subtotals	41.743	55.400	44.001

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 0303430K, O&M: <i>Background Investigation Information Technology Systems</i>	47.138	64.745	82.046	-	82.046	112.322	119.789	122.451	126.194	Continuing	Continuing

Remarks

E. Acquisition Strategy
 The NBIS program has assessed market solutions, built out capability solutions, and reduced technical risk through a series of component-level prototype and pilot efforts. The NBIS Program Office (PMO) will leverage the lessons learned from these prototype and pilot efforts and incorporate into the system-level build and integration of the NBIS prototype. Specifically, lessons learned from the Investigative Case Management (ICM) prototype will be incorporated into the ICM Request For Proposal (RFP) to leverage Industry’s customized Commercial-off-the-Shelf (COTS) solutions. The ICM & Integration Request for Information (RFI) and Request for White Papers (RWP) were released in 4th Quarter FY 2017 and the RFP in 1st Quarter FY 2018; the end result was the IM Other Transaction Authority (OTA) awarded in 3rd Quarter FY 2018.

F. Performance Metrics
 Processing Capacity:
 Threshold: System shall have the capability to process 2 million cases per year.
 Objective: System shall have the capability to process 3 million cases per year.

FY 2018 Planned: N/A
 FY 2019 Estimated: 1 thousand cases (IOC)
 FY 2020 Estimated: 2 thousand cases (IOC)

Availability:
 Threshold: System shall have a continuous availability target of 99.9%
 Objective: System shall have a continuous availability target of 99.99%

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303430K / <i>Federal Investigative Services Information Technology</i>	
FY 2018 Planned: N/A FY 2019 Estimated: 99.9% FY 2020 Estimated: 99.9%		
Security: Threshold: System shall operate within the Federal Information Security Management Act (FISMA) standards for a High, High, Moderate system with low and/or moderate vulnerabilities. Objective: System shall operate within the FISMA standards for a High, High, Moderate system with low vulnerabilities		
FY 2018 Planned: N/A / Actual: The system does not operate within the FISMA standards for High, High, Moderate system with low vulnerabilities FY 2019 Estimated: High, High, Moderate system with low and or medium vulnerabilities. FY 2020 Estimated: High, High, Moderate system with low and or medium vulnerabilities.		

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303430K / <i>Federal Investigative Services Information Technology</i>	Project (Number/Name) KA1 / <i>Federal Investigative Services Information Technology</i>
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	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
NBIS																												
IOC Application Development																												
IOC Testing																												
IOC Implementation																												
FOC Development																												
FOC Testing																												
FOC Implementation																												
Post Deployment Improvement - Scheduled Releases																												
Post Deployment Improvement - Scheduled Releases																												

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
NBIS																												
IOC Application Development																												
IOC Testing																												
IOC Implementation																												
FOC Development																												
FOC Testing																												
FOC Implementation																												
Post Deployment Improvement - Scheduled Releases																												
Post Deployment Improvement - Scheduled Releases																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303430K / <i>Federal Investigative Services Information Technology</i>	Project (Number/Name) KA1 / <i>Federal Investigative Services Information Technology</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NBIS				
IOC Application Development	2	2017	3	2018
IOC Testing	3	2017	4	2020
IOC Implementation	4	2017	1	2020
FOC Development	4	2017	2	2019
FOC Testing	2	2017	4	2019
FOC Implementation	4	2017	1	2020
Post Deployment Improvement - Scheduled Releases				
Post Deployment Improvement - Scheduled Releases	1	2020	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305103K / <i>Cybersecurity Initiative</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	18.520	1.644	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
XXX: <i>Cybersecurity Initiative</i>	18.520	1.644	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Classified

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	1.686	0.000	0.000	-	0.000
Current President's Budget	1.644	0.000	0.000	-	0.000
Total Adjustments	-0.042	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.042	-			

Change Summary Explanation

Classified.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305103K / <i>Cybersecurity Initiative</i>	Project (Number/Name) XXX / <i>Cybersecurity Initiative</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
XXX: <i>Cybersecurity Initiative</i>	18.520	1.644	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

Classified

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Cyber Security Range	1.644	-	-
Accomplishments/Planned Programs Subtotals	1.644	-	-

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

N/A

Remarks

Classified

D. Acquisition Strategy

Classified

E. Performance Metrics

Classified

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305103K / <i>Cybersecurity Initiative</i>	Project (Number/Name) XXX / <i>Cybersecurity Initiative</i>
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FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
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

Classified	
Classified	█

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
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

Classified	
Classified	█

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305103K / <i>Cybersecurity Initiative</i>	Project (Number/Name) XXX / <i>Cybersecurity Initiative</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Classified				
Classified	4	2017	3	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305208K / <i>Distributed Common Ground/Surface Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	53.168	2.959	2.970	2.981	-	2.981	3.050	3.112	3.174	3.235	Continuing	Continuing
NF1: <i>Distributed Common Ground/Surface Systems</i>	53.168	2.959	2.970	2.981	-	2.981	3.050	3.112	3.174	3.235	Continuing	Continuing

A. Mission Description and Budget Item Justification

As the sole joint interoperability certification agent, the Joint Interoperability Test Command (JITC) established and maintains a Distributed Development and Test Enterprise (T&E) for the Department of Defense (DoD) Distributed Common Ground/Surface System (DCGS) program, as directed by the Office of the Under Secretary of Defense Intelligence (OUSD(I)). DCGS is an integral and critical component of the overall DoD Intelligence, Surveillance, and Reconnaissance interoperability and data integration strategy which provides world-wide capabilities to receive, process, exploit, and disseminate data from airborne and national reconnaissance sensors/platforms and commercial sources.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	3.049	2.970	2.981	-	2.981
Current President's Budget	2.959	2.970	2.981	-	2.981
Total Adjustments	-0.090	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.090	-			

Change Summary Explanation

The decrease of -\$0.090 in FY 2018 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0305208K / <i>Distributed Common Ground/Surface Systems</i>				Project (Number/Name) NF1 / <i>Distributed Common Ground/Surface Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
NF1: <i>Distributed Common Ground/Surface Systems</i>	53.168	2.959	2.970	2.981	-	2.981	3.050	3.112	3.174	3.235	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Joint Interoperability Test Command (JITC) coordinates with the Military Services and Defense Intelligence Agencies to conduct Joint/Distributed Common Ground/Surface System (DCGS) testing and analysis, including event coordination, configuration, instrumentation and integration functions on the Distributed Development and Test Enterprise (DDTE). Under the DCGS Governance, this effort, referred to as the DCGS Test and Evaluation (T&E) Focus Team (FT), is composed of three parts: the DDTE Focus Group, providing and sustaining a distributed development network; the Strategy Focus Group, looking at current and future net-enabled enterprise T&E methods; and the Execution Focus Group, which leverages the Strategy Focus Group's methodologies in executing DCGS Enterprise assessment events, such as the annual DCGS demonstration, ENTERPRISE CHALLENGE. These efforts improve systems engineering and T&E throughout all phases of the DCGS life-cycle, resulting in improved capabilities to share net-centric data and services between the DCGS Programs of Record (PoRs) and the overarching Defense Intelligence Information Enterprise (DI2E).

Operates and maintains the DDTE, providing DCGS PoRs a virtual, operationally-relevant assessment environment maintaining connectivity between Service facilities, National Agency capabilities, and Coalition partners. DDTE allows robust integration of modeling and simulation T&E capabilities across Joint DCGS events without introducing vulnerabilities to operational Command and Control networks and has enabled improvements in systems engineering, instrumentation and T&E throughout all phases of the DCGS life cycle.

DCGS PoRs and Coalition partners use the DDTE network, which supports the net-centric maturity assessment of the DCGS Enterprise under the DCGS Governance, to integrate architecture, standards, and capabilities for implementation of the DCGS Integration Backbone and support the migration to net-centricity, including DCGS Enterprise services for the Military Departments, DCGS-Special Operations Forces and the DCGS Intelligence Community. National Agency capabilities supporting DCGS include Geospatial Intelligence, Signals Intelligence, Measurement and Signature Intelligence and Human Intelligence, which are integrated and tested in the DDTE domain.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Distributed Common Ground/Surface Systems (DCGS)	2.959	2.970	2.981
FY 2019 Plans:			
Continue to revise and evolve T&E data collection techniques and analysis strategies in support of DCGS Enterprise community members acquisition programs' interoperability as they integrate capabilities and services solutions to address the operational gaps identified in the Office of the Under Secretary of Defense for Intelligence (OUSDI) sponsored Distributed Common Ground/Surface System Enterprise Capabilities Based Assessment. Continue to plan, develop and execute enterprise-level			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208K / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) NF1 / <i>Distributed Common Ground/Surface Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)

data collection during multiple yearly test events. Continue to support DDTE, provide enhanced functionality, expand T&E capability, and perform automated evaluations of net-centric capabilities with improved assessment methodologies and practices due to incorporating new technologies such as cloud computing, mobile technology, and “big data”. Continue enhancement of instrumentation and automated data collection tools to support testing on multiple network domains and enclaves where the DCGS PoRs, National Agencies and Coalition Partners test and operate. Continue to develop T&E methodology and tools to support testing of enterprise cybersecurity solutions to determine if they comply with standards, support interoperability between the DCGS PoRs, and meet the DCGS Enterprise cybersecurity requirements. Continue to conduct compliance testing of data, metadata, and web services against established standards to enhance the sharing and promote reuse of net centric solutions. Continuing to expand Testing as a Service (TaaS) capabilities that enable DCGS entities and other Communities of Interest (COIs) to test for standards compliance during the development and acquisition processes. All data collected by these assessment efforts are reflected in an annual DCGS Enterprise Assessment Report that delineates how well the DCGS Enterprise shows progress over time in meeting the capabilities and closing the gaps reflected in the 2016 DCGS Enterprise Initial Capabilities Document.

FY 2020 Plans:

Continue to revise and evolve test and evaluation (T&E) data collection techniques and analysis strategies in support of DCGS Enterprise community members acquisition programs’ interoperability as they integrate capabilities and services solutions to address the operational gaps identified in the OUDS(I) sponsored Distributed Common Ground/Surface System Enterprise Capabilities Based Assessment. Continue to plan, develop and execute enterprise-level data collection during multiple yearly test events. Continue to support DDTE, provide enhanced functionality, expand T&E capability, and perform automated evaluations of net-centric capabilities with improved assessment methodologies and practices due to incorporating new technologies such as cloud computing, mobile technology, and “big data”. Continue enhancement of instrumentation and automated data collection tools to support testing on multiple network domains and enclaves where the DCGS PoRs, National Agencies and Coalition Partners test and operate. Continue to develop T&E methodology and tools to support testing of enterprise cybersecurity solutions to determine if they comply with standards, support interoperability between the DCGS PoRs, and meet the DCGS Enterprise cybersecurity requirements. Continue to conduct compliance testing of data, metadata, and web services against established standards to enhance the sharing and promote reuse of net centric solutions. Continuing to expand TaaS capabilities that enable DCGS entities and other COIs to test for standards compliance during the development and acquisition processes. All data collected by these assessment efforts are reflected in an annual DCGS Enterprise Assessment Report that delineates how well the DCGS Enterprise shows progress over time in meeting the capabilities and closing the gaps reflected in the 2016 DCGS Enterprise Initial Capabilities Document.

FY 2019 to FY 2020 Increase/Decrease Statement:

FY 2018	FY 2019	FY 2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208K / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) NF1 / <i>Distributed Common Ground/Surface Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
An increase of +\$0.011 from FY2019 to FY 2020 is attributed to an increase in equipment refresh.			
Accomplishments/Planned Programs Subtotals	2.959	2.970	2.981

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

N/A

Remarks

D. Acquisition Strategy

A T&E Mission Support Services (MSS) cost plus fixed fee contract provides T&E support by performing a wide range of non-personal services to encompass testing, scientific, engineering, logistic, administrative, and ancillary support of the DISA T&E missions. Beginning FY18, DCGS will transition to a cost plus fixed fee and firm fixed price Test, Evaluation and Certification contract (TEC).

E. Performance Metrics

The DCGS T&E FT performs a minimum of six DCGS Enterprise assessments per year, and the results are consolidated into the T&E FT Enterprise Assessment Report annually. The T&E FT also provides input to the DCGS Enterprise Focus Team's State of the Enterprise (SoE) Report, which includes the Enterprise Maturity Model (EMM) and shows measurable DCGS Enterprise net-centric maturity progress over time.

The T&E FT also leverages Joint Interoperability Certification testing to support the evaluation of DCGS Enterprise maturity. Of the six DCGS PoR systems, two hold current Joint Staff (JS), Command, Control, Communications, & Computers/Cyber (J6) Interoperability (IOP) Certifications and continue to conduct IOP testing on emerging releases. One DCGS PoR has completed interoperability testing, and the joint IOP certification is pending. Of the three remaining PoRs, two are not required to be JS J6 certified, but the T&E FT leverages data collected during periodic IOP assessments of these programs during enterprise-level demonstrations and test events. Due to increased automation for data collection, parsing and analysis, in addition to advances in PoR and Enterprise maturity, the T&E FT increases the cumulative number of net-centric capability evaluations each year.

1. Metric: T&E FT will perform a minimum of nine (9) DCGS Enterprise assessments in FY 2018 and ten (10) DCGS Enterprise Assessments in FY 2019 and FY 2020.

FY18 Target: 9 / Actual 10

FY19 Target: 10

FY20 Target: 10

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208K / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) NF1 / <i>Distributed Common Ground/Surface Systems</i>
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
In-House Contracts	MIPR	Various : Various	21.963	1.000	Oct 2017	1.000	Oct 2018	1.000	Oct 2019	-		1.000	Continuing	Continuing	Continuing
Subtotal			21.963	1.000		1.000		1.000		-		1.000	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering & Technical Services 1	C/T&M	Interop : Ft Huachuca	3.763	-		-		-		-		-	0.000	3.763	-
Engineering & Technical Services 2	C/T&M	NGMS : Ft Huachuca	12.927	-		-		-		-		-	0.000	12.927	-
Engineering & Technical Services 3	C/T&M	NGIT : Ft Huachuca	3.612	-		-		-		-		-	0.000	3.612	-
Engineering & Technical Services 4	C/Various	Various : Various	1.843	0.330	May 2018	-		-		-		-	0.000	2.173	-
Engineering & Technical Services 5	C/CPFF	TASC : Andover, MA	9.060	0.827	May 2018	-		-		-		-	0.000	9.887	-
Engineering & Technical Services 6	MIPR	Various : Various	-	0.802	Dec 2017	1.970	Dec 2018	1.981	Dec 2019	-		1.981	Continuing	Continuing	Continuing
Subtotal			31.205	1.959		1.970		1.981		-		1.981	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
	Project Cost Totals		53.168	2.959	2.970	2.981	-	2.981	Continuing	Continuing

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208K / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) NF1 / <i>Distributed Common Ground/Surface Systems</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
DCGS																												
DCGS T&E IPT																												
Connectivity to Other Testbeds & Test Event Conduct																												
DDT&E Operation and Maintenance Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208K / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) NF1 / <i>Distributed Common Ground/Surface Systems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
DCGS				
DCGS T&E IPT	1	2018	4	2024
Connectivity to Other Testbeds & Test Event Conduct	1	2018	4	2024
DDT&E Operation and Maintenance Support	1	2018	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0708012K / <i>Logistics Support Activities</i>							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	1.317	1.361	-	1.361	1.406	1.451	1.460	1.488	Continuing	Continuing
LSA: <i>Logistics Support Activities</i>	0.000	0.000	1.317	1.361	-	1.361	1.406	1.451	1.460	1.488	Continuing	Continuing

Note

N/A

A. Mission Description and Budget Item Justification

Classified

B. Program Change Summary (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	1.317	1.361	-	1.361
Current President's Budget	0.000	1.317	1.361	-	1.361
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

Program is classified and exhibit will be provided under a separate cover.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0708012K / Logistics Support Activities				Project (Number/Name) LSA / Logistics Support Activities			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
LSA: Logistics Support Activities	0.000	0.000	1.317	1.361	-	1.361	1.406	1.451	1.460	1.488	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Classified.

A. Mission Description and Budget Item Justification

Classified.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: LSA	-	1.317	1.361
Description: Classified.			
FY 2019 Plans: Classified.			
FY 2020 Plans: Classified.			
FY 2019 to FY 2020 Increase/Decrease Statement: Classified.			
Accomplishments/Planned Programs Subtotals	-	1.317	1.361

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

N/A

Remarks

Classified.

D. Acquisition Strategy

Classified.

E. Performance Metrics

Classified.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0708012K / <i>Logistics Support Activities</i>	Project (Number/Name) LSA / <i>Logistics Support Activities</i>
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FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Classified</i>	
Classified	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0708012K / <i>Logistics Support Activities</i>	Project (Number/Name) LSA / <i>Logistics Support Activities</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Classified				
Classified	1	2019	3	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0903235K <i>Joint Service Provider</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	0.652	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
JP1: <i>Joint Service Provider</i>	-	0.652	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Service Provider (JSP) provides Information Technology infrastructure and office automation systems, components, supporting software, and IT support services for the Office of the Secretary of Defense (OSD), Joint Staff, Headquarters Department of the Army (HQDA), Washington Headquarters Services (WHS), Pentagon Force Protection Agency (PFPA), DoD Consolidated Adjudication Facility (DoD CAF), and other JSP-supported 4th Estate users and communities supported within the Pentagon Reservation and other areas in the National Capitol Region (NCR). RDT&E provides for the test, pilot, and development of new integrated business tools to enhance the JSP business processes and improve the delivery of IT services and capabilities. This activity executes JSP's testing environment to allow insertion of commercial off-the-shelf and government-managed software for all supported JSP services to include network transport, storage, compute, defensive cyber operations, Pentagon Installation Processing Node (IPN), and other components of the NCR's core network infrastructure. These efforts also provide mobile classified computing and communications platforms technology test and development for the immediate Office of the Secretary of Defense, enabling secured computing at residence, temporary and mobile locations around the world.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.652	0.000	0.000	-	0.000
Total Adjustments	0.652	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	0.652	-	-	-	-

Change Summary Explanation

The increase in FY 2018 in the amount of \$0.652 due to funds being executed in the correct PE 0903235K Joint Service Provider (JSP), but under the wrong budget activity (BA) (07 but should be 06). Funds have since been corrected and moved to BA06 for proper execution, but not in time for yearend lock. Please see BA06, PE 0903235K exhibit for further details and current funding profile.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0903235K / Joint Service Provider				Project (Number/Name) JP1 / Joint Service Provider			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
JP1: Joint Service Provider	-	0.652	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

Joint Service Provider (JSP) provides mobile classified computing and communications platforms technology test and development for the immediate Office of the Secretary of Defense, enabling secured computing at residence, temporary and mobile locations around the world.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Pentagon/NCR Core Enterprise Services	0.652	-	-
Description: Provides development, test, and pre-deployment for JSP-supported services to include network transport, network security, computer network defense, intrusion detection, Pentagon Installation Processing Node (IPN), and other components of the Pentagon's core network infrastructure.			
Accomplishments/Planned Programs Subtotals	0.652	-	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0903235K / <i>Joint Service Provider</i>	Project (Number/Name) JP1 / <i>Joint Service Provider</i>
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FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
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

JSP Technology, Research, Evaluation and Development

JSP Technology, Research, Evaluation and Development



UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0903235K / <i>Joint Service Provider</i>	Project (Number/Name) JP1 / <i>Joint Service Provider</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>JSP Technology, Research, Evaluation and Development</i>				
JSP Technology, Research, Evaluation and Development	2	2018	3	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1203610K / <i>Teleport Program</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	46.010	0.574	0.723	6.158	-	6.158	3.241	1.274	1.287	1.312	Continuing	Continuing
NS01: <i>Teleport Generation 1/2</i>	46.010	0.574	0.723	1.158	-	1.158	1.241	1.274	1.287	1.312	Continuing	Continuing
NS03: <i>SATCOM Gateway</i>	-	0.000	0.000	5.000	-	5.000	2.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Department of Defense (DoD) Teleport system is a satellite communications (SATCOM) gateway that links the deployed warfighter to the Global Information Grid. The DoD Teleport program has fielded system capabilities incrementally using a multi-generational approach with Generation 1 and 2 Full Deployment authorized by DoD Chief Information Officer on February 18, 2011. DoD Teleport Generation 3 consists of three phases; Phases 1 and 2 are in Production and Deployment while Phase 3 is in Engineering and Manufacturing Development. Each DoD Teleport investment increases the warfighter's ability to communicate with a world-wide, net-centric set of information capabilities, which is vital for the DoD to maintain a persistent presence among its adversaries.

Currently, the Teleport system operates as an upgrade of SATCOM capabilities at selected DoD SATCOM gateways. This system provides deployed warfighters with seamless worldwide multi-band SATCOM connectivity to the Defense Information System Network (DISN) Service Delivery Nodes and legacy tactical command, control, communications, computers, and intelligence systems. It also provides centralized integration capabilities, contingency capacity, and common interfaces to access the DISN.

DoD Teleport's goal is to provide secure, seamless, interoperable, and economical upgrades to DoD SATCOM Gateways and meet the growing throughput requirements of the deployed warfighter.

The primary beneficiaries of the DoD Teleport investment are the DoD Combatant Commanders, Military Departments, Defense Agencies, and the warfighter. DoD Teleport Generation 3 is designed to meet the growing demands of the warfighter through the execution of the following phases:

Phase 1: Gateway Advanced Extremely High Frequency [Extended Data Rate] terminals provides tactical users with a 350% bandwidth increase in survivable, antijam communications through all peacetime and combat operations by installing Navy Multiband Terminals (NMT) at select Teleport sites. In addition to enhanced throughput, the NMT maintains compatibility with legacy waveforms and current tactical terminals.

Phase 2: Gateway Wideband Global SATCOM X/Ka-band terminals provide enhanced Wideband Global System (WGS) X/Ka capability to warfighters worldwide by installing terminals from the Modernization of Enterprise Terminal (MET) program at DoD Teleport and other gateway sites. This gateway enhancement allows Teleport to replace end-of-life Defense Satellite Communications System (DSCS) terminals while remaining interoperable with tactical WGS X/Ka-band users. The MET enhancement provides a 300% Ka-band capacity increase and an 1100% X-band capacity increase to current enterprise terminal X/Ka capabilities. Additionally, it enables the DoD Teleport system to maintain operational availability consistent with Generation 2 requirements and reduce the overall life-cycle cost of X/Ka capabilities across the DoD.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1203610K / <i>Teleport Program</i>
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Phase 3: Mobile User Objective System (MUOS) to Legacy Ultra High Frequency (UHF) systems interoperability will provide interoperability between MUOS users and legacy UHF users by installing MUOS-to-Legacy UHF SATCOM Gateway Component (MLGC) suites of equipment at DoD Teleport sites. MUOS is the next generation DoD UHF SATCOM system that will provide the warfighter with modern worldwide mobile communication services, utilizing the Wideband Code Division Multiple Access waveform for use in the military UHF SATCOM band. MLGC suites will provide critical continuity and interoperability as DoD tactical satellite users transition from legacy waveforms and radios to the Joint Tactical Radio System.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.642	2.323	2.308	-	2.308
Current President's Budget	0.574	0.723	6.158	-	6.158
Total Adjustments	-0.068	-1.600	3.850	-	3.850
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.068	-			
• Adjustment	-	-1.600	3.850	-	3.850

Change Summary Explanation

Decrease of -\$0.068 in FY 2018 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

Decrease of -\$1.600 in FY 2019 is attributed to a reduction in the number of test events for technology refresh and technology insertions supporting commercial off the shelf (baseband equipment) and software.

Increase of +\$3.850 in FY 2020 is due to increase of +\$5.000 for testing to field a MUOS terminal provisioning tool and data controller. This is offset by a decrease of -\$1.150 for a reduced number of test events for technology refresh and technology insertions supporting commercial off the shelf (baseband equipment) and software.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1203610K / <i>Teleport Program</i>				Project (Number/Name) NS01 / <i>Teleport Generation 1/2</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
NS01: <i>Teleport Generation 1/2</i>	46.010	0.574	0.723	1.158	-	1.158	1.241	1.274	1.287	1.312	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Teleport program will implement an integrated test approach that will combine the objectives from multiple testing disciplines (e.g., developmental test, operational test, interoperability, and information assurance) throughout the testing lifecycle to support needed system evaluations. The Teleport program executes its own test events to achieve this integrated approach, but will partner with each phase's respective program office generated test activities to leverage the data needed to satisfy Teleport program test objectives. An approach summary for Teleport Gen 1/2 follows:

Generation 1/2 Technology Refresh/Technology Insertion: Funding will be used to maintain the Joint Interoperability Certification of the DoD Teleport System as the system is upgraded and refreshed with new components.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Teleport Program	0.574	0.723	1.158
Description: N/A			
FY 2019 Plans: Funding will be used to maintain the Joint Interoperability Certification of the DoD Teleport System as the system is upgraded with new components.			
FY 2020 Plans: Funding will be used to maintain the Joint Interoperability Certification of the DoD Teleport System as the system is upgraded with new components.			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of +\$0.435 from FY 2019 to FY 2020 is attributed to an increased number of test events for MUOS-to-Legacy UHF SATCOM Gateway Component (MLGC) system Allied Support.			
Accomplishments/Planned Programs Subtotals	0.574	0.723	1.158

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• O&M, DW/ PE1203610K: O&M, DW	2.573	3.722	2.887	-	2.887	2.884	2.898	2.912	2.924	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1203610K / <i>Teleport Program</i>	Project (Number/Name) NS01 / <i>Teleport Generation 1/2</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• Procurement, DW/ PE1203610K: <i>Procurement, DW</i>	14.154	21.112	22.324	-	22.324	27.405	32.564	30.629	31.203	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Teleport Program Office (TPO) uses the DoD preferred evolutionary acquisition approach to acquire Commercial off the Shelf (COTS) and modified COTS equipment when possible. The three TPO procuring agencies, Program Manager Defense Communications and Army Transmission Systems, the Space and Naval Warfare Systems Command, and Defense Information Technology Contracting Organization (DITCO) provide direct contracting support. Assistance from other Departments including Army, Navy, and Air Force is acquired via Military Interdepartmental Purchase Request for both organic and contracted support. The TPO maximizes the use of performance-based contracts and requires contractors to establish and manage specific earned value data to mitigate risk and monitor deviations from cost, schedule, and performance objectives. Performance is evaluated through post-award contract reviews, performance assessment during quarterly program reviews. The MLGC program will use various contract types to employ the vendor best suited to deliver the program’s capabilities to the warfighter.

E. Performance Metrics

Teleport Cost and Schedule Performance Metrics:

Teleport manages and tracks its cost and schedule performance parameters using a tailored Earned Value Management System (EVMS) process, integrating the program plan, the program schedule, Work Breakdown Structure (WBS), and financial data. Progress is monitored/documented monthly showing percentages complete for schedule and cost. Formal updates with changes to the schedule are documented against the program baseline.

Teleport Program Metrics:

RDT&E funds will be used to maintain an interoperability certification of the fielded DoD Teleport system in light of required/desired system changes. These changes are certified in standalone test events or as part of DoD Interoperability Communications Exercises (DICE). Percentage will be computed by dividing the number of changes under test by the number deemed DoD Interoperable.

Performance metrics have been established in four measurement areas: 1) customer results, 2) mission and business results, 3) processes and activities, and 4) technology. Specific measurement indicators and units of measure vary by measurement area, and metrics in each of the aforementioned areas are measured annually. Teleport will use the same measurement areas for performance metrics in FY 2018, FY 2019 and FY 2020.

Generation 1/2 Metric: Percentage of system changes resulting in interoperability certification

FY 2018 Target: 100% / Actual 100%

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0400 / 7	PE 1203610K / <i>Teleport Program</i>	NS01 / <i>Teleport Generation 1/2</i>

FY 2019 Target: 100%

FY 2020 Target: 100%

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1203610K / <i>Teleport Program</i>	Project (Number/Name) NS01 / <i>Teleport Generation 1/2</i>
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FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Teleport Program</i>	
Integrated testing that supported Teleport system evaluation and Technology Refresh/ Technology Insertion	

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1203610K / <i>Teleport Program</i>	Project (Number/Name) NS01 / <i>Teleport Generation 1/2</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Teleport Program</i>				
Integrated testing that supported Teleport system evaluation and Technology Refresh/ Technology Insertion	2	2019	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1203610K / <i>Teleport Program</i>				Project (Number/Name) NS03 / <i>SATCOM Gateway</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
NS03: <i>SATCOM Gateway</i>	-	0.000	0.000	5.000	-	5.000	2.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The SATCOM Gateway is an enterprise system that will adhere to the Joint Information Environment (JIE) architecture, and support all DoD satellite communications requirements, to include Strategic (Presidential, SECDEF, SECSTATE, Chairman Joint Chiefs of Staff, Milestone Decision Authority (MDA)) and Tactical (Combatant Commanders/Services/Agencies (CC/S/A)) users over satellite trunks through the DoD Information Network (DODIN).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: SATCOM Gateway	-	-	5.000
FY 2020 Plans: Funding will be used to engineer, develop, test, and evaluate a MUOS terminal planning tool and data controller to support SATCOM operations.			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of +\$5.000 from FY 2019 to FY 2020 is attributed to a SATCOM operational requirement to develop and test a MUOS terminal planning tool and data controller.			
Accomplishments/Planned Programs Subtotals	-	-	5.000

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• O&M, DW/ PE1203610K: <i>O&M, DW</i>	10.703	6.436	7.651	0.000	7.651	7.999	7.956	7.174	7.220	Continuing	Continuing
• Procurement, DW/ PE1203610K: <i>Procurement, DW</i>	22.626	11.405	1.633	0.000	1.633	2.037	5.447	1.771	1.804	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

SATCOM Gateway Metric: Develop MUOS terminal provisioning tool and data controller
FY 2020 Target: 1 Planned

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1203610K / <i>Teleport Program</i>	Project (Number/Name) NS03 / <i>SATCOM Gateway</i>
--	---	--

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
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

SATCOM Gateway
Engineering, development, testing, and evaluation of a MUOS terminal planning tool and data controller supporting SATCOM operations.



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Information Systems Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1203610K / <i>Teleport Program</i>	Project (Number/Name) NS03 / <i>SATCOM Gateway</i>
--	---	--

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SATCOM Gateway				
Engineering, development, testing, and evaluation of a MUOS terminal planning tool and data controller supporting SATCOM operations.	2	2020	4	2021

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



Defense Logistics Agency

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Research, Development, Test & Evaluation, Defense-Wide

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Defense Logistics Agency • Budget Estimates FY 2020 • RDT&E Program

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Department of Defense
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

<u>Appropriation</u>	<u>FY 2018</u> <u>(Base + OCO)</u>	<u>FY 2019</u> <u>Base Enacted</u>	<u>FY 2019</u> <u>OCO Enacted</u>	<u>FY 2019</u> <u>Total Enacted</u>
Research, Development, Test & Eval, DW	355,779	324,981		324,981
Total Research, Development, Test & Evaluation	355,779	324,981		324,981

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	267,802				267,802
Total Research, Development, Test & Evaluation	267,802				267,802

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
<u>Summary Recap of Budget Activities</u>				
Advanced Technology Development	297,062	273,449		273,449
System Development And Demonstration	42,564	33,780		33,780
Management Support	11,631	14,308		14,308
Operational System Development	4,522	3,444		3,444
Total Research, Development, Test & Evaluation	355,779	324,981		324,981
<u>Summary Recap of FYDP Programs</u>				
Research and Development	351,257	321,537		321,537
Central Supply and Maintenance	4,522	3,444		3,444
Total Research, Development, Test & Evaluation	355,779	324,981		324,981

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	225,422				225,422
System Development And Demonstration	36,931				36,931
Management Support					
Operational System Development	5,449				5,449
Total Research, Development, Test & Evaluation	267,802				267,802
<u>Summary Recap of FYDP Programs</u>					
Research and Development	262,353				262,353
Central Supply and Maintenance	5,449				5,449
Total Research, Development, Test & Evaluation	267,802				267,802

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Advanced Technology Development	297,062	273,449		273,449
System Development And Demonstration	42,564	33,780		33,780
Management Support	11,631	14,308		14,308
Operational System Development	4,522	3,444		3,444
Total Research, Development, Test & Evaluation	355,779	324,981		324,981
Summary Recap of FYDP Programs -----				
Research and Development	351,257	321,537		321,537
Central Supply and Maintenance	4,522	3,444		3,444
Total Research, Development, Test & Evaluation	355,779	324,981		324,981

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	225,422				225,422
System Development And Demonstration	36,931				36,931
Management Support					
Operational System Development	5,449				5,449
Total Research, Development, Test & Evaluation	267,802				267,802
<u>Summary Recap of FYDP Programs</u>					
Research and Development	262,353				262,353
Central Supply and Maintenance	5,449				5,449
Total Research, Development, Test & Evaluation	267,802				267,802

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Defense Logistics Agency	355,779	324,981		324,981
Total Research, Development, Test & Evaluation	355,779	324,981		324,981

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Defense Logistics Agency	267,802				267,802
Total Research, Development, Test & Evaluation	267,802				267,802

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Element Number	Program Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
48	0603680S	Manufacturing Technology Program	03	39,090	62,396		62,396	U
50	0603712S	Generic Logistics R&D Technology Demonstrations	03	16,105	18,127		18,127	U
52	0603720S	Microelectronics Technology Development and Support	03	241,867	192,926		192,926	U
		Advanced Technology Development		297,062	273,449		273,449	
132	0605070S	DOD Enterprise Systems Development and Demonstration	05	6,037	3,057		3,057	U
134	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	23,544	20,384		20,384	U
135	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	12,983	10,339		10,339	U
		System Development And Demonstration		42,564	33,780		33,780	
164	0605502S	Small Business Innovative Research	06	11,631	10,454		10,454	U
178	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06		3,854		3,854	U
		Management Support		11,631	14,308		14,308	
251	0708012S	Pacific Disaster Centers	07	1,705	1,705		1,705	U
252	0708047S	Defense Property Accountability System	07	2,817	1,739		1,739	U
		Operational System Development		4,522	3,444		3,444	
Total Research, Development, Test & Eval, DW				355,779	324,981		324,981	

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	See c
48	0603680S	Manufacturing Technology Program	03	42,834				42,834	U
50	0603712S	Generic Logistics R&D Technology Demonstrations	03	10,817				10,817	U
52	0603720S	Microelectronics Technology Development and Support	03	171,771				171,771	U
		Advanced Technology Development		225,422				225,422	
132	0605070S	DOD Enterprise Systems Development and Demonstration	05	2,378				2,378	U
134	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	27,944				27,944	U
135	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	6,609				6,609	U
		System Development And Demonstration		36,931				36,931	
164	0605502S	Small Business Innovative Research	06						U
178	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06						U
		Management Support							
251	0708012S	Pacific Disaster Centers	07	1,770				1,770	U
252	0708047S	Defense Property Accountability System	07	3,679				3,679	U
		Operational System Development		5,449				5,449	
		Total Research, Development, Test & Eval, DW		267,802				267,802	

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Defense Logistics Agency
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
48	0603680S	Manufacturing Technology Program	03	39,090	62,396		62,396	U
50	0603712S	Generic Logistics R&D Technology Demonstrations	03	16,105	18,127		18,127	U
52	0603720S	Microelectronics Technology Development and Support	03	241,867	192,926		192,926	U
Advanced Technology Development				297,062	273,449		273,449	
132	0605070S	DOD Enterprise Systems Development and Demonstration	05	6,037	3,057		3,057	U
134	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	23,544	20,384		20,384	U
135	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	12,983	10,339		10,339	U
System Development And Demonstration				42,564	33,780		33,780	
164	0605502S	Small Business Innovative Research	06	11,631	10,454		10,454	U
178	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06		3,854		3,854	U
Management Support				11,631	14,308		14,308	
251	0708012S	Pacific Disaster Centers	07	1,705	1,705		1,705	U
252	0708047S	Defense Property Accountability System	07	2,817	1,739		1,739	U
Operational System Development				4,522	3,444		3,444	
Total Defense Logistics Agency				355,779	324,981		324,981	

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Defense Logistics Agency
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
48	0603680S	Manufacturing Technology Program	03	42,834				42,834	U
50	0603712S	Generic Logistics R&D Technology Demonstrations	03	10,817				10,817	U
52	0603720S	Microelectronics Technology Development and Support	03	171,771				171,771	U
Advanced Technology Development				225,422				225,422	
132	0605070S	DOD Enterprise Systems Development and Demonstration	05	2,378				2,378	U
134	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	27,944				27,944	U
135	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	6,609				6,609	U
System Development And Demonstration				36,931				36,931	
164	0605502S	Small Business Innovative Research	06						U
178	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06						U
Management Support									
251	0708012S	Pacific Disaster Centers	07	1,770				1,770	U
252	0708047S	Defense Property Accountability System	07	3,679				3,679	U
Operational System Development				5,449				5,449	
Total Defense Logistics Agency				267,802				267,802	

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50	03	0603712S	Logistics Research and Development Technology (Log R&D).....	Volume 5 - 409
52	03	0603720S	Microelectronics Technology Development and Support (DMEA).....	Volume 5 - 421

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

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134	05	0605080S	Defense Agencies Initiative (DAI) - Financial System.....	Volume 5 - 437
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Line #	Budget Activity	Program Element Number	Program Element Title	Page
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Defense Logistics Agency • Budget Estimates FY 2020 • RDT&E Program

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Defense Agencies Initiative (DAI) - Financial System	0605080S	134	05.....	Volume 5 - 437
Defense Property Accountability System (DPAS)	0708047S	252	07.....	Volume 5 - 469
Defense Retired and Annuitant Pay System (DRAS)	0605090S	135	05.....	Volume 5 - 451
DoD Enterprise Systems Development and Demonstration	0605070S	132	05.....	Volume 5 - 431
Logistics Research and Development Technology (Log R&D)	0603712S	50	03.....	Volume 5 - 409
Manufacturing Technology Program (ManTech)	0603680S	48	03.....	Volume 5 - 393
Microelectronics Technology Development and Support (DMEA)	0603720S	52	03.....	Volume 5 - 421
Pacific Disaster Center	0708012S	251	07.....	Volume 5 - 463
Small Business Innovative Research (SBIR)	0605502S	164	06.....	Volume 5 - 457

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	19.736	39.090	62.396	42.834	-	42.834	43.045	43.250	44.016	44.903	Continuing	Continuing
IBMP: <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i>	14.157	12.387	30.637	19.608	-	19.608	19.335	19.167	19.435	19.435	Continuing	Continuing
AAA: <i>Maintaining Viable Supply Sources (formerly High Quality Sources)</i>	4.302	17.774	26.296	17.840	-	17.840	18.285	18.707	19.244	19.244	Continuing	Continuing
OOO: <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i>	1.277	8.929	5.463	5.386	-	5.386	5.425	5.376	5.337	6.224	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Logistics Agency (DLA) Manufacturing Technology (ManTech) Program funds the advanced technology development needed to achieve a responsive, efficient domestic industrial base that meets the warfighters' needs in an affordable and timely manner. The ManTech program works with DLA's diverse supply chains to improve manufacturing capability throughout a product's life cycle. It provides the crucial link between invention and application by maturing, scaling up, and validating advanced manufacturing technology in "real world" environments. ManTech developments provide a path to low-risk technology implementation for many small businesses and defense unique suppliers as well as depots and shipyards that are critical to DLA. By anticipating and addressing production and sustainment problems before they occur, readiness levels increase and sustainment costs are lower.

DLA ManTech is aligned into three Strategic Focus Areas (SFA): 1) Improving Industrial Base Manufacturing Processes (IIBM); 2) Maintaining Viable Sources of Supply (MVSS); and 3) Improving Technical and Logistics Information (ITLI).

- The IIBM SFA includes efforts to reduce industrial base material costs and production lead-times, while improving the quality of DLA managed products. This SFA has supply chain focused execution portfolios for food (Subsistence Network), Castings (Procurement Readiness Optimization—Advanced Casting Technology), Forgings (Procurement Readiness Optimization—Forging Advance System Technology), Batteries (Battery Network) and Additive Manufacturing.

- MVSS includes efforts to assure the commercial industrial base can satisfy DLA materiel requirements without relying on foreign sources for microcircuits. This strategic focus area mitigates supply issues caused by the lack of a reliable domestic manufacturing capability to produce products or raw materials needed to build and maintain weapon systems. The major focus of the program is maintaining a reliable, trusted, domestic source for "non-procurable" linear and digital microcircuits. Microcircuit emulation allows the Services to save significant costs by using form, fit and functionally equivalent spare parts rather than redesigning the next-higher-assembly.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>
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• The ITLI SFA includes efforts to improve and facilitate the exchange of engineering and logistics information among DLA, the Military Services, DLA industry partners and DLA customers. It includes the Military Unique Sustainment Technology (MUST) and the Defense Logistics Information Research (DLIR) programs. A primary focus of this SFA is to capitalize on the emerging “Model Based Enterprise” paradigm and the semantic web as an enabler to a logistics system that is smart and connected up and down the supply chain and across all DLA Customers and suppliers. A major focus is to transform DoD engineering data from two-dimensional paper-based products to three-dimensional computer based models, and to develop processes to move from “electronic paper” (i.e. PDF files) to technical data files that can interface directly with industries’ engineering systems. The benefits include shorter product introduction cycles, lower set up-costs for parts production and more economical small batch production.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	40.511	49.667	40.848	-	40.848
Current President's Budget	39.090	62.396	42.834	-	42.834
Total Adjustments	-1.421	12.729	1.986	-	1.986
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-0.017	-0.030			
• Congressional Rescissions	-	-			
• Congressional Adds	-	15.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.404	-2.241			
• Program Adjustment (AM)	-	-	2.000	-	2.000
• Inflation Adjustment	-	-	-0.014	-	-0.014

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: IBMP: *Improving Industrial Base Manufacturing Processes (formerly Material Availability)*

Congressional Add: *Digital Innovation Design for Reliable Castings Performance*

Congressional Add: *Battery Network for All Solid-State Battery Development*

Congressional Add Subtotals for Project: IBMP

Congressional Add Totals for all Projects

	FY 2018	FY 2019
	-	5.000
	-	10.000
Congressional Add Subtotals for Project: IBMP	-	15.000
Congressional Add Totals for all Projects	-	15.000

Change Summary Explanation

Directed Federally Funded Research Development Center (FFRDC) reductions of \$0.017 million and \$0.030 million for FY2018 and FY2019 respectively.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>	
<p>In FY2019, ManTech received a Congressional Add for \$5 million to Castings for digital innovation design for reliable castings performance and \$10 million in Battery Network for All Solid-State Battery Development, for a total of \$15 million.</p> <p>FY2020 Additive Manufacturing Program increased under the Improving Industrial Base Manufacturing (IIBM) SFA for increased focus and priority in exploring and developing AM technology applications to DoD hard-to-procure parts with existing support agreements with Department of the Army, NAVSEA, NAVAIR, USMC, and Department of Energy, as well as partnering with academia for business model development.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>				Project (Number/Name) IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
IBMP: <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i>	14.157	12.387	30.637	19.608	-	19.608	19.335	19.167	19.435	19.435	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Improving Industrial Base Manufacturing Processes Strategic Focus Area (SFA) is an R&D effort undertaken with DLA’s suppliers to reduce material costs, reduce the length and variability of production lead-times, assure DLA managed products meet performance requirements, and continuously improve quality and reliability. Benefits of this SFA include lower material costs, lower inventory levels and more predictable customer wait times, fewer quality deficiencies, and lower customer support costs. This SFA includes within its scope the Subsistence Network, the Battery Network, the Castings/Forging programs and Additive Manufacturing programs.

The Subsistence Network (SUBNET) program is the successor to the Combat Rations Network R&D program. SUBNET focuses on solutions to develop and promote manufacturing improvements in the subsistence supply chain. The program's expanded areas of interest include: combat rations, food equipment, field feeding solutions, food footprint, food innovations, food safety and defense developments, garrison feeding, nutrition and health, storage and packing solutions, surge and sustainment support, and water security. SUBNET forms a community of practice with Military Services, U.S. Department of Agriculture, Natick Soldier Research Development, and Engineering Center; Academia, and Industry to research and promote manufacturing improvements in the Subsistence Supply Chain with the goals of maximizing capability and capacity to produce, and to encourage innovation and modernization needed to leverage the latest technologies. Desired outcomes include: reduced cost, increased efficiencies, improved processes, enhanced quality, and improved surge demand capabilities.

The Casting program works to ensure a stable, reliable, and competitive domestic casting industrial base supporting the weapon system needs of the Department of Defense (DoD) and the Defense Logistics Agency (DLA). The casting program works with industry, universities, and the Casting Industry Associations to identify projects that improve the materials, processes and business practices of the nation’s foundry industry. The program aligns projects with strategic issues and identified focus areas within the DLA and DoD. Guidance for these projects comes from the DLA Strategic Plan and input from the casting industry. Weapon system spare parts managed by DLA that contain castings are responsible for a disproportionate share of DLA’s backorders or unfilled orders (UFOs). Cast parts are ~2% of National Stock Numbered Class IX parts but represent ~5% of all backorders, and when only the oldest backorders are considered, up to 10% are castings. This program includes tasks that focus on developing new capabilities in the areas of inspection, materials, processes, modeling, and design. Once developed, these capabilities will support the foundry industry, where the technologies will be tested and implemented, most often in conjunction with the casting industry associations. These advancements improve the metal casting supply chains for the DoD and the DLA to better support the warfighter. We will invest in projects aimed at reducing lead-time, reducing cost, and improving quality of castings critical to DoD weapon systems.

The Forging program works to ensure a stable, reliable, and competitive domestic forging industrial base for the weapon system needs of the Department of Defense (DoD) and the Defense Logistics Agency (DLA). Working with industry, universities, and the Forging Industry Associations to identify projects that improve the materials, processes and business practices of the nation’s forging industry. The program aligns its projects with strategic issues and focus areas identified within the DLA and

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>	Project (Number/Name) IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i>

DoD. Guidance for these projects comes from the DLA Strategic Plan and input from the forging industry. Weapon system spare parts managed by DLA that contain Forgings are responsible for a disproportionate share of DLA's backorders or unfilled orders (UFOs). Forged parts are ~2% of National Stock Number (NSN) Class IX parts but represent ~5% of all backorders, and when only the oldest backorders are considered, up to 10% are forgings. This program includes tasks to develop new capabilities in the areas of inspection, materials, processes, modeling, and design. Once developed these capabilities will support the forging industry, where these technologies will be tested and implemented in conjunction with the forging industry associations. These advancements improve the forging supply chains for the DoD and the DLA to better support the warfighter. We will invest in projects aimed at reducing lead-time, reducing cost, and improving quality of forgings critical to DoD weapon systems.

The Battery Network (BATTNET) program objective is to develop the next generation of battery manufacturing technologies for cost and price efficiency, longer shelf life, and lighter batteries with higher energy. BATTNET conducts R&D initiatives to address sustainment gaps and bridge technical solutions into higher a Manufacturing Readiness Level (MRL) for specific groups of batteries. BATTNET also focuses on projects to develop the production capability for advanced lithium-based non-rechargeable and rechargeable batteries to ensure the prompt and sustained availability, quality, and affordability of Service approved batteries. Desired outcomes include: streamlined inventory and associated cost reductions through standardization and improved distribution practices; resolved obsolescence issues; addressed surge and sustainment issues; enhanced security of supply chain; increased competition and manufacturing base; reduced per unit battery cost; and leveraged Service-level (Army, Navy, Air Force) and other governmental (DOE, DOT, NASA) R&D efforts to insert new technology and practices into the existing DLA battery inventory.

The Additive Manufacturing (AM) program objective is to establish AM as an effective alternative to conventional manufacturing and document the process for AM benefits. DLA is pursuing all AM technology as a lead-time and inventory reduction enabler. The AM effort pursues alternate means of supply for products that are otherwise non-procurable or susceptible to procurement issues due to an unresponsive manufacturing vendor base. The AM effort includes the identification of AM candidates among the population of products that are needed but hard to obtain, costly or have long manufacturing lead times. The AM effort requires management of 3D digital technical and manufacturing data. In addition, the AM effort includes the development of the processes that will tie the designers, engineers, maintainers, logisticians, procurement managers and the vendor base into a seamless AM procurement stream. Potential benefits include products that can address an unfulfilled Warfighter readiness need by reducing production lead times, production costs, storage costs, transportation costs and in some cases fuel consumption due to lighter design and material options. DLA R&D will leverage these efforts with Industry, Academia and ongoing Military Service-level agreements (Army, Navy, Marine Corps, Air Force), Oak Ridge National Laboratory (ORNL) and the Department of Energy.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Improving Industrial Base Manufacturing Processes (formerly Material Availability)	12.387	15.637	19.608
FY 2019 Plans:			
The Subsistence Network (SUBNET) program plans to research and execute short-term innovative projects to improve the subsistence supply chain in FY2019, and continue efforts from FY2018. SUBNET will attend subsistence trade and industry events to leverage technology innovations and promote manufacturing improvements. The program will also pursue Small Business Innovation Research (SBIR) topics in Subsistence. The SUBNET program will work with community partners (military services, industry, and academia) to leverage the latest technologies, encourage innovation and modernization, and promote			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>	Project (Number/Name) IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>manufacturing improvements in the subsistence supply chain. The program also plans to collaborate with the Defense Advanced Research Projects Agency on their future projects for synergy and also incorporating them as a potential transition partner.</p> <p>The Casting program plans to research, develop and deploy innovative and technical solutions to ensure a viable and competitive domestic industrial base for the DoD and DLA in support of the needs of the warfighter. The program uses competitively awarded contracts to fulfill these requirements; projects are required to include a business case with specific metrics and a transition plan for success. The Casting program works with industry, academia, and the leading Industry Associations to identify improvements to materials, processes, and business practices of the nation’s metal casting industry. The Casting program will continue the execution and monitoring of projects approved and awarded in prior years while maintaining focus on future development and needs.</p> <p>The Forging program will investigate, develop and deploy innovative enterprise and technical solutions to strengthen the forging supply chain and the forging industry. The program will explore alternative forging manufacturing methods, materials and modeling to reduce production lead-time and costs. Enhancements to modeling and simulation software coupled with forging process and post-processing improvements are some projects that align the forging program with fulfilling the needs of the warfighter. The Forging program will, with a Broad Agency Announcement (BAA), solicit industry, academia, and industry associations for new projects in alignment with the strategic focus and future needs of the DoD and DLA.</p> <p>The Battery Network (BATNET) program will initiate new projects for improving the production readiness, transition, and standardization of soldier and system batteries within the DLA supply chain. The BATNET program will also leverage new battery manufacturing technologies for the supply chain that have been developed by industry – advanced electrode production, low cost materials production or recycling, advanced performance cells, and deep-discharge lithium-ion capabilities. The program will continue addressing additional requirements for manufacturing and material improvements in the vacuum electron tube supply base.</p> <p>The Additive Manufacturing (AM) program plans to fund technically proficient efforts that accelerate the rapid qualification and certification methodologies for AM items, identify the best AM applications for castings and forging preforms, achieve precise repeatability of part fabrication using an AM technical data package at simultaneous geographic points of need and prove the delivery of AM parts to warfighters deployed at expeditionary sea, land or air bases. Using market research, requests for information/proposals, BAA, DLA R&D will identify the best courses of action to negotiate technical, testing and intellectual property data for AM fabrication to keep these items competitive. The DLA R&D efforts include the proof of concept of using digital thread methodologies to effectively manage manufacturing data and maintain a consistent AM product from design through qualification and acceptance. Collaboration will continue with the Military Service Engineering Support Activities (via Service-</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>	Project (Number/Name) IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>level agreements with the Army, Navy, Marine Corps, Air Force) and the Department of Energy by providing funding for AM work identified under the respective agreements. The partnership with Oak Ridge National Laboratory (ORNL) will allow further options with the Big Area AM (BAAM) family of parts. DLA will leverage Military Services and Industry collaboration to develop digital verification and validation (including measures of effectiveness and key performance parameters) of AM technical data and first article testing for polymers and metals, and critical and non-critical items. These efforts seek to increase the number of AM parts qualified for procurement and achieve savings from the associated lead-time, storage costs, transportation costs, in some cases reduction of fuel consumption due to lighter design and material options.</p> <p>FY 2020 Plans: The Subsistence Network (SUBNET) program plans to research and execute short-term innovative projects to improve the subsistence supply chain in FY2020 and beyond. SUBNET will attend subsistence trade and industry events to leverage technology innovations and promote manufacturing improvements, continuing to expand and revise its internal Strategic Program Roadmap based upon the latest food supply chain emerging and technological advancements. Through market research, visits to academia Science and Technology Departments, and Broad Agency Announcements (BAA), DLA R&D SUBNET will seek to research and test areas utilizing drones technology, food irradiation and plasma technology for fresh fruits and vegetables shelf-life extension, and block chain use cases in the subsistence supply chain. The program will also continue to pursue Small Business Innovation Research (SBIR) topics in Subsistence. The SUBNET program will work with community partners (military services, industry, and academia) to leverage the latest technologies, encourage innovation and modernization, and promote manufacturing improvements in the subsistence supply chain. The program will also collaborate with the Defense Advanced Research Projects Agency on their future projects for synergy and as a potential transition partner.</p> <p>The Casting program will continue to monitor awarded contracts for projects that research, develop and deploy innovative and technical solutions to ensure a viable and competitive domestic industrial base. These projects focus on improving manufacturing processes and technology that includes robotic and additive manufacturing methods and implementation, new test processes and procedures to evaluate cast materials, computer simulation and modeling to decrease lead-time and increase quality. The Casting program works with Academia, industry, and industry associations to continually identify future development and technical needs in alignment with the DoD and DLA.</p> <p>The Forging program will award contract(s) based on responses to the BAA. The projects included in the contracts will focus on exploring alternative forging manufacturing methods, materials to reduce production lead-time and costs, modeling and simulation software improvements and enhancements and improvements to post processing methods. These projects will be in alignment with the needs of the DoD and DLA aimed and supporting and fulfilling the needs of the warfighter.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>	Project (Number/Name) IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>The Battery Network (BATTNET) program will continue, as well as initiate new projects for improving the production readiness, transition, and standardization of soldier and system batteries within the DLA supply chain. The BATTNET program will also leverage new battery manufacturing technologies for the supply chain that have been developed by industry – advanced electrode production, low cost materials production or recycling, advanced performance cells, and deep-discharge lithium-ion capabilities. The program will continue addressing additional requirements for manufacturing and material improvements in the vacuum electron tube supply base.</p> <p>The Additive Manufacturing (AM) program plans to finance technical efforts from the military services, industry, and academic institutions that have the potential to accelerate the qualification, certification and fabrication methodologies for AM applications and create sources of AM supplies or services for DLA. DLA R&D will identify the best AM applications for castings and forging preforms, achieve precise robustness-repeatability-reproducibility of part fabrication using an AM technical data package in a distributed manufacturing setting and prove the delivery of AM parts to warfighters deployed at expeditionary sea, land or air bases. DLA R&D will fund efforts to expedite creation of digital models and related design and testing information to help establish and expand the DoD digital library of AM parts to solve issues with obsolescence, low volume, long-lead, costly parts. Using market research, requests for information/proposals, Broad Agency Announcements (BAA), DLA R&D will test the best courses of action for machine learning and artificial intelligent solutions to integrate information from several logistics, engineering, legal, and supplier sources to make efficient AM decisions. These efforts seek to increase the number of AM parts qualified for procurement and achieve savings from the associated lead-time, storage costs, transportation costs, in some cases reduction of fuel consumption due to lighter design and material options. Desired outcomes include: rapid cast production and repair of castings using AM, exploration of improved reverse engineering processes for AM purposes, and optimization of polymer and metal AM production to obtain land, air and sea and expeditionary platform spare parts. Overall DLA Enterprise AM efforts will provide alternatives in product realization in order to address unfulfilled Warfighter readiness needs.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: FY2020 increase is due to change in baseline for a funding increase of \$2 million in FY2020 for the Additive Manufacturing Program. This additional funding is for increased focus and priority in exploring and developing AM technology applications to DoD hard-to-procure parts with existing support agreements with Department of the Army, NAVSEA, NAVAIR, USMC, and Department of Energy, as well as partnering with academia for business model development. Additionally, the FY2020 baseline already included a planned \$1.507 million increase to begin to automate combat rations visual inspections and prepare for future innovative nanotechnology packaging systems for combat rations.</p>			
Accomplishments/Planned Programs Subtotals	12.387	15.637	19.608

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
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	FY 2018	FY 2019
Congressional Add: Digital Innovation Design for Reliable Castings Performance <i>FY 2019 Plans:</i> This project will develop a set of design tools to allow modern engineers to improve casting design. These design tools are based on modern property measurements and validated by testing, allowing engineers to create cast parts that are reliable, high performance and cost efficient for critical DOD applications.	-	5.000
Congressional Add: Battery Network for All Solid-State Battery Development <i>FY 2019 Plans:</i> Focus on the production development and transition of solid-state electrolyte technology for military lithium-ion batteries that demonstrates a significant increase in available energy density and safety, eliminates the need for toxic flammable electrolyte, and reduces the complexity of battery management systems. Projects will enable improvements to the dismounted warfighter's capability by reducing battery weight for combat operations, as well as significantly increasing operating time of equipment and weapons systems.	-	10.000
Congressional Adds Subtotals	-	15.000

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

N/A

Remarks

D. Acquisition Strategy

The DLA R&D program is executed through Delivery Orders placed on Indefinite Delivery/Indefinite Quantity Contracts that resulted from competitive Broad Agency Announcements and through interagency agreements with the Military Services when it is cost effective and/or provides some technical advantage, e.g. improves the probability of successful transition. DLA also has a continuously open Broad Agency Announcement for Emerging Technologies.

E. Performance Metrics

40% of applicable projects (ex. non-studies) will transition.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>				Project (Number/Name) AAA / <i>Maintaining Viable Supply Sources (formerly High Quality Sources)</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
AAA: <i>Maintaining Viable Supply Sources (formerly High Quality Sources)</i>	4.302	17.774	26.296	17.840	-	17.840	18.285	18.707	19.244	19.244	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Maintaining Viable Supply Sources (MVSS) Strategic Focus Area (SFA) consists of projects undertaken to assure that the industrial base can respond to DLA requirements and DLA can fill military customers' material requirements reliably and consistently. Benefits include eliminating cancelled requisitions returned to customers as "non-procurable." This strategic focus area includes within its scope the Material Acquisition Electronics (MAE) program.

The Program Roadmap has two major thrusts areas: Digital Microcircuits and Linear/Analog Microcircuits. The program has several projects addressing specific classes of obsolescent microcircuit technologies. Over the past several years, obsolescence in this class of microcircuits has greatly increased and has become a significant concern. These are classes of microcircuits that are expected to become non-procurable in FY2019 and beyond. Without the technologies planned on the MAE Roadmap, DLA will not be able to support DoD's requirements for high quality spare parts for critical electronic systems and subsystems.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Maintaining Viable Supply Sources (formerly High Quality Sources)	17.774	26.296	17.840
FY 2019 Plans:			
MAE will continue planning for the specific emulation technology implementations to support specific device family groups in consonance with Customer and Agency requirements. It will begin digital microcircuit process development at the 250 nanometer technology node including development of electron-beam lithography techniques. MAE will continue a major new thrust in emulation to address Linear Microcircuits in addition to its traditional focus on Digital. Several efforts will address basic design, manufacturing, electrical test and quality/reliability requirements for establishing a basis for product-oriented developments across the FYDP. MAE will complete and transition 20-Volt operational amplifier emulation capability into full-scale production increasing DLA's ability to re-establish sourcing of non-procurable microcircuit NSNs. MAE will begin 40-Volt operational amplifier and analog switch projects started in FY2018. It will continue applying 350 nanometer emulation technology to specific part families for additional NSNs including Dual-Port Static Random Access Memory (SRAM). MAE will continue to explore using Additive Manufacturing techniques for non-semiconductor aspects of microcircuit manufacturing.			
FY 2020 Plans:			
MAE will continue planning for the specific emulation technology implementations to support specific device family groups in consonance with Customer and Agency requirements. It will complete and transition TTL-compatible CMOS digital logic emulation into full scale production. It will continue process development at the 250 nanometer technology node and continue process			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>	Project (Number/Name) AAA / <i>Maintaining Viable Supply Sources (formerly High Quality Sources)</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
development for Linear/Analog Microcircuits. It will begin additional Linear/Analog emulation projects for types/groups of parts, prioritized based on customer requirements. FY 2019 to FY 2020 Increase/Decrease Statement: FY 2020 returns the AME program to its baseline after the proposed FY 2019 one-year \$9 million investment in equipment to graduate the Advanced Microcircuit Emulation program from soon to be antiquated photolithographic manufacturing techniques to use the more advanced electron beam lithography microcircuit manufacturing methods, which will support at least two future generations of technology over 10 to 15 years.				
Accomplishments/Planned Programs Subtotals		17.774	26.296	17.840
C. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
D. Acquisition Strategy The DLA R&D program is executed through Delivery Orders placed on Indefinite Delivery/Indefinite Quantity Contracts that resulted from competitive Broad Agency Announcements and through interagency agreements with the Military Services when it is cost effective and/or provides some technical advantage, e.g. improves the probability of successful transition. DLA also has a continuously open Broad Agency Announcement for Emerging Technologies.				
E. Performance Metrics 40% of applicable projects (ex. non-studies) will transition.				

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>				Project (Number/Name) OOO / <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
OOO: <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i>	1.277	8.929	5.463	5.386	-	5.386	5.425	5.376	5.337	6.224	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Improving Technical and Logistics Information (ITLI) SFA projects improve and facilitate the communication of technical and logistics information among industry, DLA’s military customers and DLA. This SFA includes the Military Unique Sustainment Technology (MUST), the Defense Logistics Information Research (DLIR), and the Emergent Manufacturing Technology (EMT) portfolios within its scope.

The Military Unique Sustainment Technology (MUST) program’s focus addresses GAO Report 12-707 recommendations for DoD to establish a “knowledge-based approach” to define, communicate, and collaborate on military unique combat uniforms and individual equipment (CUIE) requirements. DLA has the responsibility to manage the technical requirements among the Services and the Defense Industrial Base. Currently there is no common environment for collaborating on new requirements among the stakeholders. The strategic objective of the DLA MUST program is to identify, develop and adopt technologies that can significantly shorten the time needed to transition Combat Uniforms and Individual Equipment from development to operational use from years to months. The Program focuses on technologies that will transform the military CUIE supply chain from an “electronic paper” (i.e. PDF/MS Word) based manual environment, into a knowledge-based automated environment. The resulting approach will be a neutral platform that will seamlessly communicate military unique technical requirements throughout the end-to-end supply chain.

The DLIR program researches core technology to improve the quality, speed, and interoperability of logistics data acquisition and management to enable and streamline DLA operations. DLA must transform business practices and methodologies as the data for weapons systems evolve from traditional formats and delivery methods (such as two-dimensional images and PDF formats) to newer, more innovative methods (such as three-dimensional solid models, object-oriented databases, service-oriented architecture (SOA) and Web 3C standards). This fundamental shift for DLA is driven by the Model-Based Enterprise (MBE) approach, which is influencing the way industry is delivering design and development data for weapon systems to the Military Services and the way the Military Services in turn manage and provide the data to DLA. DLA Logistics Operations, DLA Acquisition, DLA Tech/Quality, and the Defense Standardization Program Office (DSPO) are key stakeholders in the DLIR initiatives to modernize the representation and delivery of weapons systems data.

The EMT program addresses emerging and out of cycle requirements that always occur as DLA strives to maintain readiness of the aging weapon systems.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)	8.929	5.463	5.386

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>	Project (Number/Name) OOO / <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i>

B. Accomplishments/Planned Programs (\$ in Millions)

FY 2019 Plans:

The MUST program plans to transition the MUST Developed Tools to DLA Troop Support Clothing and Textiles (C&T) and applicable Service stakeholders. The tools to be implemented are: 1. Supply Request Package (SRP) Tool for Joint Service and DLA Processes; 2. TexSpec Tool for C&T Product Description and Interim Change management; 3. Product Test Center (PTC) Management Tool for source testing and color shade management; 4. MUSTSize Tool for joint tariff optimization.

The DLIR program plans to continue assisting DLA to improve the quality, speed, and interoperability of logistics data across the Enterprise and for the defense industrial base. DLIR will continue promoting and demonstrating the use of methodologies that are computer-aided design(CAD) software-neutral across the military service Engineering Support Activities (ESAs) and Program Management Offices (PMOs) that provide DLA with technical data for Class IX parts. DLIR will also initiate the Connecting the Model-Based Enterprise project working closely with a selected PMO or ESA as it stands up its Product Lifecycle Management (PLM) system to operationally test different methods and processes to obtain technical data packages for selected Class IX weapon system parts resident in the PLM system.

The EMT program enables DLA to investigate new disruptive technology advances that may be implemented in the nearer term, without degrading well established program efforts. This program enables the Agency to advance those technologies sooner in order to provide to the warfighter earlier. Small business Innovation Research (SBIR) phase III efforts (which cannot be funded with SBIR funds) are a prime example of activities that will be funded with these funds, examples include emerging magnetic braking technologies, and addressing strategic materials shortage/risk. Efforts will begin in FY2019 to advance Digital Manufacturing by developing a comprehensive approach to take advantage of integrated, computer-based systems of simulation, three-dimensional (3D) visualization, analytics and various collaboration tools to create and manufacture products to support the warfighter. Additionally, any emergent Strategic Materials requirements will be addressed through the EMT program.

FY 2020 Plans:

FY2020 will begin a new program in support of the DLA Troop Support Clothing and Textile (C&T) mission. Digital Data Modernization for Manufacturing (D2M2) will develop and implement efficient processes and technologies that enable combat uniform and individual equipment technical data to be seamlessly used throughout the DLA C&T Supply Chain. This will be achieved by working with the Services and the DLA C&T industrial base to refine the processes that are used, define item technical requirements, and effectively communicate them to the industrial base. For example, settings for test equipment would be directly fed into the machine and results would be directly communicated to quality assurance managers. Test results would be more accurate, traceable and timely.

FY 2018	FY 2019	FY 2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>	Project (Number/Name) OOO / <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>A new broad agency announcement (BAA) will be released for an anticipated FY2020 award. The BAA will identify technical opportunities to develop and use digital data for manufacturing modernization.</p> <p>The DLIR program will continue with the Connecting the Model-Based Enterprise project and initiate the Logistics Interoperability Technology Extension (LITE) project. LITE will enable improved interoperability between DoD internal and external data sources. For example, LITE proposes publishing logistics documents as data instead of PDF by utilizing advanced content interpretation techniques to extract and model the data inside the document. This approach will be based upon open standards to encourage adoption and integration between DLA and non-DLA systems.</p> <p>The EMT program continues to enable DLA's investigation of new disruptive technology advances that may be implemented in the nearer term, without degrading well established program efforts. This program enables the Agency to advance those technologies sooner in order to provide to the warfighter earlier. Small Business Innovation Research (SBIR) phase III efforts (which cannot be funded with SBIR funds) are a prime example of activities that will be funded with these funds, examples include emerging magnetic braking technologies, and addressing strategic materials shortage/risk. Efforts will continue in FY2020 to advance Digital Manufacturing by developing a comprehensive approach to take advantage of integrated, computer-based systems of simulation, three-dimensional (3D) visualization, analytics and various collaboration tools to create and manufacture products to support the warfighter. Additionally, any emergent Strategic Materials requirements will be addressed through the EMT program.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Decrease is due to Military Unique Sustainment Technology (MUST) program phase-out and transition in FY 2019 and stand-up of the MUST II - Digital Data Modernization for Manufacturing (D2M2) program baseline in FY 2020.</p>			
Accomplishments/Planned Programs Subtotals	8.929	5.463	5.386

C. Other Program Funding Summary (\$ in Millions) N/A
Remarks
D. Acquisition Strategy The DLA R&D program is executed through Delivery Orders placed on Indefinite Delivery/Indefinite Quantity Contracts that resulted from competitive Broad Agency Announcements and through interagency agreements with the Military Services when it is cost effective and/or provides some technical advantage, e.g. improves the probability of successful transition. DLA also has a continuously open Broad Agency Announcement for Emerging Technologies.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i>	Project (Number/Name) OOO / <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i>

E. Performance Metrics

40% of applicable projects (ex; non-studies) will transition.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	29.634	16.105	18.127	10.817	-	10.817	10.998	11.180	11.328	11.532	Continuing	Continuing
<i>EMM: Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)</i>	7.561	1.193	3.758	3.219	-	3.219	3.295	3.368	3.430	3.429	Continuing	Continuing
<i>GLTD: Improving Logistics Processes (formerly Logistics Process)</i>	10.403	9.099	3.568	4.013	-	4.013	4.125	4.211	4.277	4.277	Continuing	Continuing
<i>04: Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)</i>	11.670	5.813	10.801	3.585	-	3.585	3.578	3.601	3.621	3.826	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Logistics Agency (DLA) is responsible for providing to the Military Services, and other Federal Agencies, as well as combined and allied forces the full spectrum of logistics, acquisition and technical services. DLA sources and provides virtually 100 percent of the consumable items the military services need to operate – including food, uniforms, fuel and energy, medical supplies, construction and barrier materials and equipment, and more than 85 percent of the military’s spare parts. DLA also provides logistics services including logistics information data, manages the reutilization of military equipment, and documents automation and production services. DLA’s Logistics Research and Development (Log R&D) program helps ensure that advanced logistics concepts and business processes are used to accomplish the agency’s mission with the leanest possible infrastructure. Log R&D identifies the best commercial business practices and tailors them, as necessary, into the most effective business processes for the agency. Log R&D develops and demonstrates high risk, high payoff technology that provides a significantly higher level of support at the lowest possible costs.

The DLA Log R&D program is organized into three Strategic Focus Areas (SFAs):

- **Enhancing Analysis, Modeling, and Decision Support (EAMD):** R&D efforts to develop decision support tools, such as modeling, simulation, and other analytics to improve operational strategy decision-making, forecasting, and procurement, which support more effective and efficient responses to emerging market and customer requirements.
- **Improving Logistics Processes (ILP):** R&D efforts to develop and implement advanced technology in logistics processes over and above current baseline systems.
- **Emergent Logistics R&D Requirements (ELR):** R&D efforts to support emergent Logistics R&D requirements that arise out of the budget cycle. These out of cycle requirements always occur. This SFA begins new projects in a timely manner without disrupting ongoing projects by funds reallocation. This SFA scope includes all DLA supply chains and logistics processes.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	10.611	11.778	12.067	-	12.067
Current President's Budget	16.105	18.127	10.817	-	10.817
Total Adjustments	5.494	6.349	-1.250	-	-1.250
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	6.000	7.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.506	-0.651			
• Funds Realignment	-	-	-1.240	-	-1.240
• Inflation Adjustment	-	-	-0.010	-	-0.010

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: GLTD: *Improving Logistics Processes (formerly Logistics Process)*

Congressional Add: *Energy Readiness Program for Liquid Hydrocarbon Fuels*

Congressional Add Subtotals for Project: GLTD

Project: 04: *Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)*

Congressional Add: *Energy Readiness Program for Liquid Hydrocarbon Fuels*

Congressional Add: *Supply Chain Management Program for Sustainable Product Demonstrations*

Congressional Add Subtotals for Project: 04

Congressional Add Totals for all Projects

	FY 2018	FY 2019
Congressional Add Subtotals for Project: GLTD	4.000	-
Congressional Add Subtotals for Project: 04	2.000	7.000
Congressional Add Totals for all Projects	6.000	7.000

Change Summary Explanation

In FY2018, the Logistics R&D program received a Congressional Add for \$4 million for the Energy Readiness Program for Woody Bio Mass conversion to liquid hydrocarbon fuels and \$2 million for the Supply Chain Management program for sustainable product demonstrations. In FY2019, the Logistics R&D program received a Congressional Add for \$7 million for the Energy Readiness program for liquid hydrocarbon fuels.

The Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$0.506 million and \$0.651 million in FY2018 and FY2019 respectively.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i>	PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>

Realigned funding from Log R&D to Operation and Maintenance (O&M) to fund mandatory Program Management Offices (PMO) costs and project transition.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>				Project (Number/Name) EMM / <i>Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
EMM: <i>Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)</i>	7.561	1.193	3.758	3.219	-	3.219	3.295	3.368	3.430	3.429	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Strategic Focus Area (SFA) funds developments in advanced analytical tools, modeling, and simulation of logistics and supply chain processes. These tools will improve DLA forecasting and procurement strategy decisions and lead to faster and more flexible responsiveness to emerging market and customer requirements. This SFA consists of two programs:

The Medical Logistics Network (MLN) program supports the Medical Directorate’s mission to develop and implement the logistics and medical supply chain business practices that ensure the cost-effective and efficient distribution of medical materiel to the full range of Military Health System operations. A portion of the MLN budget was realigned to other R&D efforts due to no specific projects identified. Assessments are currently being conducted for viable R&D projects for the budgeted amounts.

The R&D Strategic Distribution & Disposition (SDD) Program collaborates with DLA Distribution and Disposition Services to identify capability shortfalls (gaps) that allow the opportunity to address these shortfalls through major applied research efforts and to further improve operational effectiveness and efficiency in support of Warfighter’s requirements. A key objective of the SDD Program is to infuse innovative solutions into distribution and disposition operations that address inadequate legacy capabilities and the challenges of future worldwide distribution, disposition, reutilization, and retrograde requirements.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Enhancing Analysis, Modeling, and Decision Support	1.193	3.758	3.219
FY 2019 Plans: The Medical Logistics Network (MLN) program supports the Medical Directorate’s mission to develop and implement the logistics and medical supply chain business practices that ensure the cost-effective and efficient distribution of medical materiel to the full range of Military Health System operations. A portion of the MLN budget was realigned to other R&D efforts due to no specific projects identified. Assessments are currently being conducted for viable R&D projects for the budgeted amounts.			
The Strategic Distribution and Disposition (SDD) program provides applied research, analytical and decision support to DLA Distribution and Disposition Services through advanced analytical tools such as Business Case Analyses (BCAs) that support DLA Distribution and Disposition Services strategic decision making. Additionally, SDD will continue to support the Distribution Modernization Program to identify, evaluate, and test emerging and disruptive technologies that have high potential application			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>	Project (Number/Name) EMM / <i>Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>to distribution and disposition operations. Furthermore, SDD will engage with Department of Defense (DoD) sponsored Federally Funded Research and Development Centers (FFRDCs) and University-Affiliated Research Center Laboratories (UARCs) to perform applied research in technologies such as blockchain, artificial intelligence, machine learning, Internet of Things (IoT), augmented reality, and autonomous/robotics systems.</p> <p>FY 2020 Plans: The Medical Logistics Network program continues to support the Medical Directorate’s mission to develop and implement the logistics and medical supply chain business practices that ensure the cost-effective and efficient distribution of medical materiel to the full range of Military Health System operations. A portion of the MLN budget was realigned to other R&D efforts due to no specific projects identified. Assessments are currently being conducted for viable R&D projects for the budgeted amounts.</p> <p>The Strategic Distribution and Disposition program continues to provide applied research, analytical and decision support to DLA Distribution and Disposition Services and provide support to the Distribution Modernization Program. Additionally, SDD will continue to engage with Industry, Department of Defense (DoD) sponsored Federally Funded Research and Development Centers (FFRDCs) and University-Affiliated Research Center Laboratories (UARCs) leveraging subject-matter expertise in key areas of research such as blockchain, artificial intelligence, machine learning, Internet of Things (IoT), augmented reality, and autonomous/robotics systems.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease is due to a FY2020 funding realignment for mandatory program management office (PMO) costs and project transition.</p>			
Accomplishments/Planned Programs Subtotals	1.193	3.758	3.219

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

Remarks

D. Acquisition Strategy
The DLA R&D program is executed through Delivery Orders placed on Indefinite Delivery/Indefinite Quantity Contracts that resulted from competitive Broad Agency Announcements and through interagency agreements with the Military Services when it is cost effective and/or provides some technical advantage, e.g. improves the probability of successful transition. DLA also has a continuously open Broad Agency Announcement for Emerging Technologies.

E. Performance Metrics
40% of applicable projects (ex. non-studies) will transition.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>				Project (Number/Name) GLTD / <i>Improving Logistics Processes (formerly Logistics Process)</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
GLTD: <i>Improving Logistics Processes (formerly Logistics Process)</i>	10.403	9.099	3.568	4.013	-	4.013	4.125	4.211	4.277	4.277	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Improving Logistics Processes (ILP) Strategic Focus Area (SFA) encompasses R&D efforts within the Weapon System Sustainment (WSS) Program to develop and implement advanced technology in the internal DLA logistics processes. To qualify for R&D funding, the R&D effort must develop and apply technology and processes over and above current baseline IT systems and continuous improvements efforts.

Although all DLA processes are in scope, the strategic focus area for FY2019 has four thrusts: Procurement, Inventory Management, Planning, and Retail Operations process improvements.

Innovative process changes and new technologies will be researched in these areas to drive improvements to internal costs, reduce award delays, reduce the threat of counterfeit parts, improve demand forecasting, and increase retail operational efficiency. Researching the use of artificial intelligence/Machine Learning blockchain technology, demand forecasting, adoption of Commercial Acquisition Innovation and Integration of maintenance and supply data in DLA processes are major research areas that will be pursued in the coming years.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Improving Logistics Processes (ILP)	5.099	3.568	4.013
FY 2019 Plans: The Weapon Systems Sustainment (WSS) program will continue working with Procurement to implement long term process improvement plans to include projects in the areas of administrative and production lead time estimation and procurement of commercially available parts (e-commerce). Another main thrust for FY2019 will be the execution of projects to improve retail operations inventory strategy and to research new processes that leverage DLA's capabilities in operational and tactical retail operations. WSS will also leverage condition based maintenance data from the Services to enhance planning for retail operations and depot maintenance logistical support. Initial studies will focus on a single Service. Artificial intelligence / machine learning capability projects will begin in FY2019 and continue for years to come as additional opportunities are identified. Also, machine-learning techniques will be applied to processes for lead-time estimation, demand forecasting, low demand inventory strategies, and retail operation strategies. In addition, the use of blockchain technology in Tech Quality (TQ) processes that monitor vendor risk will be researched as an initial study of using this technology in DLA processes.			
FY 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>	Project (Number/Name) GLTD / <i>Improving Logistics Processes (formerly Logistics Process)</i>

B. Accomplishments/Planned Programs (\$ in Millions)

<p>The Weapon Systems Sustainment program will continue to explore new use case studies for disruptive technologies. Additional areas of interest for the application of artificial intelligence / machine learning include the ability to identify returned parts and predict fraudulent activity. WSS will also explore opportunities for blockchain technology based on the findings from the initial study in FY2019. Potential areas of interest include tying financial transactions to physical movement of inventory and electronic contracts. In FY2020, projects started in FY2019 will continue. Artificial intelligence projects, which developed a viable proof of concept in FY2019, will progress to pilot studies for final model design and testing in the process. Projects to develop methods to use condition-based maintenance in DLA processes will continue. WSS will work with additional Services to incorporate the data into DLA's inventory and demand forecasting processes. In addition, WSS projects will continue to study e-commerce methods and develop recommendations for incorporating internet-based purchases into DLA's acquisition process.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: No significant change.</p>	FY 2018	FY 2019	FY 2020
	Accomplishments/Planned Programs Subtotals	5.099	3.568

	FY 2018	FY 2019
<p>Congressional Add: Energy Readiness Program for Liquid Hydrocarbon Fuels</p> <p>FY 2018 Accomplishments: Developed and improved upon a production process that converts cellulosic (woody) biomass in to synthetic crude oil. The synthetic crude can be further processed into hydrocarbon fuels suitable for commercial and military use. In FY18, the project successfully accomplished several pilot-plant level production runs of synthetic oil in the goal of validating commercial-scale production capability of the process.</p> <p>Note: The FY2018 \$4 million Congressional add is for and was executed by the Emergent Logistics R&D Requirements Strategic Focus Area (SFA) for the Energy Readiness Program.</p>	4.000	-
Congressional Adds Subtotals	4.000	-

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

N/A

Remarks

D. Acquisition Strategy

The DLA R&D program is executed through Delivery Orders placed on Indefinite Delivery/Indefinite Quantity Contracts that resulted from competitive Broad Agency Announcements and through interagency agreements with the Military Services when it is cost effective and/or provides some technical advantage, e.g. improves the probability of successful transition. DLA also has a continuously open Broad Agency Announcement for Emerging Technologies.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>	Project (Number/Name) GLTD / <i>Improving Logistics Processes (formerly Logistics Process)</i>

E. Performance Metrics

40% of applicable projects (ex. non-studies) will transition.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>	Project (Number/Name) 04 / <i>Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
04: <i>Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)</i>	11.670	5.813	10.801	3.585	-	3.585	3.578	3.601	3.621	3.826	Continuing	Continuing

A. Mission Description and Budget Item Justification

Emergent Logistics R&D Strategic Focus Area (SFA) includes R&D efforts to develop new products and services for DLA customers in two programs:

The Energy Readiness Program (ERP) roadmap helps to achieve the operational energy strategy goals of increasing sources of supply, developing and implementing alternative fuels under the ERP.

The Supply Chain Management (SCM) program addresses emergent and out of budget cycle requirements and opportunities within DLA's supply chains. A key objective of the SCM Program is to collaborate with customers (DLA J-Codes and Major Subordinate Commands (MSCs)) to identify capability shortfalls that can be addressed through major research efforts. These R&D efforts strive to develop technology mitigation strategies that address current and anticipated problems within DLA's supply chains.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Emergent Logistics R&D Requirements	3.813	3.801	3.585
FY 2019 Plans:			
The Energy Readiness Program (ERP) will focus on determining R&D solutions for ongoing issues affecting fuel and fuel additive quality and operational requirements (e.g. thermal stability, storage stability, ignition capability). The program will assist the military services in the qualification and certification of alternative fuels to meet military specification requirements; this will be parallel to the availability of military resources necessary to complete these efforts. The ERP program will investigate and prototype, as appropriate, drone technologies applied to the energy operations.			
The Supply Chain Management (SCM) program address the emerging capabilities shortfalls that occur in the supply chain through major research opportunities. Initiatives will align strategically and produce benefits such as reduced operating costs, enhanced organizational responsiveness and reliability, network resiliency, and streamlined customer service. Additionally, SCM will complete the Advanced Thermoelectric Technology project to improve the current thermoelectric heater technology so it is more			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>	Project (Number/Name) 04 / <i>Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>fuel-efficient, has an increased heating range, reduced maintenance requirements, and a longer service life. SCM will also work with DLA HQ Information Operations J6 on Robotic Process Automation (RPA) efforts.</p> <p>FY 2020 Plans: The Energy Readiness Program will continue to focus on providing additional alternatives for military unique fuels, working with the Service customers to improve specifications and standards for fuel quality, engage in modeling and simulation of the energy supply chain and identifying alternative energy sources for Military Customers. ERP will focus on determining R&D solutions for ongoing issues affecting fuel and fuel additive quality and operational requirements (e.g. thermal stability, storage stability, ignition capability). The program will continue to assist the military services in the qualification and certification of alternative fuels to meet military specification requirements; this will be parallel to the availability of military resources necessary to complete these efforts.</p> <p>The Supply Chain Management program will continue to address the emerging capabilities shortfalls that occur in the supply chain through major research opportunities.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease is due to a FY2020 funding realignment for mandatory program management office (PMO) costs and project transition.</p>			
Accomplishments/Planned Programs Subtotals	3.813	3.801	3.585

	FY 2018	FY 2019
<p>Congressional Add: Energy Readiness Program for Liquid Hydrocarbon Fuels</p> <p>FY 2019 Plans: Develop innovative technologies to produce hydrocarbon biofuels from cellulosic (plant/vegetable) matter. This effort will further develop the upscaling of woody biomass-to-fuel processes.</p>	-	7.000
<p>Congressional Add: Supply Chain Management Program for Sustainable Product Demonstrations</p> <p>FY 2018 Accomplishments: Began the identification of emerging technologies to meet Department of Defense (DoD) requirements through technical data evaluations. Demonstrations across up to five DoD installations will be conducted to prove the technologies in an operational environment for application and transition of successful technologies DoD-wide.</p>	2.000	-
Congressional Adds Subtotals	2.000	7.000

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

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / <i>Logistics Research and Development Technology (Log R&D)</i>	Project (Number/Name) 04 / <i>Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)</i>

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

Remarks

D. Acquisition Strategy

The DLA R&D program is executed through Delivery Orders placed on Indefinite Delivery/Indefinite Quantity Contracts that resulted from competitive Broad Agency Announcements and through interagency agreements with the Military Services when it is cost effective and/or provides some technical advantage, e.g. improves the probability of successful transition. DLA also has a continuously open Broad Agency Announcement for Emerging Technologies.

E. Performance Metrics

40% of applicable projects (ex. non-studies) will transition.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603720S / <i>Microelectronics Technology Development and Support (DMEA)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	480.635	241.867	192.926	171.771	-	171.771	156.427	159.082	169.077	172.651	Continuing	Continuing
001: <i>Technology Development</i>	261.501	112.697	71.819	79.101	-	79.101	58.429	59.504	60.439	62.071	Continuing	Continuing
003: <i>Trusted Foundry</i>	219.134	129.170	121.107	92.670	-	92.670	97.998	99.578	108.638	110.580	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Department finds it critical to National Security to maintain an ability to produce low volume state-of-the-practice (SOTP) and legacy microelectronics that are unavailable from commercial foundries. The Defense Microelectronics Activity (DMEA) uniquely accomplishes this mission for the Department by providing a guaranteed and Trusted source of supply of microelectronics parts that are essential to combat operations. In addition DMEA provides the rare technology capability to bridge the gap between research and application allowing DMEA to develop, manage and implement innovative microelectronic solutions to enhance mission capability. This unique research and engineering capability will be leveraged to develop low-volume, high mix fabrication processes for state-of-the-art (SOTA) technologies that meet the Department's performance and reliability needs.

This is a critical capability in an atmosphere of diminishing domestic semiconductor manufacturing capability and increasing worldwide supply chain risks with threats to defense microelectronics. Trusted access to SOTA technologies remains a major challenge and therefore it is most important to develop a long term Trusted source for the Department. Threats to Defense Microelectronics include counterfeiting, Trojan horses, specific reliability issues in military environments, and rapid obsolescence coming from an unpredictable and unsecured supply chain. As fiscal pressures force the Department to maintain its weapon systems longer than originally planned, extended combat use increases their attrition and increases the need for DMEA's unique capabilities.

Microelectronics is a crucial technology and central for all operations within the Department. Yet, as vital as this technology is to Department operations, the defense market represents less than 0.1% share of the total global semiconductor market. The Department frequently requires low volume SOTP and legacy microelectronics long after commercial foundries have moved on to advanced technology levels. There is also the major challenge of the ability of Defense R&D Programs to access Trusted SOTA technologies when developing new systems. Consequently, the semiconductor industry does not respond to the Department's particular needs of low volumes, long availability time frames, or its high-level security concerns. To meet these requirements, DMEA procures commercial licenses to organically produce semiconductor technologies that are no longer commercially manufactured or are unavailable due to no-bids owing to low volume requirements. These licenses enable DMEA to be the Department's microelectronics supplier of last resort, providing the Department with a long-term, trusted, and guaranteed source of these critical parts. This proven model can be extended to SOTA technologies by acquiring advanced commercial process Intellectual Property (IP) and implementing it in a copy exact approach.

DMEA provides increasingly rare microelectronics design and fabrication expertise to ensure that the Department can field systems capable of ensuring technological superiority over potential adversaries. DMEA provides decisive, quick turn solutions for defense, intelligence, special operations, cyber and combat missions as well as microelectronic components that are unobtainable in the commercial market. DMEA has established increased ties with the Intelligence Community (IC) and Combatant Commanders to understand their specific threats and opportunities that can be exploited by quicker, more resilient microelectronic solutions. This knowledge of varying

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603720S / <i>Microelectronics Technology Development and Support (DMEA)</i>	
<p>requirements across a broad and diverse range of combatant environments and missions – along with its unique technical perspective – allows DMEA to develop, manage and implement novel microelectronic solutions to enhance mission capability. DMEA uses these cutting-edge technology capabilities and products in the solutions it develops for its military clientele. After many years of performing analogous efforts, the technical experience, mission knowledge, and practical judgment that are gained from preceding efforts are incorporated into subsequent technology maturation projects. DMEA has years of experience understanding the maturity of US and world microelectronics technology and knows what it takes to adapt the technology for the US warfighter. Based on the results of the knowledge DMEA acquires through technology forecasting, effective modeling/simulation, prototyping and experimentation, DMEA influences program requirements with recommended improvements and advancements. DMEA’s capabilities make it a key tool that can be leveraged by the entire US Government in the intelligent and rapid development and application of advanced technologies to identified military needs.</p> <p>Working alongside industry, DMEA utilizes a business model that establishes a pathway that accelerates the delivery of superior semiconductor technologies. DMEA’s uniquely flexible foundry supports the Department with a wide variety of integrated circuits using various processes that were developed by commercial manufacturers and which are now guaranteed to remain in one location for as long as they are needed. To obtain these processes, DMEA works closely with U.S. semiconductor industry partners to acquire process licenses. DMEA incorporates commercial technology, along with accelerated acquisition methods to accelerate delivery of needed capability. In this way, DMEA revolutionizes the way the Department leverages commercial technology by exploiting business-cycle opportunities to access these technologies. In this way, the government ensures perpetual access to this technology without bearing the high, upfront process development and qualification costs.</p> <p>These Government-held licenses allow for the transfer to DMEA of industry-developed IP and the related processes for Department needs. These licenses ensure no commercial conflicts by including industry’s right to bid first on resulting production volumes. DMEA always looks to industry first to see if it can provide the required components. If industry cannot or will not, only then does DMEA provide the necessary prototypes and low volume production order. A critical element required to make this business model work effectively is protection of the industry partners’ valuable IP and processes. DMEA is Government owned and operated, providing the structure and confidence necessary to ensure them that their IP is protected from potential competitors. This strategic and cooperative industry partnership approach allows DMEA to use industry-developed IP and processes by acquiring, installing, and applying them toward meeting the immediate and long-term needs of the Department. This unique capability is essential to all major weapon systems, combat operations, and support needs. As such, DMEA serves the Department, other US Agencies, industry and Allied nations.</p> <p>DMEA assists hundreds of Department programs every year. DMEA has provided its specialized engineering assistance and capabilities to older systems, current systems, and even to programs not yet in the production phase. This includes the Counter-Rocket, Artillery, and Mortar (C-RAM) System, F-18 Super Hornet, F-22 Raptor, F-35, RQ-4 Global Hawk, MQ-9 Reaper, AEGIS Advanced Surface Missile System, Advanced Medium-Range Air-to-Air Missile (AMRAAM), HH-60G Pave Hawk Helicopter, Evolved Sea Sparrow Missile (ESSM), among many other programs. DMEA assists the Combatant Commands (COCOMs) including Special Ops, Cyber, Intelligence, and the Radiation-Hard communities.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603720S / <i>Microelectronics Technology Development and Support (DMEA)</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	219.803	168.931	172.442	-	172.442
Current President's Budget	241.867	192.926	171.771	-	171.771
Total Adjustments	22.064	23.995	-0.671	-	-0.671
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	30.000	30.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-7.936	-6.005			
• Fourth Estate IT Optimization Savings	-	-	-0.278	-	-0.278
• Inflation Adjustment	-	-	-0.393	-	-0.393

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 003: *Trusted Foundry*

Congressional Add: *Trusted Foundry*

	FY 2018	FY 2019
	30.000	30.000
Congressional Add Subtotals for Project: 003	30.000	30.000
Congressional Add Totals for all Projects	30.000	30.000

Change Summary Explanation

The FY2018 and FY2019 increases are for continued support of the top four FY2018 microelectronics initiatives, including full access to the GlobalFoundries Fab 8 (14 nm) foundry, associated upgrades to GlobalFoundries's ASIC design, tape-in, and test capabilities to facilitate 14 nm designs for weapon system program support (e.g., Military Global Positioning System (GPS) User Equipment (MGUE), and procurement of foundry process intellectual property.

The Small Business Innovation Research and Small Technology Transfer taxes amounted to \$7.936 million and \$6.005 million in FY2018 and FY2019 respectively.

FY2020 baseline decreased in association with the Fourth Estate IT optimization savings as well as inflation adjustments for Civilian Pay.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603720S / <i>Microelectronics Technology Development and Support (DMEA)</i>				Project (Number/Name) 001 / <i>Technology Development</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
001: <i>Technology Development</i>	261.501	112.697	71.819	79.101	-	79.101	58.429	59.504	60.439	62.071	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Technology Development funds provide DMEA with the core resources to execute its primary mission of providing an in-house ability to quickly develop and execute appropriate solutions to keep a weapon system operational, elevate its sophistication level, or to meet new threats. These solutions use high mix, low volume, unique microelectronics that are endemic to military requirements but are not commercially available. These funds provide for the development and support necessary to ensure rapid prototyping, insertion, and support of microelectronics technologies into fielded systems, particularly as the technologies advance. Extending this mission to include assured access to Trusted state-of-the-art (SOTA) technologies will more comprehensively ensure the integrity of microelectronics in all critical defense systems. DMEA maintains critical microelectronics design and fabrication skills to ensure that the Department is provided with systems capable of ensuring technological superiority over potential adversaries. DMEA provides an in-house capability to support these strategically important microelectronics technologies with distinctive resources to meet the Department's requirements across the entire spectrum of technology development, acquisition, and long-term support. This includes producing components to meet the Department's requirements for ultra-low volume, an extended availability timeframe, and a trusted, guaranteed and secure supply of microelectronics. These funds provide basic infrastructure upgrades to acquire IP and manufacturing capabilities of SOTA technologies, including the CMOS9LP process as well as the technical services to ensure its successful installation via the copy exact model, as well as an in-house technical staff of skilled and experienced microelectronics personnel working in state-of-the-practice facilities providing technical and application engineering support for the implementation of advanced microelectronics research technologies from inspection and analysis through design, fabrication, test, assembly, integration and installation. These funds also provide for the recapitalization and modernization of aging microelectronic infrastructure, acquisition and implementation of design and test tools, the development of advanced techniques to inspect and analyze circuits, the adaptation of tools and processes to detect increasingly sophisticated counterfeit microelectronics in the defense supply chain, and the incorporation of the process technologies that are necessary to anticipate the needs of the Department as weapon system support requirements migrate toward current state-of-the-art technologies. DMEA's capabilities make it a key resource in the intelligent and rapid application of advanced technologies to add needed performance enhancements in response to the newest asymmetric threats and to modernize aging weapon systems. DMEA designs, develops, and supports vital classified assets for ongoing and time-sensitive specialized intelligence operations and missions of the Department and the Special Operations Commands.

Today's weapon systems experience extended field operations and are required to remain in service beyond planned replacement schedules, driving the need for growth in DMEA's unique capabilities. This need, along with the continual contraction of commercial resources, often makes DMEA the only available resource allowing many systems to remain operational.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Technology Development Accomplishments/Plans	112.697	71.819	79.101
FY 2019 Plans:			
DMEA will design, develop, and demonstrate microelectronics concepts, advanced technologies, and applications to solve operational problems and modernize key capabilities . DMEA will apply advanced technologies to add performance			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603720S / <i>Microelectronics Technology Development and Support (DMEA)</i>	Project (Number/Name) 001 / <i>Technology Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>enhancements in response to the newest asymmetric threats and to modernize aging weapon systems. The increased missions seen in the last several years by Combatant Commands (CCMDs) and Special Operations have caused those organizations to dramatically increase their demands for DMEA's unique capability to provide quick technical solutions to immediate operational needs. To meet these increases, DMEA will add capacity and capability by recapitalizing and modernizing aging microelectronic infrastructure, extending and upgrading process IP, developing advanced techniques to inspect and analyze circuits, and adapting tools and processes to detect increasingly sophisticated counterfeit microelectronics to ensure a secure supply chain, all to meet quick turn solutions on which CCMDs and Special Operations can rely. DMEA will complete installation of the cleanroom in the 200mm facility, and will begin installation of semiconductor fabrication equipment in the completed cleanroom. DMEA will start integration of the critical 200mm process IP into the 200mm facility.</p> <p>FY 2020 Plans: DMEA will design, develop, and demonstrate microelectronics concepts, advanced technologies, and applications to solve operational problems. DMEA will apply advanced technologies to add performance enhancements in response to the newest asymmetric threats and to modernize aging weapon systems. The increased missions seen in the last several years by Combatant Commands (CCMDs) and Special Operations have caused those organizations to dramatically increase their demands for DMEA's unique capability to provide quick technical solutions to immediate operational needs. To meet these increases, DMEA will add capacity and capability by recapitalizing and modernizing aging microelectronic infrastructure, extending and upgrading process IP, developing advanced techniques to inspect and analyze circuits, and adapting tools and processes to detect increasingly sophisticated counterfeit microelectronics to ensure a secure supply chain, all to meet quick turn solutions on which CCMDs and Special Operations can rely. DMEA will continue installation of semiconductor fabrication equipment in the completed 200mm cleanroom. DMEA will continue integration of the critical 200mm process IP into the 200mm facility.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: FY2020 program reflects a continuation in funding for FY2019 microelectronics initiatives, including the integration of 200mm foundry process intellectual property.</p>			
Accomplishments/Planned Programs Subtotals	112.697	71.819	79.101

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603720S / <i>Microelectronics Technology Development and Support (DMEA)</i>	Project (Number/Name) 001 / <i>Technology Development</i>

E. Performance Metrics

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603720S / <i>Microelectronics Technology Development and Support (DMEA)</i>				Project (Number/Name) 003 / <i>Trusted Foundry</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
003: <i>Trusted Foundry</i>	219.134	129.170	121.107	92.670	-	92.670	97.998	99.578	108.638	110.580	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Department, other agencies, and the intelligence community require uninterrupted access to state-of-the-art design and manufacturing processes to produce custom integrated circuits designed specifically for military purposes. Under DoDI 5200.44, Application Specific Integrated Circuits (ASICs) in critical/essential systems must be procured from Trusted sources in order to avoid altered or sabotaged parts. Worldwide competition from foreign, state-subsidized manufacturing facilities continues to greatly reduce the number of U.S. semiconductor fabrication facilities available to be Trusted sources. The prevalence of sophisticated offshore design and manufacturing facilities with economic incentives of state subsidies have resulted in the outsourcing of electronics component and integrated circuit services to these offshore facilities. This production capability is of increasing importance as domestic semiconductor manufacturing resources continue to decline, especially in the scarce domestic production capacity of high performance and state-of-the-art semiconductor technologies. Commercial sources of microelectronics remain inherently unpredictable and constitute a continued supply chain risk regardless of Government investment. This trend threatens the integrity and worldwide leadership of the U.S. semiconductor industry by eliminating many domestic suppliers and reducing access to Trusted fabrication sources for advanced technologies, and is of acute concern to the defense and intelligence communities. Secure communications and cryptographic applications, along with most other key defense technologies, depend heavily on high performance semiconductors where a generation of improvement often translates into significant force multipliers and capability advantages. Important defense technology investments and demonstrations carry size, weight, power, and performance goals that can only be met through the use of the most sophisticated semiconductors.

The Trusted Foundry program provides the Department with access to state-of-the-art microelectronics design and manufacturing capabilities with the added benefit of Trust, if necessary, to meet their confidentiality, integrity, availability, performance and delivery needs. The program also provides the Services and other agencies with a competitive cadre of accredited Trusted suppliers that can meet the needs of their mission critical/essential systems for Trusted integrated circuit components. The Trusted Access Program Office has contracted with commercial sources to satisfy state-of-the-art semiconductor requirements. DMEA will foster all viable alternatives to continue the vital supply of Trusted microelectronics, including the work of the DMEA Trusted Access Program Office with commercial state-of-the-art industry, as well as the extension and implementation of key process technologies for trust at DMEA. It is imperative for a wide range of technologies in ongoing and future Department systems that access to Trusted suppliers continues. Most importantly, access to Trusted Microelectronics is absolutely necessary to meet secure communication and cryptographic needs requiring state-of-the-art semiconductor technologies.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Trusted Foundry	99.170	91.107	92.670
FY 2019 Plans: Facilitate the availability of Trusted state-of-the-art semiconductor technology to DoD weapon system programs, research organizations, and other federal agencies through the DMEA Trusted Access Program Office (TAPO) contracts. Continue efforts to extend Trusted access to 14 nm technology for USG use through the TAPO contracts, and to provide access to other leading			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603720S / <i>Microelectronics Technology Development and Support (DMEA)</i>	Project (Number/Name) 003 / <i>Trusted Foundry</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>edge technologies. Enhance the cadre of trusted suppliers for the critical trusted components and services needed for appropriate defense systems. Enhance Trusted Microelectronics products to include newly available leading edge technologies and other key specialty processes required by Department programs. Expand a line of trusted catalog components that can be purchased by Defense contractors. Continue activities that ensure the Department has Trusted access to leading edge semiconductor technologies. Continue the development of new capabilities for the inspection and analysis of ASICs and continuously refine the utilized methods for efficiency, accuracy, and applicability to multiple processes. Implement a Trusted flow for new process technologies at DMEA.</p> <p>FY 2020 Plans: Facilitate the availability of Trusted and commercial state-of-the-art semiconductor technology to DoD weapon system programs, research organizations, and other federal agencies through the DMEA Trusted Access Program Office (TAPO) contracts. Continue efforts to extend Trusted access to 14 nm technology for USG use through the TAPO contracts, and to provide the Department and other USG-sponsored programs with access to this and other leading edge technologies. Enhance the cadre of trusted suppliers for the critical trusted components and services needed for appropriate defense systems. Enhance Trusted microelectronics products to include newly available leading edge technologies and other key specialty processes required by Department programs. Expand a line of trusted catalog components that can be purchased by Defense contractors. Continue activities that ensure the Department has Trusted access to leading edge semiconductor technologies. Continue the development of new capabilities for the inspection and analysis of ASICs and continuously refine the utilized methods for efficiency, accuracy, and applicability to multiple processes. Implement a Trusted flow for new process technologies at DMEA.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: FY2020 program reflects a continuation in funding for FY2019 microelectronics initiatives, including access to the GlobalFoundries 14 nm foundry.</p>			
Accomplishments/Planned Programs Subtotals	99.170	91.107	92.670

	FY 2018	FY 2019
Congressional Add: Trusted Foundry	30.000	30.000
FY 2018 Accomplishments: Sustained and accelerated capabilities to manufacture Trusted parts in accredited foundries. Developed and executed a long-term microelectronics modernization strategy for a specific case of DoD obsolescence as a pathfinder to diminish the occurrence of future obsolescence issues.		
FY 2019 Plans: Sustain and accelerate capabilities to manufacture trusted parts in accredited foundries.		
Congressional Adds Subtotals	30.000	30.000

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603720S / <i>Microelectronics Technology Development and Support (DMEA)</i>	Project (Number/Name) 003 / <i>Trusted Foundry</i>

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 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605070S / <i>DoD Enterprise Systems Development and Demonstration</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	21.021	6.037	3.057	2.378	0.000	2.378	1.481	0.743	0.757	0.771	Continuing	Continuing
09: <i>Enterprise Funds Distribution</i>	21.021	6.037	3.057	2.378	0.000	2.378	1.481	0.743	0.757	0.771	Continuing	Continuing

A. Mission Description and Budget Item Justification

The mission of the DoD Enterprise Business Systems (DEBS) is to coordinate and enable business transformation efforts across the Department of Defense (DoD). The DLA recognizes that DoD's business enterprise must be closer to its warfighting customers than ever before. Joint military requirements drive the need for greater commonality and integration of business and financial operations.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	6.266	3.173	2.378	-	2.378
Current President's Budget	6.037	3.057	2.378	-	2.378
Total Adjustments	-0.229	-0.116	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.229	-0.116			

Change Summary Explanation

The Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$0.229 million and \$0.116 million in FY2018 and FY2019 respectively.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0605070S / DoD Enterprise Systems Development and Demonstration				Project (Number/Name) 09 / Enterprise Funds Distribution			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
09: Enterprise Funds Distribution	21.021	6.037	3.057	2.378	0.000	2.378	1.481	0.743	0.757	0.771	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Enterprise Funds Distribution (EFD) is a multi-service/multi-agency solution established as a key initiative to provide full visibility of funds distributed through echelon I and II for the Military Departments and at all levels for the Defense Agencies to improve and modernize the OUSD(C) funds distribution process. Funds distribution by its nature is a key enabler of financial visibility within DoD enterprise systems. The concept of a fully visible enterprise funds distribution process serves as a reference where planned and coordinated funds development and execution takes place.

Within the current DoD environment, progress has been made streamlining a diverse set of stove-piped budget execution and funds distribution processes and systems. Efforts continue to improve the visibility of funding information, eliminate manual efforts and undue complexities to the management of budget authority, and to eliminate impediments in the flow of funding documents. The current environment relies heavily on manual processing and on disconnected standalone systems for the processing of Funding Authorization Documents (FADs) and reprogramming actions. This environment made the implementation of internal controls difficult, negatively impacted the accuracy and timeliness of information while making the processes of integrating and obtaining management information arduous.

The envisioned operational environment solves these problems by enabling lifecycle program value management in a web-based application utilizing an authoritative database with single-source data entry and automated workflow. Capabilities within this integrated environment will enable the automation of all funds distribution and funds control processes within OUSD(C) using authoritative and highly visible data. Specifically, capabilities include managing apportionments, distributing budget authority to the Military Departments and Defense Agencies, managing rescissions and continuing resolutions, creating and tracking reprogramming actions, and establishing program baselines and budget authority needed to support changes in funding priorities throughout the year.

The operational environment includes organizational elements down to the echelon II level responsible for managing DoD and Component appropriations operating in an unclassified environment. The web-based application provides pre-planning, apportionment, reprogramming, rescission, continuing resolution, reporting of enterprise-level funds control and distribution of appropriated funding.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Enterprise Funds Distribution (EFD)	6.037	3.057	2.378
Description: EFD will distribute funds to the Military Departments and the Defense Agencies.			
FY 2019 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605070S / DoD Enterprise Systems Development and Demonstration	Project (Number/Name) 09 / Enterprise Funds Distribution

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>The program will continue the development and deployment of EFD Phase 2 requirements based on user group migration strategy as well as deploy user migration wave 2.</p> <p>FY 2020 Plans: The program will continue the development and deployment of EFD post Wave 2 requirements based on user group migration strategy. The program will also deploy additional accounts and development activities related to Momentum Software Baseline upgrade and deploy System Change Requests (SCR's) to support post deployment requirements.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: FY2020 is lower due to the majority of EFD's development to be completed in FY2019.</p>			
Accomplishments/Planned Programs Subtotals	6.037	3.057	2.378

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

N/A

Remarks

n/a

D. Acquisition Strategy

The EFD strategy is to use a "single acquisition to full capability," commercial-off-the-shelf (COTS) solution (Momentum software). The effort is needed to ensure EFD is fully implemented for all appropriation funding data for the Military Services and Defense Organizations.

E. Performance Metrics

For performance, the objective is that 100% of the Standard Financial Information Structure (SFIS) elements are SFIS compliant at full development.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605070S / DoD Enterprise Systems Development and Demonstration	Project (Number/Name) 09 / Enterprise Funds Distribution
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Savantage Solutions	Option/FP	Savantage Solutions : Rockville, MD	14.158	0.000		0.000		-		-		-	0.000	14.158	14.158
TeraThink Corporation	C/FFP	TeraThink Corporation : Reston, VA	5.371	6.037	Dec 2017	3.057	Dec 2018	2.378	Dec 2019	-		2.378	Continuing	Continuing	Continuing
TBD	C/FFP	TBD : TBD	1.492	0.000		0.000		-		-		-	0.000	1.492	1.492
Prior Year Contracts	Option/Various	Multiple : Multiple	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			21.021	6.037		3.057		2.378		-		2.378	Continuing	Continuing	N/A

Remarks
Prior year contracts line include Savantage Solutions Option/FP Rockville, MD \$14.158 million and TeraThink Corporation FFP Reston, VA \$1.492 million.


	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.021	6.037	3.057	2.378	-	2.378	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605070S / DoD Enterprise Systems Development and Demonstration	Project (Number/Name) 09 / Enterprise Funds Distribution

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
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

Enterprise Funds Distribution (EFD)																											
Enterprise Funds Distribution (EFD) 																											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605080S / Defense Agencies Initiative (DAI) - Financial System
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	137.519	23.544	20.384	27.944	-	27.944	22.102	25.287	25.748	26.277	Continuing	Continuing
01: Defense Agencies Initiative - Financial System	137.519	23.544	20.384	27.944	-	27.944	22.102	25.287	25.748	26.277	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 0491

A. Mission Description and Budget Item Justification

This program supports the Defense Agencies Initiative (DAI) Increments 2 and 3, Category I Defense Business Systems. Previous funding for DAI Increment 1, as well as FY2013 4th Quarter Increment 2, were documented in the Defense Enterprise Business Systems program element 50605070S00. Increment 3 will deliver new capabilities: Defense Working Capital Fund (DWCF) and Re-Sale accounting; and an application upgrade.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	24.436	21.156	23.673	-	23.673
Current President's Budget	23.544	20.384	27.944	-	27.944
Total Adjustments	-0.892	-0.772	4.271	-	4.271
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.892	-0.772			
• Program Increase	-	-	4.271	-	4.271

Change Summary Explanation

Small Business Innovation Research and Small Technology Transfer Research taxes amount to \$0.892 million and \$0.772 million in FY2018 and FY2019 respectively.

Program requirements for Increment 3 increased the FY2020 baseline.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0605080S / <i>Defense Agencies Initiative (DAI) - Financial System</i>				Project (Number/Name) 01 / <i>Defense Agencies Initiative - Financial System</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
01: <i>Defense Agencies Initiative - Financial System</i>	137.519	23.544	20.384	27.944	-	27.944	22.102	25.287	25.748	26.277	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 0491												

A. Mission Description and Budget Item Justification

The DAI mission is to deliver auditable Chief Financial Officer (CFO) Act compliant business environments for Defense Agencies providing accurate, timely, authoritative financial data supporting the DoD goal of standardizing financial management practices improving financial decision support, and supporting audit readiness. Currently, Defense Agencies use several different non-compliant financial management systems supporting diverse operational functions and the warfighter in decision-making and financial reporting. These disparate, non-integrated systems do not meet statutory requirements to produce timely, auditable reports.

The DAI program modernizes the Defense Agencies' financial management processes by streamlining financial management capabilities, addressing financial reporting material weaknesses, and supporting financial statement auditability for the majority of agencies, field activities and non-Service organizations across the DoD. DAI will support a transformation of budget, finance, and accounting processes across participating defense agencies to help improve the quality of financial information, supporting financial auditability and decision-making. The DAI business solution, once implemented, will provide a near real-time, web-based system from a ".mil" environment of integrated business processes that will enable in excess of 84,000 Defense Agency financial managers, program managers, auditors, and Defense Finance and Accounting Service (DFAS) representatives to make sound financial business decisions.

The DAI implementation approach is to deploy a standardized system solution that is consistent with requirements in the Federal Financial Management Improvement Act (FFMIA) and the DoD Business Enterprise Architecture (BEA), while leveraging the out-of-the-box capabilities of the selected Commercial-Off-the-Shelf (COTS) product, Oracle e-Business Suite (EBS), Release 12.2.6 (R12). DAI implemented an Oracle Office of Management and Budget Financial Systems Integration Office (FSIO) qualified COTS financial management business solution with common business processes and data standards. The Program Management Office (PMO) will not develop any objects that are included in core COTS software or services (i.e. vendor data from Federal authoritative sources).

DAI supports the FY 2018- FY 2022 National Defense Strategy (NDS Strategic Goal 3, "Reform the Department's Business Practices for Greater Performance and Affordability as well as Strategic Objectives 3.1 "Improve and Strengthen business operations through a move to DoD-Enterprise or shared services; reduce administrative and regulatory burden" as well as SO 3.3 Undergo an audit, and improve the quality of budgetary and financial information that is most valuable in managing the DoD.

The primary goal is to deploy a standardized system solution to improve overall financial management and comply with BEA, Standard Financial Information Structure (SFIS)/Standard Line of Accounting (SLOA), and Office of Federal Financial Management (OFFM) requirements. Common business functions within budget execution include the Department's BEA End to End (E2E) business processes: Cost Management; Budget to Report (B2R); Procure to Pay (P2P) with enhancements facilitating

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / <i>Defense Agencies Initiative (DAI) - Financial System</i>	Project (Number/Name) 01 / <i>Defense Agencies Initiative - Financial System</i>
<p>SFIS/SLOA and DoD procurement data standards and direct Treasury disbursing; Acquire to Retire (A2R) (real property lifecycle accounting only); Hire to Retire (H2R) (Time and Labor reporting and absence management only); Order to Cash (O2C); Proposal to Reward (P2R) (Grants financial management and accounting only; and a phased implementation of Governance, Risk, and Compliance (GCR) capabilities supporting audit readiness. Future Defense Working Capital Fund accounting, and Re-Sale Accounting (for Defense Commissary Agency (DeCA).</p> <p>DAI is currently implemented at 23 Defense Agencies and the Office of the Under Secretary of Defense, Comptroller, (OUSD(C)). DAI supports over 62k personnel including, 45.6 thousand users. The program office is also responsible for operational sustainment of the system. Funds are required for additional government and contractor support, licenses, maintenance, and hardware to accomplish the remaining capability developments and organizational deployments, and initiate the annual Statement on Standards for Attestation Engagements No. 18 (SSAE 18) assertion packages. In 2017 and in 2018, the system received an unmodified SAE 18 report with no comments.</p> <p>The benefits of DAI are:</p> <ul style="list-style-type: none"> • Labor efficiencies (entering data once) and shared across all business processes (modules), workflows and lifecycle in a modern system; • Reduction in contractor support; • Financial visibility (Access to real-time financial data transactions); • Enabling agility and resilience in execution (No silos – anyone/anywhere can backfill and work continues); • Retiring legacy systems; • Shared common business processes and employment of Federal/DoD Enterprise data standards (i.e., SFIS, SLOA, Procurement Data Standard (PDS) and Procurement Request Data Standard (PRDS)); and United States Standard General Ledger (USSGL) Chart of Accounts to resolve DoD material weaknesses and deficiencies. • Reducing reliance on custom Reports, Interfaces, Conversions, Extensions, Forms and Workflows by leveraging application upgrades • Enhanced Internal controls to ensure accurate data, regulatory compliance and ensuring segregation of duties • Significantly reduced data reconciliation requirements; and • Enhanced analysis and decision support capabilities. <p>The DAI PMO also provides system integration services that include: acquisition/financial management, project management; blueprinting; design, build, and unit test; developing required Reports, Interfaces, Conversions, Extensions, Forms and Workflows (RICE-FW) objects; testing (cyber security/information assurance, integration, functional, performance, conversion, user acceptance, operational); end-user training (train the trainer/change management preparing the users for the cross functional skills and awareness needed to perform well with an integrated enterprise resource planning system); system deployment; conversion; information assurance; sustainment; data service; help desk support; as well as studies and analysis support.</p> <p>DLA Information Operations provides the program executive officer, program manager, and PMO staff. The DAI PMO relies on DLA Acquisition for most contracting. Defense Information Systems Agency (DISA) Defense Enterprise Computing Centers (DECCs) provide application, development and test as well as Continuity of Operations (COOP) hosting, Technical Contracting Office for development task orders, and the Joint Interoperability Test Command for Interoperability testing. The DAI PMO serves as systems integrator. Contracted subject matter experts configure COTS to provide compliant business processes.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / <i>Defense Agencies Initiative (DAI) - Financial System</i>	Project (Number/Name) 01 / <i>Defense Agencies Initiative - Financial System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Title: Defense Agencies Initiative (DAI) - Financial System</p> <p>FY 2019 Plans: In FY 2019, the DAI PMO will:</p> <ul style="list-style-type: none"> • Field DAI Increment 3 Rel 1 General Fund (GF) accounting to users at a large agency (over 5,722 users). • Development/Testing for DWCF and agency unique requirements and complete the study of 4th Estate common/core capabilities. • Study Agency unique requirements for DeCA. • Work instructions and training materials. • Conduct an independent operational assessment (OA) of DAI INC 3, REL 1. • Support the Financial Management (FM) & time/labor operations for over 45k users at over 23 Agencies, Field Activities and organizations. • Support the DoD RMF process to support actions included in the Designated Authorizing Authority required Plan of Actions and Milestones including an independent FISCAM Test of Design/Test of Effectiveness to result in a DAA decision to award an Authority to Operate. • Continue to implement the GRC capabilities by expanding Enterprise controls: Configuration, Access, Prevention & Transactions supporting audit findings, recommendations & CAPs. • Maintain the technical operation including: application of DISA Security Technical Implementation Guides, hardware & software currency for servers operating systems, middleware & applications including patches; overseeing internal processes within the DECC enclaves; & the daily operation of several interfaces with external systems leveraging DLA Transaction Services as well as established Federal Enterprise system web services. • Conduct regular adversarial assessments, RMF continuous monitoring including code scans, an independent Cyber Economic Vulnerability Assessment and a Cooperative Vulnerability and Penetration Assessment. • Obtain or maintain an interim Interoperability Certification or an Authority to Connect to the DoD Global Information Grid. • The Program will also perform developmental, operational and Cyber security testing with independent third parties under Office of the Secretary of Defense oversight. The Defense Logistics Agency will contract for an independent public accounting firm to conduct the annual FFMIA and SSAE 18 assessments and conduct Cyber security assessments on the system. <p>FY 2020 Plans: In FY 2020, the DAI PMO will:</p> <ul style="list-style-type: none"> • Field DAI Increment 3 Rel 2 DWCF accounting to users at a large agency (over 6k users). • Development/Testing for DWCF and agency unique requirements and complete the study of 4th Estate common/core capabilities. • Study Agency unique requirements for DeCA. • Work instructions and training materials. 	23.544	20.384	27.944

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / <i>Defense Agencies Initiative (DAI) - Financial System</i>	Project (Number/Name) 01 / <i>Defense Agencies Initiative - Financial System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> • Conduct an independent operational assessment (OA) of DAI INC 3, REL 12. • Support the Financial Management (FM) & time/labor operations for over 45k users at over 23 Agencies, Field Activities and organizations. • Support the DoD RMF process to support actions included in the Designated Authorizing Authority required Plan of Actions and Milestones including an independent FISCAM Test of Design/Test of Effectiveness to result in a DAA decision to award an Authority to Operate. • Continue to implement the GRC capabilities by expanding Enterprise controls: Configuration, Access, Prevention & Transactions supporting audit findings, recommendations & CAPs. • Maintain the technical operation including: application of DISA Security Technical Implementation Guides, hardware & software currency for servers operating systems, middleware & applications including patches; overseeing internal processes within the DECC enclaves; & the daily operation of several interfaces with external systems leveraging DLA Transaction Services as well as established Federal Enterprise system web services. • Conduct regular adversarial assessments, RMF continuous monitoring including code scans, an independent Cyber Economic Vulnerability Assessment and a Cooperative Vulnerability and Penetration Assessment. • Obtain or maintain an interim Interoperability Certification or an Authority to Connect to the DoD Global Information Grid. • The Program will also perform developmental, operational and Cyber security testing with independent third parties under Office of the Secretary of Defense oversight. The Defense Logistics Agency will contract for an independent public accounting firm to conduct the annual FFMIA and SSAE 18 assessments and conduct Cyber security assessments on the system. <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> FY 2020 development will complete developing DWCF accounting requirements, necessary to serve as core and meet DeCA requirements. . FY 2020 development will focus on Re-Sale Accounting and any necessary DeCA, Joint Chiefs of Staff (JCS) and National Defense University (NDU) integrations or objects. In FY 2020, DAI will also prepare to deploy to DeCA, JCS and NDU.</p>			
Accomplishments/Planned Programs Subtotals	23.544	20.384	27.944

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

N/A

Remarks

D. Acquisition Strategy

DAI is being developed and implemented using an evolutionary/incremental strategy including major annual software releases to accommodate upgrades as required by changes to the Department's BEA including new laws, regulations and policies as governed by its Functional Sponsor.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / <i>Defense Agencies Initiative (DAI) - Financial System</i>	Project (Number/Name) 01 / <i>Defense Agencies Initiative - Financial System</i>
<p>DAI Increments 1 and 2 are in sustainment. When Increment 3, Rel 1 went live in October 2018, it subsumed Increment 2; therefore, only one DAI production baseline exists at any point in time.</p> <p>E. Performance Metrics</p> <p>The following performance metrics will be performed on the DAI system:</p> <p>Functionality: Financial system performance. PEO will determine substantial compliance with the annual Investment Review of PMO assertion of compliance with the latest version of the Department's BEA in scope requirements for Defense Financial Management Improvement Guidance (DFMIG) and other laws regulations and policy. Objective: Substantial compliance.</p> <p>Program Conformance to BEA Processes, Data Standards, and Business Rules. The PEO will determine substantial compliance with the annual Investment Review of PMO assertion of compliance with the latest version of the Department's BEA. Objective: Substantial compliance.</p> <p>Net Ready Key Performance Parameter (NR-KPP)</p> <p>Attribute (Att) A - Support net-centric DoD military operations</p> <p>Mission: Transform the budget, finance, and accounting operations of the DoD Agencies to achieve accurate and reliable financial information in support of financial accountability and effective and efficient decision making throughout the Defense Agencies in support of the missions of the warfighter.</p> <p>A.1. Budget to Report (B2R). DAI provides General Ledger, Trial Balance, Budget Execution, and Financial Reporting Capabilities. DAI will measure the percentage of successful attempts to:</p> <ul style="list-style-type: none"> * Generate and transmit Trial Balance Reports. Objective-95%; * Receive budget information from agency-specific systems, to support budget execution. Objective-95%; and * Generate and transmit reports to support period end processing procedures. Objective-95%; * Budget formulation with role-based authorizations and visibility. Objective-95%; * Generate and transmit budget documents including projects and tasks for reporting and for execution (spend plan). Objective-95%; * Import actuals to budget module and perform/save simulations. Objective-95%; and * Import projects and tasks as well as retain prior year budget execution and revisions. Objective-95%. <p>A.2 Procure to Pay (P2P). DAI provides the capability to Order Materials and Services (Commitments), Record Purchases and Contract Information (Obligations) Pay Bills (Accounts Payable), and Create Ready to Pay File.</p> <p>DAI will measure the percentage of successful attempts to:</p> <ul style="list-style-type: none"> * Exchange contract, obligation, receipt and invoice information with external systems to support procurement processes. Objective-95%; * Receive Purchase Card information from external systems to manage government purchase cards (P-Cards). Objective-95%; * Exchange data across agencies to support intergovernmental Purchase Request (PR) processes. Objective-95%; * Receive travel related data from external systems to support travel financial accounting events. Objective-95%; and 		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / <i>Defense Agencies Initiative (DAI) - Financial System</i>	Project (Number/Name) 01 / <i>Defense Agencies Initiative - Financial System</i>
<p>* Exchange miscellaneous payment information with trading partners. Objective-95%.</p> <p>* Send Ready to Pay files to Treasury for payment and record returned Treasury payment information. Objective-95%.</p> <p>A.3. Order to Cash (O2C). DAI provides the capability to Receive Customer Orders, Record Work Performed on the orders, Bill Customers, and Track Accounts Receivable.</p> <p>DAI will measure the percentage of successful attempts to:</p> <ul style="list-style-type: none"> * Exchange data with external systems to support management of customer orders. Objective-95%; * Exchange receivables data with external systems. Objective-95%; and * Manage exchange collections data with external systems. Objective-95%. <p>A.4. Acquire to Retire (A2R). DAI provides the capability to record Asset Acquisition, Depreciation, and Disposal. DAI will measure the percentage of successful attempts to:</p> <ul style="list-style-type: none"> * Receive asset creation information from external systems. Objective-95%; * Accumulate and transmit costs incurred for Capital Assets on Construction in Progress (CIP) and Work in Progress (WIP) projects. Objective-95%; * Generate and transmit property accounting information. Objective-95%; * Receive property maintenance data from external systems. Objective-95%; and * Receive disposal of assets information from external systems. Objective-95%. * Send master data (cost center, projects and tasks) to external systems. * Record depreciation on the general ledger. <p>A.5. Cost Management (formerly Cost Accounting). DAI provides Cost Accounting and Allocation Capabilities.</p> <p>DAI will measure the percentage of successful attempts to:</p> <ul style="list-style-type: none"> * Receive Project Budgets from external systems. Objective-95%; and * Receive cost data to support cost collection processes. Objective-95%. <p>A. 6. Hire to Retire (H2R). DAI provides Civilian, Military, and Contractor Time and Labor capabilities. DAI will measure the percentage of successful attempts to:</p> <ul style="list-style-type: none"> * Exchange employee and timekeeping information with external systems. Objective-95%; * Process and send payroll data to external systems. Objective-95%; and * Automate leave request and authorizations integrated with timekeeping. Objective-95%. <p>A.7. Budget Formulation</p> <ul style="list-style-type: none"> * Store prior year budget execution data and any corresponding revisions. * Retrieve DWCF rate data to analyze and formulate the budget. * Store execution data for use with analyzing and formulating the budget. * Import projects and funds. * Support creation of required O&M or RDTE exhibits. * Formulate each agency fund/project budget. * Create a spend plan for each fund/project as needed. * Formulate a report on any spend plan as needed. * Formulate price based on rates and base amounts. 		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / <i>Defense Agencies Initiative (DAI) - Financial System</i>	Project (Number/Name) 01 / <i>Defense Agencies Initiative - Financial System</i>
<p>* Calculate average annual rate (if not overridden), FTEs and civilian pay costs forecasts.</p> <p>* Import data from DAI financials as needed.</p> <p>* Provide comparison of multiple budget formulation scenarios.</p> <p>* Source object class hierarchy into budget formulation module.</p> <p>* Control and restrict data set access by role and agency security needs.</p> <p>* Allow users to change data, add justification text or comment, tag data with appropriate RMDs, and add documents to specific budget line items.</p> <p>* Retrieve data to analyze, formulate and establish revolving fund rates.</p> <p>* Provide civilian pay data to support the labor cost portions of fund/project budgets.</p> <p>A.8. Absence Management</p> <p>* Support automated leave request generation.</p> <p>* Workflow approval including associated notifications for leave requests.</p> <p>* Generate leave reports for supervisors.</p> <p>A.9 Grants Financial Management Accounting</p> <p>* Create/modify a grant award/purchase order.</p> <p>* Receive a grant and post to general ledger (GL).</p> <p>* Record grant advances/collections to GL</p> <p>* Record grant disbursements to GL.</p> <p>* Automate funds availability for grants.</p> <p>* Update budget execution data from grants transactions.</p> <p>A.10. Direct Treasury Disbursing</p> <p>* Post ready to pay files</p> <p>NR-KPP Att B - Managed in the Network</p> <p>1) Type of Networks that are connected:</p> <ul style="list-style-type: none"> - The DAI application supports multiple Defense Agencies, and thus is accessible from multiple network points. A typical user accesses the application via the web browser from his/her agency specific LAN/WAN and/or local site firewall configurations, traversing through the Non-Classified Internet Protocol Routing Network (NIPRNet) to reach the secure DAI application hosted within the DoD Demilitarized Zone (DMZ) which is controlled and managed by DISA. - The DAI production application is hosted in a DISA DECC environment located in Ogden, UT and is managed by DAI Program Management Office <p>2) Measures of Performance (MOPs) to measure network entrance and management performance:</p> <p>a) Network related (DISA) – as per DISA Catalog of Services</p> <ul style="list-style-type: none"> -Interactive Availability - Portion of network/system controlled by DISA CSD available to the partner during the interactive window -Batch Throughput – Completion rate and delivery by specified time during batch window specified in SLA <p>b) Database related (DAI Program Management Office)</p> <ul style="list-style-type: none"> -System Availability -On Line user system response 		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / <i>Defense Agencies Initiative (DAI) - Financial System</i>	Project (Number/Name) 01 / <i>Defense Agencies Initiative - Financial System</i>
<p>3) Network Management: -The Agency (user) being supported is responsible for the communications infrastructure necessary for leaving their location to connect users to the NIPRNet -DISA is responsible for communications on NIPRNet between the end user and the main DAI environment -DAI Program Management Office is responsible for activities occurring within the application and the Oracle Database</p> <p>4) Systems Management -NIPRNet and Infrastructure - Centralized within DISA CSD -DAI System – centralized within DAI Program Management Office</p> <p>5) Network Configuration Parameters – N/A (within the realm of DISA management) DAI will measure the percentage of success for: * Supports secure Internet/NIPRNET access to solution. Interactive Availability. Objective-98.5%; * Supports secure Internet/NIPRNET access to solution. Batch Throughput. Objective-95%; * Provides adequate system response and availability to support operations. System Availability. (Condition: 5000 users/hour) Objective-95%; and * Provides adequate system response and availability to support operations. On-line system response. (Condition: 5000 users/hour) Objective-95%.</p> <p>NR-KPP Att C - Effectively Exchange Information. DAI will satisfy all top-level critical Information Exchange Requirements (IERs) with all required DoD Enterprise, DFAS, Defense Agencies, and Federal Systems, as documented in SV-6. There are 47 data exchanges with other systems. The objectives are 100% for accuracy and ten seconds to 1 day for timeliness. Additional details available upon request.</p> <p>Major Performers:</p> <p>CACI Enterprise Solutions, Inc. Chantilly, VA Global Model Implementation and Compliance Support to DAI</p> <p>CACI Enterprise Solutions, Inc. Chantilly, VA DAI Implementation Support Services</p> <p>CACI Enterprise Solutions, Inc. Chantilly, VA Infrastructure Support</p> <p>International Business Machines Corporation (IBM) Reston, VA DAI Global Model Development for Procure to Pay (P2P), Order to Cash (O2C), Budget to</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / <i>Defense Agencies Initiative (DAI) - Financial System</i>	Project (Number/Name) 01 / <i>Defense Agencies Initiative - Financial System</i>
Retire (B2R), and Customer Application Development (CAD) CACI Inc Federal Chantilly, VA DAI Global Model Development for Acquire to Retire (A2R), Cost Accounting (CA), and Time and Labor (T&L) Mythics, Inc DBA Virginia Beach, VA Oracle CLM and Purchase Software		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / Defense Agencies Initiative (DAI) - Financial System	Project (Number/Name) 01 / Defense Agencies Initiative - Financial System
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DAI Compliance Support	Option/CPFF	CACI Inc Federal : Chantilly, VA	25.683	5.597	Jun 2018	0.000		5.854	Jun 2020	-		5.854	0.000	37.134	0.000
DAI Compliance Support Follow-on	C/TBD	TBD : TBD	0.000	0.000		5.911	Jun 2019	0.000		-		0.000	Continuing	Continuing	Continuing
DAI Implementation Support	Option/CPAF	CACI Inc Federal : Chantilly, VA	22.251	6.151	Mar 2018	0.000		6.026	Mar 2020	-		6.026	0.000	34.428	0.000
DAI Implementation Support Follow-on	C/TBD	TBD : TBD	0.000	0.000		6.336	Mar 2019	0.000		-		0.000	Continuing	Continuing	Continuing
DAI Infrastructure Support	Option/FFP	CACI ISS Inc : Fairfax, VA	11.655	2.821	May 2018	0.000		4.500	May 2020	-		4.500	0.000	18.976	0.000
DAI Infrastructure Support Follow-on	C/TBD	TBD : TBD	0.000	0.000		1.985	May 2019	0.000		-		0.000	Continuing	Continuing	Continuing
Global Model P2P Follow-on	C/TBD	TBD : TBD	0.000	3.418	Aug 2018	0.000		3.908	Aug 2020	-		3.908	Continuing	Continuing	Continuing
Global Model A2R Follow-on	C/TBD	TBD : TBD	0.000	2.333	Apr 2018	2.403	Apr 2019	2.842	Apr 2020	-		2.842	Continuing	Continuing	Continuing
Requirements Management (RM) Support	MIPR	DISA : Fort Meade, MD	0.876	0.237	Oct 2018	0.159	Oct 2019	0.262	Oct 2020	-		0.262	Continuing	Continuing	Continuing
DCPDS/DAI Interface File Changes	MIPR	DLA Finance : Fort Belvoir, VA	0.014	0.013	Feb 2018	0.010	Feb 2019	0.008	Feb 2020	-		0.008	Continuing	Continuing	Continuing
Prior Year Contracts	Option/Various	MULTI : MULTI	54.057	-		-		-		-		-	0.000	54.057	54.057
Subtotal			114.536	20.570		16.804		23.400		-		23.400	Continuing	Continuing	N/A

Remarks
 Prior Year Contracts include: Global Model P2P C/FFP IBM: Bethesda, MD \$21.927 million; Global Model A2R C/CPFF CACI Inc Federal: Chantilly, VA \$10.146 million; DAI Data Conversion Support Option/FFP Terathink: Reston, VA \$2.857 million; Oracle Time & Labor Software License and Maintenance C/FP Mythics, Inc: Virginia Beach, VA \$1.020 million; Global Model CAD C/CPFF CSC: Falls Church, VA \$3.205 million; Jaws Professional Licenses C/FFP Immix: McLean, VA \$0.017 million; Oracle Advanced Compression Licenses \$1.622 million; Oracle Contract Lifecycle Management Licenses C/FFP Mythics Inc: Virginia Beach, VA \$7.408 million; Oracle Licenses MIPR DISA: Pensacola, FL \$5.446 million; Kurzweil 5000 508 Assistive Tech Licenses C/FFP Envision Technology Inc: Bethesda, MD \$0.008 million; Dragon Naturally Speaking 508 C/FFP Red River Computer Co: Claremont, NH \$0.007 million; DISA/DITCO Delinquent Balance MIPR DISA DITCO: Scott AFB, IL \$0.017 million; and DBTA Section 1553 MIPR DFAS:Columbus, OH \$0.377 million.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / Defense Agencies Initiative (DAI) - Financial System	Project (Number/Name) 01 / Defense Agencies Initiative - Financial System
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Estimated SBIR/STTR:	TBD	TBD : TBD	1.112	0.892	May 2018	0.785	Jun 2019	0.864	Jun 2020	-		0.864	Continuing	Continuing	Continuing
Subtotal			1.112	0.892		0.785		0.864		-		0.864	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DISA Hosting: Test and Development	MIPR	DISA : Pensacola, FL	12.938	-		0.894	Oct 2018	2.245	Oct 2019	-		2.245	Continuing	Continuing	Continuing
Interoperability	MIPR	JITC : Fort Meade, MD	3.407	0.281	May 2018	0.290	May 2019	0.222	May 2020	-		0.222	Continuing	Continuing	Continuing
Performance and Regression Testing	MIPR	JITC : Fort Huachuca, AZ	2.646	0.721	Oct 2017	0.600	Oct 2018	0.313	Oct 2019	-		0.313	Continuing	Continuing	Continuing
Operational Test and Evaluation	MIPR	JITC : Fort Huachuca, AZ	2.749	0.982	Dec 2017	1.011	Dec 2018	0.800	Dec 2019	-		0.800	Continuing	Continuing	Continuing
DCPS Testing	MIPR	DFAS : Indianapolis, IN	0.131	0.098	Oct 2017	0.000	Oct 2018	0.100	Oct 2019	-		0.100	Continuing	Continuing	Continuing
Subtotal			21.871	2.082		2.795		3.680		-		3.680	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		137.519	23.544	20.384	27.944	-	Continuing	Continuing	N/A

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605080S / <i>Defense Agencies Initiative (DAI) - Financial System</i>	Project (Number/Name) 01 / <i>Defense Agencies Initiative - Financial System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Defense Agencies Initiative (DAI)</i>				
Defense Agencies Initiative (DAI)	1	2011	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605090S / <i>Defense Retired and Annuitant Pay System (DRAS)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	32.583	12.983	10.339	6.609	-	6.609	1.763	1.800	1.833	1.872	Continuing	Continuing
01: <i>Defense Retired and Annuitant Pay System (DRAS)</i>	32.583	12.983	10.339	6.609	-	6.609	1.763	1.800	1.833	1.872	Continuing	Continuing

A. Mission Description and Budget Item Justification

Defense Retired and Annuitant Pay System 2 (DRAS2) replaces the Defense Retiree and Annuitant Pay System (DRAS) and selected manual processes with proven state of the market technology under program element 50605070S00. DRAS2 will streamline processes and provide auditable, sustainable and flexible retiree and annuitant pay capability to meet user's needs.

B. Program Change Summary (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	13.475	10.731	6.609	-	6.609
Current President's Budget	12.983	10.339	6.609	-	6.609
Total Adjustments	-0.492	-0.392	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.492	-0.392			

Change Summary Explanation

The Small Business Innovation Research and Small Technology Transfer Research taxes were \$0.492 million and \$0.392 million in FY2018 and FY2019 respectively.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605090S / <i>Defense Retired and Annuitant Pay System (DRAS)</i>	Project (Number/Name) 01 / <i>Defense Retired and Annuitant Pay System (DRAS)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
01: <i>Defense Retired and Annuitant Pay System (DRAS)</i>	32.583	12.983	10.339	6.609	-	6.609	1.763	1.800	1.833	1.872	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The primary objective of DRAS 2 is to establish and maintain a modernized retired military pay accounts. DRAS2 replaces the Defense Retiree and Annuitant Pay System (DRAS) and selected manual processes with proven state of the market technology under program element 50605070S00. This modernization will allow for the consolidation of disparate DRAS systems and business processes, the reduction of system redundancies and inefficiencies, and increased customer satisfaction.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Defense Retired and Annuitant Pay System (DRAS) 2	12.983	10.339	6.609
FY 2019 Plans: DRAS2 will complete development in FY2020 versus FY2019 as previously planned then enter formal testing the same year. This change represents a three (3) month delay.			
DRAS2 was approved as an NDAA 2018, Sec 873 Agile Pilot program in FY2019 as a measure to reduce technical risk.			
FY 2020 Plans: DRAS2 formal testing will begin in early FY2020 and is scheduled to conclude in early FY2021. Data migration to begin from the legacy DRAS to the new DRAS2 system. DRAS2 anticipates that the additional data migration may extend the schedule.			
FY 2019 to FY 2020 Increase/Decrease Statement: DRAS2 requirements will increase in FY2019 and FY2020 to accommodate data migration requirements.			
Accomplishments/Planned Programs Subtotals			6.609

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

N/A

Remarks

D. Acquisition Strategy

DRAS2 achieved Milestone B in August 2016 and entered into the Engineering, Development, and Production Phase of the Acquisition Lifecycle. DRAS2 achieved a successful Critical Design Review in December 2017 and is now in System Development. DRAS2 has been Accepted for the Agile Pilot sec. 873 program by OSD and has successfully begun Agile development.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605090S / <i>Defense Retired and Annuitant Pay System (DRAS)</i>	Project (Number/Name) 01 / <i>Defense Retired and Annuitant Pay System (DRAS)</i>

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605090S / Defense Retired and Annuitant Pay System (DRAS)	Project (Number/Name) 01 / Defense Retired and Annuitant Pay System (DRAS)
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DRAS2 System Development and Integration	Option/IDIQ	CSRA : Chantilly, VA	13.096	10.314	Jan 2018	4.505	Oct 2018	3.664	Oct 2019	0.000		3.664	Continuing	Continuing	Continuing
DRAS2 COTS License Purchase	Option/IDIQ	CSRA/Oracle : To be Determined	14.029	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	14.110
DISA Hosting	MIPR	Virtual Operating Environment : Mechanicsburg, PA	1.053	0.716	Jan 2018	0.000	Jan 2019	0.000		0.000		0.000	Continuing	Continuing	2.590
Transaction Services Interface Design	Option/IDIQ	Northrop Grumman DLA Transaction Services : Chambersburg, PA	3.750	0.452	Nov 2017	0.000		0.000		0.000		0.000	Continuing	Continuing	4.162
Transaction Services Interface Development & Testing	Option/IDDQ	Northrop Grumman DLA Transaction Services : Chambersburg, PA	0.655	0.699	Jul 2018	0.720	Jul 2019	0.436	Jul 2020	0.000		0.436	Continuing	Continuing	1.910
DRAS2 System Development & Integration	Option/IDIQ	CSRA : Chantilly, VA	0.000	0.802	May 2018	2.162	Feb 2019	0.000	Feb 2020	0.000		0.000	Continuing	Continuing	6.643
Interoperability Testing	MIPR	Joint Interoperability Test Command (JITC) : Fort Meade, MD	0.000	0.000		1.542	Oct 2018	1.313	Oct 2019	0.000		1.313	Continuing	Continuing	1.900
Training Effort	C/TBD	To be determined : To be determined	0.000	0.000		1.410	Jun 2019	1.196	Jun 2020	-		1.196	Continuing	Continuing	2.196
Subtotal			32.583	12.983		10.339		6.609		0.000		6.609	Continuing	Continuing	N/A

Remarks

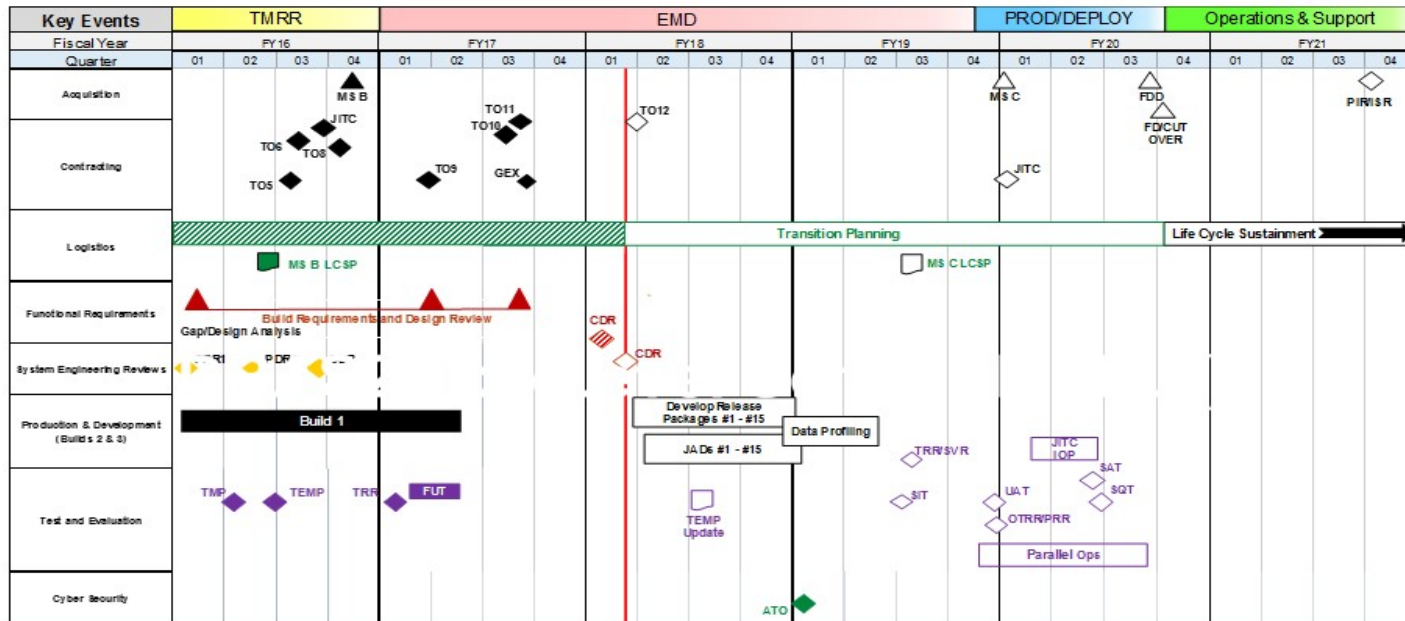
DRAS2 is planning for a separate Training effort, allowing for concurrent efforts to be focused on Development, Testing, and Training.

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	32.583	12.983	10.339	6.609	0.000	6.609	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605090S / Defense Retired and Annuitant Pay System (DRAS)	Project (Number/Name) 01 / Defense Retired and Annuitant Pay System (DRAS)

DRAS2 Top Level Schedule (TLS)



Note: The IMS is currently being mitigated for PM approval based on DLA Contracts Office guidance pertaining to IDIQ contract limitations during FY19 & FY20. Milestone C and Full Deployment dates reflected are tentative.

- △ Milestone Decision
 - ◇ Decision Point
 - ◆ Completed
 - Task Timeline (Planned)
 - ▨ Partial Progress Indicator
 - Document Review
- MS B – Milestone B MS C – Milestone C FD – Full Deployment IATT – Interim Authority To Test ATO/ATC – Authority To Operate/Authority to Connect TMRR – Technology Maturation and Risk Reduction EMD - Engineering and Manufacturing Development PROD/DEPLOY – Production and Deployment Development SI – System Integrator TO – Task Order SRR – System Requirements Review SFR – System Functional Review PDR – Preliminary Design Review CDR – Critical Design Review - T-PDR Tailored Preliminary Design Review - T-CDR Tailored Critical Design Review (Build 1 – 3) OTRR – Operational Test Readiness Review PRR – Production Readiness Review ISR – In Service Review SEP – System Engineering Plan TMP – Test Management Plan TEMP – Test & Evaluation Master Plan SAT – System Acceptance Testing SIT – System Integration Testing TRR – Technology Readiness Review SVR – System Verification Review SQT - System Qualification Testing UAT – User Acceptance Testing – DTE – Developmental Test & Evaluation. (SwQT) – Software Quality Testing – Regression, System Integration, Compliance and Functional User Testing) - JITC – Joint Interoperability Test Command Proto CRP – Prototype Conference Room Pilot 2, 4, 6

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6:</i> <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605502S / <i>Small Business Innovative Research (SBIR)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	27.597	11.631	10.454	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
SBIR: <i>Small Business Innovative Research</i>	27.597	11.631	10.454	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Defense Logistics Agency's (DLA's) ability to deliver Americans the right logistics solution in every transaction requires more than successful management of the Agency's wholesale supplies and suppliers. It requires supply chain excellence. Our military's ability to generate and sustain combat readiness indefinitely, anywhere on the globe requires that DLA-managed materiel flow seamlessly and as needed from the nation's industrial base to where it is ultimately used.

DLA's Small Business Innovative Research (SBIR) program seeks to solicit innovative research and development proposals from the small business community to address DLA's strategic and operational requirements. All selections shall demonstrate and involve some technical risk with yet to be determined technical feasibility. Phase I proposals should demonstrate the feasibility of the proposed technology and provide a strong business case for Phase II investment for a prototype or at least a proof-of-concept demonstration. A favorable return on investment and commercialization potential have a strong influence on Phase II selections.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	11.631	10.454	0.000	-	0.000
Total Adjustments	11.631	10.454	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	11.631	10.454			

Change Summary Explanation

FY2018 and FY2019 Small Business Innovation Research (SBIR) and Small Technology Transfer (STTR) taxes for DLA programs establish the baseline for this program element. DLA SBIR/STTR taxes include \$3.695 million and \$4.449 million in FY2018 and FY2019 respectively. In addition, Defense Microelectronics Agency (DMEA) funds include \$7.936 million and \$6.005 million for FY2018 and FY2019 respectively.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605502S / <i>Small Business Innovative Research (SBIR)</i>				Project (Number/Name) SBIR / <i>Small Business Innovative Research</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
SBIR: <i>Small Business Innovative Research</i>	27.597	11.631	10.454	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 explores innovative concepts pursuant to Public Law 106-554 (Small Business Reauthorization Act of 2000) and Public Law 107-50 (Small Business Technology Transfer Program Reauthorization Act of 2001), which mandates a two-phase competition for small businesses with innovative technologies with a defense application as well as a commercial value. The SBIR and Small Business Technology Transfer (STTR) programs will develop new dual-use technologies for possible future DLA operational and sustainment requirements. Dual-use means the technologies will be judged on their potential for future private sector investment both as a vehicle for reducing development time and cost, unit costs of new DLA technologies, and as a route to national economic growth through new commercial products. DLA will conduct the competition as well as award and manage the contracts.

The DLA's SBIR/STTR investments are divided into multiple Research Areas identified from within several DLA Elements:

J6 R&D

- Nuclear Enterprise Support Office (NESO) Alternative Sources of Supply
- Additive Manufacturing Technologies, Process Controls, and Supply Chain
- Advanced Battery Manufacturing
- Advanced Aircraft Braking Systems
- Anti-Counterfeiting Technologies
- Medical 3D Printing of Prosthetics
- Seamless Self Sealing Fuel Bladders and Inflatables
- Strategic Materials Rare Earth Element Source Development
- Warehouse Modernization Technologies
- Subsistence Supply Chain Solutions
- Land & Maritime (L&M) Alternative Sources of Supply
- US Navy LCAC Power Supply Source Development
- US Air Force F-107 Engine Replacement Parts Source Development

DMEA

- Advanced microelectronics concepts, technologies, and applications

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502S / <i>Small Business Innovative Research (SBIR)</i>	Project (Number/Name) SBIR / <i>Small Business Innovative Research</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Title: SBIR Accomplishments/Plans</p> <p>FY 2019 Plans: DLA SBIR/STTR: Continue execution of all active Phase I and Phase II SBIR/STTR Projects. Work with other R&D Programs and other divisions within DLA to identify requirements that meet DLA's long and short term Strategic Objectives. Provide adequate guidance and mentorship to Phase II to projects to increase the likelihood of transition into government programs of record or commercial ventures.</p> <p>DMEA SBIR/STTR: DMEA will continue to seek innovative technical solutions to DoD microelectronics research and development needs and increase private-sector commercialization of these innovations.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: SBIR and STTR tax amounts are based on enacted budgets so FY2020 amounts have not been established.</p>	11.631	10.454	-
Accomplishments/Planned Programs Subtotals	11.631	10.454	-

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

Remarks
N/A

D. Acquisition Strategy
The SBIR acquisition process seeks to match projects with DLA's Strategic Focus Areas. The goal is to align SBIR/STTR developed technology with current and future DLA requirements. DLA solicits all new project execution work through the DoD SBIR Broad Agency Announcement (BAA). There are three separate solicitation periods throughout each year. (Jan-Feb, May-Jun, and Sep-Oct)

E. Performance Metrics
SBIR /STTR programs measure performance in two separate metrics:

1. Phase Progression: In terms of progression from Phase I to Phase II to Phase III, DLA deems each successive progression success. DLA seeks to have a 30% progression from one Phase to the next as a minimum.
2. Commercialization: The Congressional language defines "Commercialization," which is clarified by the Office of Secretary of Defense Office of Small Business Programs (OSD/OSBP) Re-Authorization Policy Directive:
- (Investment) The process of developing products, processes, technologies, or services; and/or

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502S / <i>Small Business Innovative Research (SBIR)</i>	Project (Number/Name) SBIR / <i>Small Business Innovative Research</i>

- (Sales) The production and delivery (whether by the originating party or by others) of products, processes, technologies, or services for sale to or use by the Federal Government or commercial markets

The Small Business Administration and OSD/OSBP assign a Commercialization Index based on progression within the Phases and reported successes.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0606942S / <i>Cyber Vulnerability Assessment and Mitigation</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	3.854	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.854
CVAM: <i>Cyber Vulnerability Assessment and Mitigation</i>	0.000	0.000	3.854	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.854

A. Mission Description and Budget Item Justification

In section 1650 of Public Law 114-328, the National Defense Authorization Act (NDAA) for FY2017, the Congress mandated that the Department of Defense (DoD) conduct cyber vulnerability evaluations of critical military installations by December 31, 2019. The funding provided is for critical infrastructure assessments and mitigations. The Cyber Vulnerability Assessment and Mitigation program continues the cyber hardening of critical infrastructure for the Defense Logistics Agency (DLA) Fuel Distribution by conducting cyber vulnerability assessments of current fuel distribution infrastructures.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	4.000	0.000	-	0.000
Current President's Budget	0.000	3.854	0.000	-	0.000
Total Adjustments	0.000	-0.146	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-0.146			

Change Summary Explanation

This is a new PE in FY 2019. This is a continuation of efforts funded within the management support for the Office of the Secretary of Defense PE 0604942D8Z Assessments and Evaluation. IN FY2019, the Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$0.146 million.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0606942S / <i>Cyber Vulnerability Assessment and Mitigation</i>	Project (Number/Name) CVAM / <i>Cyber Vulnerability Assessment and Mitigation</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
<i>CVAM: Cyber Vulnerability Assessment and Mitigation</i>	0.000	0.000	3.854	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.854
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

In section 1650 of Public Law 114-328, the National Defense Authorization Act (NDAA) for FY2017, the Congress mandated that the Department of Defense (DoD) conduct cyber vulnerability evaluations of critical military installations by December 31, 2019. The funding provided is for critical infrastructure assessments and mitigations. The Cyber Vulnerability Assessment and Mitigation program continues the cyber hardening of critical infrastructure for the Defense Logistics Agency (DLA) Fuel Distribution by conducting cyber vulnerability assessments of current fuel distribution infrastructures.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Cyber Vulnerability Assessment and Mitigation	-	3.854	-
FY 2019 Plans: Conduct cyber vulnerability assessments and mitigation on existing DLA Fuel Distribution Infrastructure.			
FY 2019 to FY 2020 Increase/Decrease Statement: Program is established within DLA's RDT&E portfolio in FY2019.			
Accomplishments/Planned Programs Subtotals	-	3.854	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Vulnerabilities that are discovered through fuel distribution infrastructure assessments will have corrective action plans (CAPs) drawn up and mitigation efforts to close gaps will be initiated. 20% of CAPs will be closed within 1 year of discovery.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0708012S / <i>Pacific Disaster Center</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	7.493	1.705	1.705	1.770	-	1.770	1.785	1.821	1.856	1.889	Continuing	Continuing
03: <i>Pacific Disaster Center</i>	7.493	1.705	1.705	1.770	0.000	1.770	1.785	1.821	1.856	1.889	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Pacific Disaster Center (PDC) has been in operation since February 1996. The PDC is a public/private partnership managed by the University of Hawaii (UH) under a cooperative agreement with the Department of Defense. It is functionally within the organization of the Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics) (OUSD(AT&L)) and the Defense Logistics Agency (DLA). The PDC is a world-recognized authority and leader in science and information technology applications relating to humanitarian assistance and disaster relief (HA/DR). PDC develops new and innovative technologies to operate an (unclassified) integrated multi-hazard hazard monitoring, early warning and decision support system, called RAPIDS, for the department.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	1.770	1.770	1.770	-	1.770
Current President's Budget	1.705	1.705	1.770	-	1.770
Total Adjustments	-0.065	-0.065	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.065	-0.065			

Change Summary Explanation

FY2018 and FY2019, the Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$0.065 million.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0708012S / <i>Pacific Disaster Center</i>				Project (Number/Name) 03 / <i>Pacific Disaster Center</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
03: <i>Pacific Disaster Center</i>	7.493	1.705	1.705	1.770	0.000	1.770	1.785	1.821	1.856	1.889	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Pacific Disaster Center (PDC) has been in operation since February 1996. The PDC is a public/private partnership managed by the University of Hawaii (UH) under a cooperative agreement with the Department of Defense. It is functionally within the organization of the OUSD(AT&L) and the DLA. The PDC is a world-recognized authority and leader in science and information technology applications relating to Humanitarian Assistance and Disaster Relief (HA/DR). It has developed innovative technologies, and has provided operational support for an (unclassified) integrated multi-hazard hazard monitoring, early warning and decision support system, called RAPIDS, for the department since 2007. The system, covering global hazard is frequently used by COCOMS, particularly PACOM and SOUTHCOM, for HA/DR missions and exercises, and was recently selected as one of the most effective systems in a position paper by the department, reviewing all unclassified information sharing systems. "Expanded use of RAPIDS across the DoD at the Combatant Commands, Joint Task Force, and by deployed units from the services" was identified as "a primary Joint Staff objective" in a memorandum dated July 6, 2017.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Pacific Disaster Center (PDC)	1.705	1.705	1.770
Description: 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. The USD(P) will continue to be the Operational Sponsor and functional OSD Principal Staff Assistant (PSA) for the program. USD(AT&L) will provide acquisition oversight authority for the program.			
The PDC has been in operation since February 1996. The PDC is a public/private partnership managed by the University of Hawaii (UH) under a cooperative agreement with the Department of Defense. The Pacific Disaster Center (PDC) function, manpower, and budget resources transferred to the Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics) (OUSD(AT&L)) and the Defense Logistics Agency (DLA) in October 2011.			
The USD(P) will continue to be the Operational Sponsor and functional OSD Principal Staff Assistant (PSA) for the program. The PDC is a world-recognized authority and leader in science and information technology applications relating to humanitarian assistance and disaster relief (HA/DR). PDC's applications and information products enhance preparedness, situational awareness, and civil-military communications for humanitarian missions worldwide, while its national-level socio-economic Risk and Vulnerability Assessments help inform strategies by measuring indicators for national resiliency using scientific methods.			
The PDC Program Office's (USD(P), ASD(HD&GS), and DASD(DC&MA)) primary responsibility is for management and stewardship of governmental funds provided in Defense Department appropriations for DoD missions associated with DoD CrM, HA/DR, Theater Security Cooperation, and Defense Support to Civil Authorities (DSCA). In doing this, the Program Office			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency	Date: March 2019
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Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0708012S / <i>Pacific Disaster Center</i>	Project (Number/Name) 03 / <i>Pacific Disaster Center</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>develops and provides policy, oversight and guidance, and jointly develops strategic guidelines, programmatic content and priorities with the UH and PDC. The PDC Program Office also serves as a support element of the Hawaii-based organization especially in the area of gaining Federal agency support and resources, as well as business opportunities.</p> <p><i>FY 2019 Plans:</i> Risk and Vulnerability Assessment • Collaborate with regional Combatant Commands (e.g., SOUTHCOM, PACOM, etc.) to integrate and visualize subnational RVA data into RAPIDS • Improve sub-national analytical reporting/visualization and automated assessment capabilities</p> <p>Data • Explore new technologies for handling “big data” • Improve analytical capabilities using “big data”, including use of social media for early detection of man-made hazards • Continue development of data sources for hazards and related observational data TBD</p> <p>Modeling • Integrate Global Exposure Model for high-resolution “impact and exposure” analytical reporting • Continue enhancing application of hazard models to estimate initial needs for HA/DR support missions</p> <p>Application • Expand use and visualization of “big data”, supporting higher-resolution baseline inventories • Improve cross-device user experience (e.g., desktop, mobile tablets, smart phones, wearables, etc.) • Integrate mass (alert) notification functions • Continue evaluating new and innovative technologies for enhancing user experience (for RAPIDS)</p> <p><i>FY 2020 Plans:</i> Continue FY2019 operations.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> No significant change.</p>			
Accomplishments/Planned Programs Subtotals	1.705	1.705	1.770

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

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency Date: March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0708012S / Pacific Disaster Center	Project (Number/Name) 03 / Pacific Disaster Center
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D. Acquisition Strategy

PDC projects beyond the baseline Situational Awareness & Decision Support Applications/Tools architecture (Atlas/EMOPS/RAPIDS) undertaken in support of the DoD Cooperative Agreement (CA) with the University of Hawaii (UH) are from PDC customers (e.g., DoD, NGOs, other nations, academia, and industry). The PDC prepares the public, disaster managers, governments, and others to mitigate the effects of disasters. The goal is to have people and technology work together to preserve life, safeguard livelihoods, protect property to foster disaster-resilient communicates. Projects obtained and funded from this customer base serve as a means to determine PDC product and services relevancy.

E. Performance Metrics

Projects objectives and tasks are designed to build upon the previous year's successes and are consistent with the framework and direction provided by the Strategies 2016-2020 document (updated Nov 2016). At the beginning of each calendar year, an Annual Plan is in-place to guide the program and enable a framework for performance feedback to the DoD PDC Program Manager, the PDC Executive Director, WHS CA Contracting Office, and the UH. At the end of each calendar year, these stakeholders meet to review the past year performance and finalize a new Annual Plan for the next calendar year. This plan details a set of specific objectives to further capabilities and capacities supporting the PDC's mission and increasing operational value to the stakeholders.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0708012S / <i>Pacific Disaster Center</i>	Project (Number/Name) 03 / <i>Pacific Disaster Center</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>PDC</i>																												
PDC																												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0708047S / <i>Defense Property Accountability System (DPAS)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	2.075	2.817	1.739	3.679	-	3.679	3.489	3.096	3.152	3.219	Continuing	Continuing
ABC: <i>DPAS</i>	2.075	2.817	1.739	3.679	0.000	3.679	3.489	3.096	3.152	3.219	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Property Accountability System (DPAS) provides the Department an accountability system which is fully compliant with financial reporting regulations and has a clean audit history. With an integrated accountability, utilization, maintenance, and warehouse capability, it is able to provide the Department an enterprise solution for asset management.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	2.924	1.805	3.679	-	3.679
Current President's Budget	2.817	1.739	3.679	-	3.679
Total Adjustments	-0.107	-0.066	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.107	-0.066			

Change Summary Explanation

The Small Business Innovation Research and Small Technology Transfer Research taxes for FY2018 and FY2019 were \$0.107 million and \$0.066 million respectively.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0708047S / <i>Defense Property Accountability System (DPAS)</i>	Project (Number/Name) ABC / DPAS
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
ABC: DPAS	2.075	2.817	1.739	3.679	0.000	3.679	3.489	3.096	3.152	3.219	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The DPAS system provides accountability and management functionality, of General Equipment, Real Property and Internal Use Software, to the Department. The budgeted projects will provide enhancements to the existing capability, ensure efficient operability, and provide solutions for process gaps as they are discovered. The greater enhancements to DPAS allow the DoD to sunset legacy systems; DPAS assimilates the legacy functionality into the overall operations.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Release DPAS v 7	2.817	1.739	-
<p>Description: DPAS will create processes to permit the creation of Allowance Standards and compute Unit Requisition lists based on Allowances versus On Hand Balances and improve the identification of Assets Due In by creating an interface with Electronic Document Access to retrieve Contract CLINS, Quantities and Costs.</p> <p>FY 2019 Plans: DPAS will create processes to support the Air Force Allowance Standard processes. This will entail master tables to maintain standardized data elements, program names, Unit Type, Unit Identification and several others. Using these master table settings the user will then be able to create Allowance Standards for each Program and Unit Type. Processes will be created for the Units to identify additional parameters that will then combine the Allowance Standards and these user parameters to generate the Units Authorized Quantity Levels. The final process will use the DoD Standard methodology of identifying priorities to compare the On Hand Balances to the Authorized Quantities and produce Requisitioning Lists for the units to fulfill their asset requirements.</p> <p>DPAS will retrieve Contract Numbers, CLINS, Quantity and Price from Electronic Document Access to create Due In/Pending transactions in DPAS to provide the Property Management Personnel oversight of assets expected for delivery. These transactions will match to IRAPT transactions as the assets are shipped/received.</p> <p>DPAS will continue to provide support for the Financial Audit. The Department will have completed the first full audit and have findings that must be addressed. DPAS will work with each Service or Agency to determine the areas that DPAS can increase capability to permit the findings to be closed. At this time it is difficult to specifically state what these capabilities may be but DPAS is used by all components of the Department so there are sure to be areas that DPAS can implement capabilities to permit the Components to address the findings</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Logistics Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0708047S / <i>Defense Property Accountability System (DPAS)</i>	Project (Number/Name) ABC / DPAS

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
DPAS v7 release will be completed in FY2019. In FY2020, DPAS v8 development will begin resulting in an increase from FY2019 to FY2020.			
<p>Title: DPAS v 8 Development</p> <p>Description: Version 8 will contain the processes to produce accounting transactions for equipment assets from the warehouse portion of the system, to mirror the processes in the current Property Accountability. The processes to support the Army to field assets from the Program Executive Offices to their field units will also be in this version.</p> <p>FY 2020 Plans: The creation of interfaces for additional Army systems to report all Maintenance Actions, request of new National Stock Numbers and the Logistics Product Data Store.</p> <p>DPAS will continue to provide support for the Financial Audit. DPAS will work with each Service or Agency to determine the areas that DPAS can increase capability to permit the findings to be closed. At this time it is difficult to specifically state what these capabilities may be but DPAS is used by all components of the Department so there are sure to be areas that DPAS can implement capabilities to permit the Components to address the findings.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: In FY2020, development will begin resulting in an increase from FY2019 to FY2020.</p>	-	-	3.679
Accomplishments/Planned Programs Subtotals	2.817	1.739	3.679

<p>C. Other Program Funding Summary (\$ in Millions) N/A</p> <p>Remarks</p> <p>D. Acquisition Strategy N/A</p> <p>E. Performance Metrics DPAS successfully and timely adds functionality based on user requirements to meet the Department's audit readiness and property accountability requirements.</p>
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Logistics Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0708047S / Defense Property Accountability System (DPAS)	Project (Number/Name) ABC / DPAS
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DPAS Version 7 Development	C/CPIF	Leidos Inc : Camp Hill PA	2.075	2.817	Jun 2018	1.739	Jun 2019	0.000		0.000		0.000	0.000	6.631	6.631
DPAS Version 8 Development	C/FFP	Contractor TBD : TBD	0.000	0.000		0.000		3.679	Jun 2020	0.000		3.679	Continuing	Continuing	N/A
Subtotal			2.075	2.817		1.739		3.679		0.000		3.679	Continuing	Continuing	N/A

Remarks
Funding was reduced by 1.142M in FY2019 and increased by half the amount of the decrease in FY2020.

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.075	2.817	1.739	3.679	0.000	3.679	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Logistics Agency															Date: March 2019				
Appropriation/Budget Activity 0400 / 7										R-1 Program Element (Number/Name) PE 0708047S / Defense Property Accountability System (DPAS)					Project (Number/Name) ABC / DPAS				

Fiscal Year	FY2016				FY2017				FY2018				FY2019				FY2020			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Project Task																				
Research																				
Design																				
Development																				
Testing																				
Implementation																				
Research																				
Design																				
Development																				
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Implementation																				

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



Defense Security Cooperation Agency

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Defense Security Cooperation Agency • Budget Estimates FY 2020 • RDT&E Program

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Research, Development, Test & Eval, DW	16,619	8,028		8,028
Total Research, Development, Test & Evaluation	16,619	8,028		8,028

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	17,057				17,057
Total Research, Development, Test & Evaluation	17,057				17,057

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

<u>Summary Recap of Budget Activities</u>	<u>FY 2018 (Base + OCO)</u>	<u>FY 2019 Base Enacted</u>	<u>FY 2019 OCO Enacted</u>	<u>FY 2019 Total Enacted</u>
Management Support	607			
Operational System Development	16,012	8,028		8,028
Total Research, Development, Test & Evaluation	16,619	8,028		8,028
<u>Summary Recap of FYDP Programs</u>				
Research and Development	16,619	8,028		8,028
Total Research, Development, Test & Evaluation	16,619	8,028		8,028

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Management Support					
Operational System Development	17,057				17,057
Total Research, Development, Test & Evaluation	17,057				17,057
<u>Summary Recap of FYDP Programs</u>					
Research and Development	17,057				17,057
Total Research, Development, Test & Evaluation	17,057				17,057

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Management Support	607			
Operational System Development	16,012	8,028		8,028
Total Research, Development, Test & Evaluation	16,619	8,028		8,028
Summary Recap of FYDP Programs				
Research and Development	16,619	8,028		8,028
Total Research, Development, Test & Evaluation	16,619	8,028		8,028

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Management Support					
Operational System Development	17,057				17,057
Total Research, Development, Test & Evaluation	17,057				17,057
<u>Summary Recap of FYDP Programs</u>					
Research and Development	17,057				17,057
Total Research, Development, Test & Evaluation	17,057				17,057

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

<u>Appropriation</u>	<u>FY 2018</u> <u>(Base + OCO)</u>	<u>FY 2019</u> <u>Base Enacted</u>	<u>FY 2019</u> <u>OCO Enacted</u>	<u>FY 2019</u> <u>Total Enacted</u>
Defense Security Cooperative Agency	16,619	8,028		8,028
Total Research, Development, Test & Evaluation	16,619	8,028		8,028

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Defense Security Cooperative Agency	17,057				17,057
Total Research, Development, Test & Evaluation	17,057				17,057

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
165	0605502T	Small Business Innovative Research	06	607				U
		Management Support		607				
197	0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	1,792	1,855		1,855	U
198	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS)	07	287	304		304	U
201	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	13,933	5,869		5,869	U
		Operational System Development		16,012	8,028		8,028	
Total Research, Development, Test & Eval, DW				16,619	8,028		8,028	

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
165	0605502T	Small Business Innovative Research	06						U
		Management Support							
197	0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	1,947				1,947	U
198	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS)	07	310				310	U
201	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	14,800				14,800	U
		Operational System Development		17,057				17,057	
Total Research, Development, Test & Eval, DW				17,057				17,057	

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Defense Security Cooperative Agency
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
165	0605502T	Small Business Innovative Research	06	607				U
		Management Support		607				
197	0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	1,792	1,855		1,855	U
198	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS)	07	287	304		304	U
201	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	13,933	5,869		5,869	U
		Operational System Development		16,012	8,028		8,028	
Total Defense Security Cooperative Agency				16,619	8,028		8,028	

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Defense Security Cooperative Agency
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
165	0605502T	Small Business Innovative Research	06						U
		Management Support							
197	0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	1,947				1,947	U
198	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS)	07	310				310	U
201	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	14,800				14,800	U
		Operational System Development		17,057				17,057	
Total Defense Security Cooperative Agency				17,057				17,057	

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

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
197	07	0605127T	Partner Outreach and Collaboration Support (POCS).....	Volume 5 - 497
198	07	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS).....	Volume 5 - 505
201	07	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)..	Volume 5 - 511

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Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	0607327T	201	07.....	Volume 5 - 511
Overseas Humanitarian Assistance Shared Information System (OHASIS)	0605147T	198	07.....	Volume 5 - 505
Partner Outreach and Collaboration Support (POCS)	0605127T	197	07.....	Volume 5 - 497
Small Business Innovative Research (SBIR)	0605502T	165	06.....	Volume 5 - 495

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Security Cooperation Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6:</i> <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605502T / <i>Small Business Innovative Research (SBIR)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1.121	0.607	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
002005: <i>SMALL BUSINESS INNOVATIVE RESEARCH</i>	1.121	0.607	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

To support the OSD Small Business Innovation Research (SBIR) and Small Technology Transfer (STTR) Program

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.607	0.000	0.000	-	0.000
Total Adjustments	0.607	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	0.607	-			

Change Summary Explanation

Not applicable

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Cooperation Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502T / <i>Small Business Innovative Research (SBIR)</i>	Project (Number/Name) 002005 / <i>SMALL BUSINESS INNOVATIVE RESEARCH</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
002005: <i>SMALL BUSINESS INNOVATIVE RESEARCH</i>	1.121	0.607	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

To support the OSD Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Program

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Small Business Innovate Research	0.607	-	-
Description: To support the establishment of an OSD Component Commercialization Readiness			
Accomplishments/Planned Programs Subtotals	0.607	-	-

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

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Not applicable

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Security Cooperation Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605127T / <i>Partner Outreach and Collaboration Support (POCS)</i>
---	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	15.535	1.792	1.855	1.947	-	1.947	1.986	2.026	2.066	2.107	Continuing	Continuing
000204: <i>Partner Outreach and Collaboration Support</i>	15.535	1.792	1.855	1.947	-	1.947	1.986	2.026	2.066	2.107	Continuing	Continuing

A. Mission Description and Budget Item Justification

Partner Outreach and Collaboration Support (POCS) is an Office of the Secretary of Defense (OSD) initiative. In support of the National Defense Strategy objective of strengthening alliances and attracting new partners, this program provides a common information technology platform (GlobalNET) to improve international partner outreach and collaboration efforts in a federated environment. Department of Defense (DoD) institutions and Partners to share content and participant data across proprietary community websites, thus fostering communities of practice and promoting collaboration and resource sharing among the Regional Centers for Security Studies, Partnership for Peace (PfP), other DoD educational institutions and communities, and international partners. GlobalNET currently supports over 85,000 users. The Defense Security Cooperation Agency (DSCA) oversees execution of the research and development of the GlobalNET effort and its operations, and ensures that the program addresses DoD security cooperation requirements in the context of defense, interagency, and international information sharing and collaboration needs.

The GlobalNET effort focuses on improving collaboration, supporting outreach efforts, and enabling communication among the Regional Centers for Security Studies, the Combatant Commands (COCOMs), DSCA, Office of the Under Secretary of Defense for Policy (OUSD(P)), North Atlantic Treaty Organization's (NATO) Military Partnerships Directorate (MPD), the PfP Consortium of Defense Academies, PfP Partner countries, and other DoD institutions and communities. It provides DoD and international partner security practitioners an unclassified secure platform to share information, communicate and collaborate globally 24/7, and supports administrative activities. It provides the ability to form collaborative communities of interest around security issues. GlobalNET facilitates information sharing and knowledge management concepts in accordance with U.S. policy. POCS implements the Congressional endorsement for the modernization of Defense capabilities in eligible PfP countries relative to their telecommunications infrastructure, and provides allies and partner countries the ability to team in critical cooperative activities that underpin the spirit of the PfP program. The program supports PfP coalition Initiatives through the development of distributive collaboration tools to assist U.S./NATO - approved PfP cooperative activities. POCS additionally supports internet-based education, collaboration, exercise simulations, and training center requirements for domestic and international audiences, and supports the Advanced Distributive Learning (ADL) Initiative.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Security Cooperation Agency	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605127T / <i>Partner Outreach and Collaboration Support (POCS)</i>
---	--

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	1.792	1.855	1.947	-	1.947
Current President's Budget	1.792	1.855	1.947	-	1.947
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

No change explanation required.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Cooperation Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0605127T / <i>Partner Outreach and Collaboration Support (POCS)</i>				Project (Number/Name) 000204 / <i>Partner Outreach and Collaboration Support</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
000204: <i>Partner Outreach and Collaboration Support</i>	15.535	1.792	1.855	1.947	-	1.947	1.986	2.026	2.066	2.107	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Partner Outreach and Collaboration Support (POCS) is an Office of the Secretary of Defense (OSD) initiative. In support of the National Defense Strategy objective of strengthening alliances and attracting new partners, this program provides a common information technology platform (GlobalNET) to improve international partner outreach and collaboration efforts in a federated environment. Department of Defense (DoD) institutions and Partners to share content and participant data across proprietary community websites, thus fostering communities of practice and promoting collaboration and resource sharing among the Regional Centers for Security Studies, Partnership for Peace (PfP), other DoD educational institutions and communities, and international partners. GlobalNET currently supports over 85,000 users. The Defense Security Cooperation Agency (DSCA) oversees execution of the research and development of the GlobalNET effort and its operations, and ensures that the program addresses DoD security cooperation requirements in the context of defense, interagency, and international information sharing and collaboration needs.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Partner Outreach and Collaboration Support (POCS)	1.792	1.855	1.947
FY 2019 Plans: Implement a GlobalNET mobile platform to facilitate engagement in regions for which mobile devices are the primary means of accessing web content. Migrate portal to GovCloud in accordance with cybersecurity and privacy requirements.			
FY 2020 Plans: Expand access to international fellow programs at U.S. professional military education institutions, with an emphasis on senior service colleges and war colleges.			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase is associated with approved inflation rate for FY 2020. Additionally program growth of \$55K to support purchases of additional licenses in FY 2020.			
Accomplishments/Planned Programs Subtotals	1.792	1.855	1.947

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Cooperation Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0605127T / <i>Partner Outreach and Collaboration Support (POCS)</i>	Project (Number/Name) 000204 / <i>Partner Outreach and Collaboration Support</i>

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

Remarks

D. Acquisition Strategy

The GlobalNET effort employs a spiral acquisition strategy ensuring a well-defined model for each institution/community that can be exported globally. The program uses an organizational approach to ensure sustainable, and updated technology and information sharing procedures. By partnering with other U.S. Government activities, existing assets are leveraged to preserve U.S. investments, avoid duplication of effort between activities, and offer economically prudent solutions to improve information sharing and achieve U.S. security cooperation goals. Independent Operational Test teams are brought on to ensure that GlobalNET bears independent validation of the development team's effort.

E. Performance Metrics

POCS development performance is measured in several methods: the successful meeting of stated performance objectives in the statement of work, and meeting target dates in the project management plan; via a combination of statistics including the number of trouble tickets generated on the development site, operational user feedback on development site usability, and design; and the system's performance during developmental and operational testing. The use of a 3rd party to execute the operational test ensures that the system meets the performance metrics prior to moving to production.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Security Cooperation Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0605127T / <i>Partner Outreach and Collaboration Support (POCS)</i>	Project (Number/Name) 000204 / <i>Partner Outreach and Collaboration Support</i>	

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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

GlobelNet Update	
Upgrade Core and Maintenance Releases	
Deploy to Other Institutions	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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

GlobelNet Update	
Upgrade Core and Maintenance Releases	
Deploy to Other Institutions	

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Security Cooperation Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0605127T / <i>Partner Outreach and Collaboration Support (POCS)</i>	Project (Number/Name) 000204 / <i>Partner Outreach and Collaboration Support</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>GlobeNet Update</i>				
Upgrade Core and Maintenance Releases	1	2016	4	2023
Deploy to Other Institutions	3	2014	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Security Cooperation Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605147T / <i>Overseas Humanitarian Assistance Shared Information System (OHASIS)</i>
---	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1.710	0.287	0.304	0.310	-	0.310	0.316	0.323	0.329	0.326	Continuing	Continuing
000204: <i>Overseas Humanitarian Assistance Shared Information System</i>	1.710	0.287	0.304	0.310	-	0.310	0.316	0.323	0.329	0.326	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Overseas Humanitarian Assistance Shared Information System (OHASIS) is the Defense Security Cooperation Agency (DSCA) enterprise system for enabling all facets of the Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) appropriation. It enables the stakeholders in Department of Defense (DoD) Humanitarian Assistance (HA) programs, including embassy staff, Combatant Commands (CCMDs) and a broad range of DoD and interagency partners, the capability to manage, support, and visualize OHDACA funded projects on a web-based map display, in addition to automating report generation, providing tools to coordinate with Interagency and partner nation stakeholders, and perform a variety of analyses.

Currently OHASIS contains more than 19,000 projects valued at more than \$1.2 billion, with a community of over 2,700 active users. The OHASIS system is a critical and mission essential means for thousands of military and DoD civilian users to develop, staff, coordinate, approve, fund, implement, manage, and evaluate projects intended to assist the CCMDs in accomplishing theater campaign plan objectives and achieve strategic ends states in support of U.S. national security and foreign policy interests.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.287	0.304	0.310	-	0.310
Current President's Budget	0.287	0.304	0.310	-	0.310
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

No change explanation required

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Cooperation Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0605147T / Overseas Humanitarian Assistance Shared Information System (OHASIS)				Project (Number/Name) 000204 / Overseas Humanitarian Assistance Shared Information System			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
000204: Overseas Humanitarian Assistance Shared Information System	1.710	0.287	0.304	0.310	-	0.310	0.316	0.323	0.329	0.326	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Overseas Humanitarian Assistance Shared Information System (OHASIS) is the Defense Security Cooperation Agency (DSCA) enterprise system for enabling all facets of the Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) appropriation. It enables the stakeholders in Department of Defense (DoD) Humanitarian Assistance (HA) programs, including embassy staff, Combatant Commands (CCMDs) and a broad range of DoD and interagency partners, the capability to manage, support, and visualize OHDACA funded projects on a web-based map display, in addition to automating report generation, providing tools to coordinate with Interagency and partner nation stakeholders, and perform a variety of analyses.

Currently OHASIS contains more than 19,000 projects valued at more than \$1.2 billion, with a community of over 2,700 active users. The OHASIS system is a critical and mission essential means for thousands of military and DoD civilian users to develop, staff, coordinate, approve, fund, implement, manage, and evaluate projects intended to assist the CCMDs in accomplishing theater campaign plan objectives and achieve strategic ends states in support of U.S. national security and foreign policy interests.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Overseas Humanitarian Assistance Shared Information System	0.287	0.304	0.310
FY 2019 Plans: Complete Authorization and Assessment process under the Risk Management Framework, submit for Authorizing Official determination in Q3 June 2019			
Ongoing improvement and enhancements to OHASIS framework, explore software optimization techniques to reduce load times and improve user experience			
Develop infrastructure and capability for CAC-enabled login for the OHASIS website			
Modernize the Humanitarian Assistance Transportation platform to leverage current best practices and cybersecurity guidance, migrate system to Risk Management Framework Authorized hosting environment			
FY 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Cooperation Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0605147T / <i>Overseas Humanitarian Assistance Shared Information System (OHASIS)</i>	Project (Number/Name) 000204 / <i>Overseas Humanitarian Assistance Shared Information System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Create Humanitarian Assistance (HA) Transportation information sharing system to share donation requirements identified by the Security Cooperation Officers in Partner Nations to potential U.S. Based donors. Humanitarian Mine Action (HMA) module to develop and disseminate HMA Country Plans and Global Program Guidance. This will incorporate HA/HMA Program Management Computer Based Training system into OHASIS Risk Management Framework Authorized hosting environment, and Develop Country Program Monitoring module for data capture and detailed analytics of evaluation data. Overall this will develop capability for direct upload of photos to an OHASIS project from a handheld smart device.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Inflation costs and an increase of \$55K was included for 2020 to cover the cost of running the program essentially on NIPR.			
Accomplishments/Planned Programs Subtotals	0.287	0.304	0.310

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

N/A

Remarks

N/A

D. Acquisition Strategy

The program employs an incremental technology development and implementation strategy to ensure a desired capability is delivered in a relevant timeframe. This strategy will continue to leverage industry standard technologies for web development, database technology, database modeling, geographic information systems, reporting, and documentation. As additional users require the system, it will continue to be developed with scalability and maintainability as key considerations. Additionally, this capability will help DoD better collaborate and support external agencies and their programs by leveraging the web services that have been designed in the initial baseline.

E. Performance Metrics

OHASIS project performance is measured in several methods: the successful meeting of stated performance objectives in the statement of work and meeting target dates in the project management plan, and successful management of the full life cycle of the over 1,000 Overseas Humanitarian Disaster and Civic Aid (OHDACA) projects per Fiscal Year.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Security Cooperation Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0605147T / Overseas Humanitarian Assistance Shared Information System (OHASIS)	Project (Number/Name) 000204 / Overseas Humanitarian Assistance Shared Information System

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>System Development and Compliance</i>																												
Infrastructure for CAC-enabled Capability	[REDACTED]																											
Update System and Database Compliance	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Security Cooperation Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0605147T / <i>Overseas Humanitarian Assistance Shared Information System (OHASIS)</i>	Project (Number/Name) 000204 / <i>Overseas Humanitarian Assistance Shared Information System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>System Development and Compliance</i>				
Infrastructure for CAC-enabled Capability	4	2018	3	2021
Update System and Database Compliance	1	2019	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Security Cooperation Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607327T / <i>Global Theater Security Cooperation Management Information Systems (G-TSCMIS)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	30.983	13.933	5.869	14.800	-	14.800	15.050	15.335	15.640	16.000	Continuing	Continuing
000205: <i>Global Theater Security Cooperation Management Information Systems (G-TSCMIS)</i>	30.983	13.933	5.869	14.800	-	14.800	15.050	15.335	15.640	16.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Global Theater Security Cooperation Management Information System (G-TSCMIS) initiative will provide a Department of Defense (DoD) enterprise-wide technology capability to facilitate and integrate planning, collaboration, program design, assessment, monitoring, evaluation, and reporting in support of all U.S. security cooperation activities. To that end, the System will support the strategic, operational, and tactical levels of security cooperation by: (1) providing enterprise-wide access to authoritative Title 10 and Title 22 data that supports Security Cooperation (SC) oversight, management, and decision-making; (2) providing automated and configurable workflow management and reporting tools; and (3) incorporating functionality that enhances users' situational awareness and ability to effectively plan. The development of this System will create a common operating picture for billions of dollars of security cooperation activities and a disparate workforce of more than 18,000 people. It will combine and standardize data and work processes for more than 20 security cooperation authorities that currently rely on dozens of different systems and business practices.

The System will increase efficiencies in the Department by: (1) promoting standardization of data and processes to increase efficiency without compromising user requirements; (2) minimizing duplicative data entry; and (3) reducing duplication in DoD systems wherever possible.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	13.933	5.869	14.800	-	14.800
Current President's Budget	13.933	5.869	14.800	-	14.800
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Security Cooperation Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0607327T / <i>Global Theater Security Cooperation Management Information Systems (G-TSCMIS)</i>
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Change Summary Explanation

The increase from FY 2019 to FY 2020 is for the development of a new, modernized information system to support the growing data and workflow management needs of the Department of Defense (DoD) security cooperation community and Congressional reporting requirements. DoD revalidated system requirements following major legislative security cooperation reforms enacted in FY 2017 and will now require sustained RDT&E funding to support iterative development in FY 2020 through FY 2024.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Cooperation Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 7				R-1 Program Element (Number/Name) PE 0607327T / <i>Global Theater Security Cooperation Management Information Systems (G-TSCMIS)</i>				Project (Number/Name) 000205 / <i>Global Theater Security Cooperation Management information Systems (G-TSCMIS)</i>				
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
000205: <i>Global Theater Security Cooperation Management information Systems (G-TSCMIS)</i>	30.983	13.933	5.869	14.800	-	14.800	15.050	15.335	15.640	16.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Global Theater Security Cooperation Management Information System (G-TSCMIS) initiative will provide a Department of Defense (DoD) enterprise-wide technology capability to facilitate and integrate planning, collaboration, program design, assessment, monitoring, evaluation, and reporting in support of all U.S. security cooperation activities. To that end, the System will support the strategic, operational, and tactical levels of security cooperation by: (1) providing enterprise-wide access to authoritative Title 10 and Title 22 data that supports Security Cooperation (SC) oversight, management, and decision-making; (2) providing automated and configurable workflow management and reporting tools; and (3) incorporating functionality that enhances users' situational awareness and ability to effectively plan. The development of this System will create a common operating picture for billions of dollars of security cooperation activities and a disparate workforce of more than 18,000 people. It will combine and standardize data and work processes for more than 20 security cooperation authorities that currently rely on dozens of different systems and business practices.

The System will increase efficiencies in the Department by: (1) promoting standardization of data and processes to increase efficiency without compromising user requirements; (2) minimizing duplicative data entry; and (3) reducing duplication in DoD systems wherever possible.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Global Theater Security Cooperation Management Information System (G-TSCMIS)	13.933	5.869	14.800
FY 2019 Plans: In FY 2019, the Department will continue work on two phases of work:			
Phase 1 will build a new, cloud-hosted, user configurable, modular software platform upon which future capabilities can be built and demonstrate the ability to accept data from other Department of Defense (DoD) systems.			
Phase 2 will establish a new system and user interface that facilitate program management and reporting for all Security Cooperation (SC) authorities. Further, it will standardize data elements across authorities to facilitate comprehensive reporting and manage workflow and connect information across the program life-cycle: strategic, planning, proposal development, program			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Cooperation Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607327T / <i>Global Theater Security Cooperation Management Information Systems (G-TSCMIS)</i>	Project (Number/Name) 000205 / <i>Global Theater Security Cooperation Management information Systems (G-TSCMIS)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
development, execution, monitoring, and evaluation. It will also connect the system to additional DoD systems, building out the common operating picture and reducing redundant data entry.			
<i>FY 2020 Plans:</i> In FY 2020, the Department will deploy Phases 1 and 2 and continue work on Phase 3. Phase 3 will connect additional Department of Defense (DoD) data systems to the System to complete the security cooperation activity common operating picture and reduce redundant data entry.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase from FY 2019 to FY 2020 is for the development of a new, modernized information system to support the growing data and workflow management needs of the Department of Defense (DoD) security cooperation community and Congressional reporting requirements. DoD revalidated system requirements following major legislative security cooperation reforms enacted in FY 2017 and will now require sustained RDT&E funding to support iterative development in FY 2020 through FY 2024.			
Accomplishments/Planned Programs Subtotals	13.933	5.869	14.800

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 1002200T: <i>Other DoD Programs - G-TSCMIS</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Global Theater Security Cooperation Management Information System (G-TSCMIS) will follow the Rapid Information Technology (IT) Acquisition provided for in Section 804 of the 2010 NDAA. G-TSCMIS will initiate an evolutionary and iterative development process for a software-only solution using multiple, rapidly executed releases of capability to expedite delivery of capability to the end-user. The Department will rely on prototypes to confirm the product meets the need before moving to full fielding. At the same time, the Department will maximize COTS solutions to promote long-term viability, garner sustainment savings, and leverage state-of-the-art capabilities. Finally, the Department will maintain Government ownership of any specialized coding and infrastructure configuration to ensure long-term flexibility in contracting.

E. Performance Metrics

Fulfilling stated performance objectives in the statement of work and meeting cost, schedule and performance targets are key metrics for the program.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Security Cooperation Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607327T / <i>Global Theater Security Cooperation Management Information Systems (G-TSCMIS)</i>	Project (Number/Name) 000205 / <i>Global Theater Security Cooperation Management information Systems (G-TSCMIS)</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineering	MIPR	SSC LAND : Charleston, SC	17.806	2.334	Dec 2017	0.621	Dec 2018	1.050	Dec 2019	-		1.050	-	-	-
Software Development	C/CPIF	Leidos : Reston, VA	9.018	-		-		0.000		-		0.000	-	-	-
Systems Engineering	MIPR	MITRE : San Diego, CA	0.371	1.210	Dec 2017	0.099	Dec 2018	0.153	Dec 2019	-		0.153	-	-	-
Training Development	MIPR	SSC PAC : San Diego, CA	0.367	2.131	Dec 2017	-		0.000		-		0.000	-	-	-
Software Development	C/CPIF	Various : Various	0.000	1.609	May 2018	4.570	May 2019	11.800	May 2020	-		11.800	-	-	-
Subtotal			27.562	7.284		5.290		13.003		-		13.003	-	-	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation	MIPR	Various : Various	0.443	1.513	Dec 2017	0.074	Dec 2018	0.805	Dec 2019	-		0.805	-	-	-
Subtotal			0.443	1.513		0.074		0.805		-		0.805	-	-	N/A

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	Option/CPFF	Seaport : San Diego, CA	2.138	2.264	Dec 2017	0.415	Dec 2018	0.992	Dec 2019	-		0.992	-	-	-
Systems Engineering Management	Option/CPFF	Sentek : San Diego, CA	0.344	-		-		0.000		-		0.000	-	-	-
Contract Engineering Support	SS/CPFF	Seaport : San Diego, CA	0.284	1.517	Dec 2017	-		0.000		-		0.000	-	-	-
Government Engineering Support	MIPR	SSC PAC : San Diego, CA	0.194	1.355	Dec 2017	0.090		0.000		-		0.000	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Security Cooperation Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607327T / <i>Global Theater Security Cooperation Management Information Systems (G-TSCMIS)</i>	Project (Number/Name) 000205 / <i>Global Theater Security Cooperation Management information Systems (G-TSCMIS)</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																												
G-TSCMIS Phase 2 Build Decision	██████████																											
G-TSCMIS Phase 2 Fielding Decision Release					██████████																							
Interactive & Incremental Development/ Deployment (IIDD) Activities Release 4																												
Systems Engineering	██████████																											
Define/ Design/ Develop Capabilities					██████████																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Security Cooperation Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607327T / <i>Global Theater Security Cooperation Management Information Systems (G-TSCMIS)</i>	Project (Number/Name) 000205 / <i>Global Theater Security Cooperation Management information Systems (G-TSCMIS)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones				
G-TSCMIS Phase 2 Build Decision	2	2018	2	2019
G-TSCMIS Phase 2 Fielding Decision Release	1	2019	1	2020
Interactive & Incremental Development/ Deployment (IIDD) Activities Release 4				
Systems Engineering	2	2018	1	2020
Define/ Design/ Develop Capabilities	2	2019	4	2020

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



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Defense Security Service • Budget Estimates FY 2020 • RDT&E Program

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Research, Development, Test & Eval, DW	12,330	16,204		16,204
Total Research, Development, Test & Evaluation	12,330	16,204		16,204

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	12,723				12,723
Total Research, Development, Test & Evaluation	12,723				12,723

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Operational System Development	12,330	16,204		16,204
Total Research, Development, Test & Evaluation	12,330	16,204		16,204
 Summary Recap of FYDP Programs -----				
Intelligence and Communications	7,265	5,954		5,954
Research and Development	4,565	9,750		9,750
Classified Programs	500	500		500
Total Research, Development, Test & Evaluation	12,330	16,204		16,204

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities					
Operational System Development	12,723				12,723
Total Research, Development, Test & Evaluation	12,723				12,723
Summary Recap of FYDP Programs					
Intelligence and Communications	4,364				4,364
Research and Development	7,945				7,945
Classified Programs	414				414
Total Research, Development, Test & Evaluation	12,723				12,723

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Operational System Development	12,330	16,204		16,204
Total Research, Development, Test & Evaluation	12,330	16,204		16,204
Summary Recap of FYDP Programs				
Intelligence and Communications	7,265	5,954		5,954
Research and Development	4,565	9,750		9,750
Classified Programs	500	500		500
Total Research, Development, Test & Evaluation	12,330	16,204		16,204

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FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Operational System Development	12,723				12,723
Total Research, Development, Test & Evaluation	12,723				12,723
Summary Recap of FYDP Programs -----					
Intelligence and Communications	4,364				4,364
Research and Development	7,945				7,945
Classified Programs	414				414
Total Research, Development, Test & Evaluation	12,723				12,723

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
-----	-----	-----	-----	-----
Defense Security Service				
Total Research, Development, Test & Evaluation				

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Appropriation					

Defense Security Service					
Total Research, Development, Test & Evaluation					

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
195	0604130V	Enterprise Security System (ESS)	07	4,565	9,750		9,750	U
228	0305128V	Security and Investigative Activities	07					U
241	0305327V	Insider Threat	07	7,265	5,954		5,954	U
9999	99999999999	Classified Programs		500	500		500	U
		Operational System Development		12,330	16,204		16,204	
Total Research, Development, Test & Eval, DW				12,330	16,204		16,204	

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
195	0604130V	Enterprise Security System (ESS)	07	7,945				7,945	U
228	0305128V	Security and Investigative Activities	07	2,400				2,400	U
241	0305327V	Insider Threat	07	1,964				1,964	U
9999	9999999999	Classified Programs		414				414	U
		Operational System Development		12,723				12,723	
Total Research, Development, Test & Eval, DW				12,723				12,723	

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Defense Security Service
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
195	0604130V	Enterprise Security System (ESS)	07	4,565	9,750		9,750	U
228	0305128V	Security and Investigative Activities	07					U
241	0305327V	Insider Threat	07	7,265	5,954		5,954	U
		Operational System Development		11,830	15,704		15,704	
Total Defense Security Service				11,830	15,704		15,704	

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Defense Security Service
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
195	0604130V	Enterprise Security System (ESS)	07	7,945				7,945	U
228	0305128V	Security and Investigative Activities	07	2,400				2,400	U
241	0305327V	Insider Threat	07	1,964				1,964	U
	Operational System Development			12,309				12,309	
Total Defense Security Service				12,309				12,309	

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Defense Security Service • Budget Estimates FY 2020 • RDT&E Program

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

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

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Defense Security Service • Budget Estimates FY 2020 • RDT&E Program

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Security Service **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604130V / <i>Enterprise Security System (ESS)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	118.635	4.565	9.750	7.945	-	7.945	7.587	7.542	4.676	4.770	Continuing	Continuing
000: <i>Enterprise Security System (ESS)</i>	118.635	4.565	9.750	7.945	0.000	7.945	7.587	7.542	4.676	4.770	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Security Service (DSS) supports national security and the warfighter through its industrial security oversight, education, and insider threat missions. The DSS is responsible for overseeing the protection of classified information and technologies, and materials in the hands of cleared industry by ensuring compliance with the National Industrial Security Program (NISP) on behalf of 26 Department of Defense (DoD) components and 32 other U.S. Federal agencies. The NISP serves as a single, integrated, cohesive industrial security program to protect classified information and to preserve our Nation's economic and technological interests. The DSS provides security oversight, counterintelligence coverage and support to approximately 10,000 cleared companies (comprising over 12,100 industrial facilities and about 850,000 cleared contractors), and accreditation of more than 55,000 workstations across multiple classified network domains that process classified information, and 160 Secure Internet Protocol Router Networks (SIPRNet) nodes.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	4.565	9.750	7.945	-	7.945
Current President's Budget	4.565	9.750	7.945	-	7.945
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	0.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

FY20 continues the enhancement of the NISS development. Development will consist of mitigating unforeseen functionality gaps and bugs identified by the user community, during testing and initial development the completion of increment 2 and the start of increment 3. which will include enhancements to Key Management Personnel (KMP) monitoring, NATO Control Point Inspection Triage Outreach Program, NISP Oversight Report, and Outgoing Foreign Visits.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Service										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0604130V / <i>Enterprise Security System (ESS)</i>				Project (Number/Name) 000 / <i>Enterprise Security System (ESS)</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
000: <i>Enterprise Security System (ESS)</i>	118.635	4.565	9.750	7.945	0.000	7.945	7.587	7.542	4.676	4.770	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Security Service manages the Enterprise Security System (ESS) to provide an effective, real-time, security support capability for the Military Departments, DoD Agencies, the NISP, and other Federal Agencies. In compliance with the Expanded Electronic Government, President’s Management Agenda, and the DoD Enterprise Architecture Framework, ESS is the unified offering of security mission systems to facilitate and automate improved national investigative standards, streamline security processes, and increase DoD community collaboration.

The DSS Mission Information Technology (IT) systems provide critical service to the major DSS mission areas for Industrial Security Oversight and Security Education. DSS performs this critical function through operation of its mission production systems to include the Industrial Security Facilities Database (ISFD), the DSS Gateway, and the USA Learning Portal (STEPP). RDT&E for DSS mission systems primarily includes pre-planned product enhancements and improvements to the applications, research and improve assured information sharing to better posture systems and networks against vulnerabilities, ensure self-defense of systems and networks, and safeguard data at all stages for the DSS to increase efficiencies through web-based systems to manage certification and accreditation activities. These IT systems are as follows:

Office of Designated Approving Authority (ODAA) Business Management System (OBMS). The OBMS will automate the approval and certification process of cleared industry’s classified information processing security plans and operations. This will increase mission efficiency by providing a web-based system to manage certification and accreditation activities, provide improved reporting capabilities to support DSS and industry through improved metrics, accreditation timeliness and accuracy and reduce the number of unaccredited systems by providing automated notifications to DSS and industry.

eFCL: The eFCL’s centralized repository for information of facilities participating in the National Industrial Security Program (NISP). The eFCL captures facility information related to a cleared facility, from the initial processing of the facility clearance, the record decision of the facility clearance request includes Foreign Ownership Control or Influence (FOCI) information, as well as decommissioning of the facility clearance, and captures the DSS oversight activities. The eFCL will allow users to submit, update, search, and view facility verification requests.

Industrial Security Facilities Database (ISFD). ISFD is the primary DSS mission system that track and execute the National Industrial Security Program for DoD and 32 other Federal Executive Agencies of cleared industrial security facilities. The ISFD provide users with a nationwide perspective on National Industrial Security Program related facilities, as well as, facilities under DSS oversight in the DoD conventional Arms Ammunition and Explosives program. ISFD provides source data for the DoD Joint Personnel Adjudicative System (JPAS) and the Facility Verification Request (FVR) application.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Service	Date: March 2019
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Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0604130V / <i>Enterprise Security System (ESS)</i>	Project (Number/Name) 000 / <i>Enterprise Security System (ESS)</i>
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National Industrial Security System (NISS, formerly known as Field Operations System (FOS). The NISS is the next generation enterprise capability, replacing the Industrial Security Facility Database (ISFD). Additionally, NISS will provide seamless integration of other DSS systems and applications, such as eFCL, OBMS, DD-254, and Mobile Workforce Applications. NISS will provide DSS with comprehensive enhanced capability to manage its entire mission portfolio. NISS will improve information sharing and collaboration, provide timely and accurate data in the hands of field representatives for decision-making. The system produces agency-wide metrics to measure and drive improved performance in security oversight and the protection of national security.

The National Contract Classification System (NCCS). The Federal Acquisition Regulation (FAR) requires a DD Form 254 for each classified contract, and the National Industrial Security Operating Manual (NISPOM)(4-103a) requires a DD 254 be issued by the government with each Invitation for Bid, Request for Proposal, or Request for Quote. The DD Form 254 provides contractor (or a subcontractor) the security requirements and classification guidance necessary to perform on a classified contract. Contract Security Classification Specification required by DoD 5220.22-4, Industrial Security Regulation and the National Industrial Security Program Operating Manual (NISPOM) is to develop a federated system for the oversight and management of classified information access and guidance to perform on classified contracts. The DD 254, an underlying business process, is critical to ensure access to our Nation’s classified information is safeguarded.

National Industrial Security Program (NISP) Control Access and Information Security System (NCAISS) formerly known as Identity Management (IdM). NCAISS is mandatory for compliance with Department of Defense (DoD) Public Key Infrastructure (PKI) Program Management Office and Office of the Assistant Secretary of Defense for Networks and Information Integration (ASD-NII), Joint Task Force for Global Networks Operations (JTF-GNO) Communications Tasking Order (CTO) 06-02, CTO 07-015, and Office of Management and Budget (OMB) Memo 11-11 (M-11-11), which directed accelerated use of PKI access across the enterprise. This initiative is designed to enable multiple DSS business systems to have service-accessibility that is controlled through PKI-compliant single sign-on authentication. Potential expanded use of the NCAISS across the DSS enterprise to provide CAC-based authentication for business support applications to support the SIPRNet and JWICS domains, provide enhanced identity and access control analytics. It incorporates any remaining DSS operated application into the DSS NCAISS solution.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Title: Systems Enhancement</p> <p>Description: FY 2018 Accomplishments:</p> <p>1. NISS. Completed core development of NISS Initial Operating Capability (IOC) of Increment 1 in 4Q of FY17. Increment 1 includes ISFD and e-FCL core functionality, and will replace both systems once deployed in 4Q FY18. Addressed Completed Independent Verification and Validation (IV&V) and Government Acceptance Testing (GAT) findings from the IOC release. Completed IV&V and GAT of Increment 1 Full Operational Capability (FOC) release in 3Q of FY18. Initiated planning of NISS Increment 2.</p> <p>2. NCCS. FOC milestone was achieved in FY17 with the release of NCCS v5.9.1. Continue scheduled enhancements (via user community feedback) through version releases (2 release cycles per year) and continue sustainment to include; enhanced search criteria, the automation of the National Interest Determinations (NID) process, data encryption, additional attachment capabilities, and various other minor enhancements to NCCS.</p> <p>3. NCAISS. Continue integration and application sustainment activities. Contract period of performance ends 1st Qtr FY19.</p>	4.565	9.750	7.945

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Service		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0604130V / <i>Enterprise Security System (ESS)</i>	Project (Number/Name) 000 / <i>Enterprise Security System (ESS)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>4. eFCL. Continuation of minor updates to support Field operations and system maintenance. A significant portion of the system updates will align operations with new policy (NISPOM Change 2). Additionally, updates will continue to improve the user experience and backend maintenance of the system.</p> <p>FY 2019 Plans:</p> <p>1. NISS. Continue development of NISS Increment 2. Increment 2 will include a SIPR instance of NISS, a Cross-domain Solution, and add enhancements to Security Violations, Security Vulnerability Assessments, and Suspicious Contact Reports. Initiate Independent Verification and Verification (IV&V) and Government Acceptance Testing (GAT) of Increment 2. IV&V and GAT findings will be addressed. Initiate planning of NISS Increment 3.</p> <p>2. NCCS. Continue scheduled enhancements through version releases and sustainment. Agile development approach; two release cycles per year. Future enhancements will address updates to the New DD254 Form.</p> <p>3. NCAISS. Final option year on current contract completed and NCAISS will be in full operational capability (FOC) sustainment. Complete final transition activities for NCAISS over to Data Center Operations. Long-term sustainment actions and funding will then be aligned by EITS contract support.</p> <p>4. eFCL. DSS will sunset use eFCL once capabilities have transitioned into NISS.</p> <p>5. ISFD. DSS will retire ISFD once capabilities have transitioned into NISS.</p> <p>FY 2020 Plans:</p> <p>1. NISS. Complete development of NISS Increment 2. Deploy NISS Increment 2 IOC in 2Q FY19. Initiate development of NISS Increment 3. Increment 3 will include enhancements to KMP monitoring, NATO CPI, Triage Outreach Program, NISP Oversight Report, and Outgoing Foreign Visits. Initiate Independent Verification and Verification (IV&V) and Government Acceptance Testing (GAT) of Increment 2. IV&V and GAT findings will be addressed.</p> <p>2. NCCS. Continue scheduled enhancements through version releases and sustainment. Agile development approach will continue with two release cycles per year. Address any findings/bugs/issues encountered from Independent Verification and Verification (IV&V) and Government Acceptance Testing (GAT).</p> <p>3. NCAISS. No RDT&E funding required. Continue integration and application sustainment costs under the sustainment contract, with some software upgrades.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>The decreased project costs from FY19 to FY20 is attributed to the DSS not running concurrent, physical hardware and visual MilCloud versions, of NISS NIPR and SIPR instances. Increment 3 will start development efforts to involve enhancements</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Service		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0604130V / <i>Enterprise Security System (ESS)</i>	Project (Number/Name) 000 / <i>Enterprise Security System (ESS)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
(KMP monitoring, NATO CPI, Triage Outreach Program, NISP Oversight Report, and Outgoing Foreign Visits), user community feedback, and system interfaces rather than significant changes to baseline capabilities.			
Accomplishments/Planned Programs Subtotals	4.565	9.750	7.945

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

N/A

Remarks

D. Acquisition Strategy

DSS will use a variety of appropriate acquisition strategies such as Indefinite Delivery, Indefinite Quantity (IDIQ), Blanket Purchase Agreements (BPA), and multiple or single award contracts for the development of new applications, enhancement of other applications, and perform system integration with COTS and GOTS solutions and technology. These efforts will reduce the contract award process. Lead time and contract overhead, improve technical solutions, deployments, and deliver more effective and efficient automation projects for DSS and the NISP community.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Security Service											Date: March 2019				
Appropriation/Budget Activity 0400 / 7						R-1 Program Element (Number/Name) PE 0604130V / Enterprise Security System (ESS)					Project (Number/Name) 000 / Enterprise Security System (ESS)				

Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NISS Development	C/TBD	TBD : TBD	111.366	2.939	May 2018	8.208	May 2019	6.603	May 2020	-		6.603	Continuing	Continuing	-
NISS Development/ MilCloud	MIPR	DISA : Pensacola, FL	0.000	0.600	May 2018	0.500	May 2019	0.500	May 2020	-		0.500	Continuing	Continuing	-
NCAISS Development	Option/ BPA	Deloitt : Arlington VA	3.466	0.274	Nov 2017	0.000		0.000		-		0.000	Continuing	Continuing	-
NCCS Development	MIPR	DLA : Philadelphia, PA	2.699	0.613	Oct 2017	0.800	Oct 2018	0.600	Oct 2019	-		0.600	Continuing	Continuing	-
SBIR/STTR	MIPR	AT&L : Arlington, VA	1.104	0.139	May 2018	0.242	May 2019	0.242	May 2020	-		0.242	Continuing	Continuing	-
Subtotal			118.635	4.565		9.750		7.945		-		7.945	Continuing	Continuing	N/A
Project Cost Totals			118.635	4.565		9.750		7.945		-		7.945	Continuing	Continuing	N/A

Remarks
 The Enterprise Security System supports development efforts of the next generation of integrated enterprise automated security solutions to replace DSS legacy IT systems. The ESS architecture will provide seamless integration of other DSS systems and applications such as eFCL, OBMS, NCCS and mobile workforce applications.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Security Service		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0604130V / <i>Enterprise Security System (ESS)</i>	Project (Number/Name) 000 / <i>Enterprise Security System (ESS)</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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

Enterprise Security System	
Production and Deployment of Applications	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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

Enterprise Security System	
Production and Deployment of Applications	

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Security Service		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0604130V / <i>Enterprise Security System (ESS)</i>	Project (Number/Name) 000 / <i>Enterprise Security System (ESS)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Enterprise Security System</i>				
Production and Deployment of Applications	1	2017	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Security Service **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305128V I <i>Security and Investigative Activities</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	2.400	-	2.400	0.000	0.000	0.000	0.000	Continuing	Continuing
000: <i>Risk Rating Tool</i>	-	0.000	0.000	2.400	-	2.400	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Security Service manages the Defense Vetting Directorate (DVD) for the entire government to support personnel vetting requirements. DVD has established itself as the mission authority for personnel security, vetting, and insider threat for the federal government. Continuous Evaluation (CE) program incorporates continual monitoring of individuals in support of the federal investigation standards for security clearances. DVD continues to develop the Risk Rating Tool (RRT) to focus data acquisition on individuals demonstrating high behaviors risk as identified by Machine Learning and Bayesian modeling. DVD will expand and test RRT models for the entire DoD population.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	2.400	-	2.400
Total Adjustments	0.000	0.000	2.400	-	2.400
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• One Time Increase	-	-	2.400	-	2.400

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Service **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305128V / Security and Investigative Activities	Project (Number/Name) 000 / Risk Rating Tool
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
000: Risk Rating Tool	-	0.000	0.000	2.400	-	2.400	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Security Service manages the Defense Vetting Directorate (DVD) for the entire government to support personnel vetting requirements. DVD has established itself as the mission authority for personnel security, vetting, and insider threat for the federal government. Continuous Evaluation (CE) program incorporates continual monitoring of individuals in support of the federal investigation standards for security clearances. DVD continues to develop the Risk Rating Tool (RRT) to focus data acquisition on individuals demonstrating high behaviors risk as identified by Machine Learning and Bayesian modeling. DVD will expand and test RRT models for the entire DoD population.

in October of 2017 AAG tested both the commercial and government RRT models. The cross validation tested modeling strength correlation to known adjudicative revocation/denial outcomes. Both models performed in the low-high 80% range of accuracy in identifying high risk populations in top 20% of scores. AAG also recommended additional validation to continue throughout the life cycle and risk-ranking modeling refinement be completed in a research environment to ensure the models continue to perform as required, are auditable, and protected status attributes are continually verified.

DVD will utilize these models Learning and statistics to identify individuals with high risk stressors mapped to the 13 Adjudicative guidelines. Use of these tools are projected to generate cost avoidance in data acquisition by focusing resources on high risks rather than a randomly selected process.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RRT	0.000	-	2.400
FY 2020 Plans:			
1. RRT. Continue development of RRT models with integration of results in future system of use with the National Background Investigation System.			
2. Expansion of population to support full DoD Eligible personnel			
3. Expansion of data sets incorporating data currently utilized in systems such as DISS, and MIRADOR			
FY 2019 to FY 2020 Increase/Decrease Statement:			
NA			
Title: NA	0.000	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	2.400

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Service		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305128V / <i>Security and Investigative Activities</i>	Project (Number/Name) 000 / <i>Risk Rating Tool</i>
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy N/A		
E. Performance Metrics NA		

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Security Service		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305128V / <i>Security and Investigative Activities</i>	Project (Number/Name) 000 / <i>Risk Rating Tool</i>

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Risk Rating Tool</i>	
Production and Deployment	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Security Service		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305128V / <i>Security and Investigative Activities</i>	Project (Number/Name) 000 / <i>Risk Rating Tool</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Risk Rating Tool</i>				
Production and Deployment	3	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Security Service **Date:** March 2019

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0305327V I Insider Threat
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	16.237	7.265	5.954	1.964	-	1.964	0.000	0.000	0.000	0.000	Continuing	Continuing
002: Insider Threat	16.237	7.265	5.954	1.964	-	1.964	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The DoD Insider Threat Management and Analysis Center (DITMAC): Oversees the mitigation of insider threats to DoD and U.S. Government installations, facilities, personnel, missions, or resources; Assess enterprise-level risks, refer recommendations for action, synchronize responses, and oversee resolution of identified issues on the insider threats; Develops enterprise-level risk reporting criteria (thresholds) to facilitate component reporting of potential threat information and assess the effectiveness of actions taken by reporting elements to address, mitigate, or resolve the threat posed to DoD missions and resources; Supports the Office of the USD(!) in establishing standards to ensure that the DoD Insider Threat Program complies with applicable statutes, Executive Orders, and other national and DoD regulations and policies that specify insider threat program requirements; Provides a single repository for enterprise-level DoD insider threat-related information; and promotes the collaboration and the insider threat information sharing among DoD Components.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	7.265	5.954	1.964	-	1.964
Current President's Budget	7.265	5.954	1.964	-	1.964
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

Investments are required in technology and analytic capabilities to improve efficiencies enable offsets of future resource requirements across the DoD Insider Threat Enterprise and minimize human risk exposure.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Service										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0305327V / <i>Insider Threat</i>				Project (Number/Name) 002 / <i>Insider Threat</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
002: <i>Insider Threat</i>	16.237	7.265	5.954	1.964	-	1.964	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The DoD Insider Threat Management and Analysis Center (DITMAC): Oversees the mitigation of insider threats to DoD and U.S. Government installations, facilities, personnel, missions, or resources; Assess enterprise-level risks, refer recommendations for action, synchronize responses, and oversee resolution of identified issues on the insider threats; Develops enterprise-level risk reporting criteria (thresholds) to facilitate component reporting of potential threat information and assess the effectiveness of actions taken by reporting elements to address, mitigate, or resolve the threat posed to DoD missions and resources; Supports the Office of the USD(!) in establishing standards to ensure that the DoD Insider Threat Program complies with applicable statutes, Executive Orders, and other national and DoD regulations and policies that specify insider threat program requirements; Provides a single repository for enterprise-level DoD insider threat-related information; and promotes the collaboration and the insider threat information sharing among DoD Components.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Insider Threat	7.265	5.954	1.964
<p>Description: Continued development of capabilities to better serve the insider threat community, and align with Personnel Vetting mission. Maturing of the systems has facilitated increased use of the DSoS as the case management system for DoD Component's insider threat mission from 11 which was reported in 2017 to 37 as of 4th quarter 2018. A ground up system re-architecture is underway with an initial operating capability scheduled for 4th quarter 2019. The system redesign will provide the next generation platform that can pace and align with the expanding mission. The re-architecture will deliver a new platform that fosters communication/information sharing, adaptability, and an enhanced cyber posture while reducing annual investments in software licensing and technical support.</p> <p>FY 2019 Plans: Enhancements to the new platform; development and integration of additional advanced analytic capabilities; assessment of new technologies and interfaces between security domains and with external data sources on behalf of the enterprise.</p> <p>FY 2020 Plans: Continue enhancements to the new platform; development and integration of additional advanced analytic capabilities; assessment of new technologies and interfaces between security domains and with external data sources on behalf of the enterprise.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Security Service	Date: March 2019
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Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305327V / <i>Insider Threat</i>	Project (Number/Name) 002 / <i>Insider Threat</i>
--	---	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Decrease from FY19 to FY20 was in support of one time increase to offset future resource requirements across the DoD Insider Threat Enterprise			
Accomplishments/Planned Programs Subtotals	7.265	5.954	1.964

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

TBD

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Security Service **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305327V / <i>Insider Threat</i>	Project (Number/Name) 002 / <i>Insider Threat</i>
--	---	---

Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DITMAC System Of Systems	C/CPFF	NOVETTA : Mclean, VA	16.237	7.265	Sep 2018	5.954	Sep 2019	1.964	Sep 2020	-		1.964	Continuing	Continuing	-
Subtotal			16.237	7.265		5.954		1.964		-		1.964	Continuing	Continuing	N/A
Project Cost Totals			16.237	7.265		5.954		1.964		-		1.964	Continuing	Continuing	N/A

Remarks
 Funding will further enhance the capabilities of the Insider Threat program to deter, detect and mitigate threats through operation of the Defense Insider Threat Management and Analysis Center and the expansion of Continuous Evaluation to cover the entire DoD population.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Security Service **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305327V / <i>Insider Threat</i>	Project (Number/Name) 002 / <i>Insider Threat</i>
--	---	---

FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Insider Threat</i>	
Production Development	

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Insider Threat</i>	
Production Development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Security Service **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305327V / <i>Insider Threat</i>	Project (Number/Name) 002 / <i>Insider Threat</i>
--	---	---

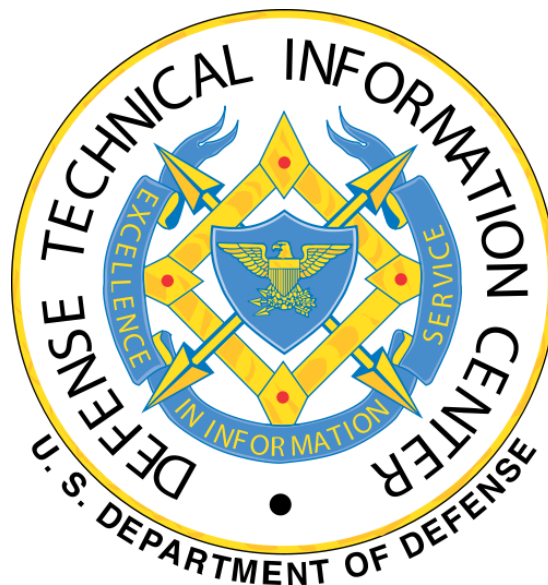
Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Insider Threat</i>				
Production Development	4	2015	4	2020

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



Defense Technical Information Center

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Defense Technical Information Center • Budget Estimates FY 2020 • RDT&E Program

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
	-----	-----	-----	-----
Research, Development, Test & Eval, DW	59,301	60,977		60,977
Total Research, Development, Test & Evaluation	59,301	60,977		60,977

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Department of Defense
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
-----	-----	-----	-----	-----	-----
Research, Development, Test & Eval, DW	60,743				60,743
Total Research, Development, Test & Evaluation	60,743				60,743

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
<u>Summary Recap of Budget Activities</u>				
Management Support	59,301	60,977		60,977
Total Research, Development, Test & Evaluation	59,301	60,977		60,977
<u>Summary Recap of FYDP Programs</u>				
Research and Development	59,301	60,977		60,977
Total Research, Development, Test & Evaluation	59,301	60,977		60,977

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Management Support	60,743				60,743
Total Research, Development, Test & Evaluation	60,743				60,743
Summary Recap of FYDP Programs -----					
Research and Development	60,743				60,743
Total Research, Development, Test & Evaluation	60,743				60,743

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
<u>Summary Recap of Budget Activities</u>				
Management Support	59,301	60,977		60,977
Total Research, Development, Test & Evaluation	59,301	60,977		60,977
<u>Summary Recap of FYDP Programs</u>				
Research and Development	59,301	60,977		60,977
Total Research, Development, Test & Evaluation	59,301	60,977		60,977

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Defense-Wide
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 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Management Support	60,743				60,743
Total Research, Development, Test & Evaluation	60,743				60,743
<u>Summary Recap of FYDP Programs</u>					
Research and Development	60,743				60,743
Total Research, Development, Test & Evaluation	60,743				60,743

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
-----	-----	-----	-----	-----
Defense Technical Information Center	59,301	60,977		60,977
Total Research, Development, Test & Evaluation	59,301	60,977		60,977

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
-----	-----	-----	-----	-----	-----
Defense Technical Information Center	60,743				60,743
Total Research, Development, Test & Evaluation	60,743				60,743

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
169	0605801KA	Defense Technical Information Center (DTIC)	06	55,114	56,853		56,853	U
173	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	4,187	4,124		4,124	U
		Management Support		59,301	60,977		60,977	
Total Research, Development, Test & Eval, DW				59,301	60,977		60,977	

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Defense-Wide
 FY 2020 President's Budget
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 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
169	0605801KA	Defense Technical Information Center (DTIC)	06	57,716				57,716	U
173	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	3,027				3,027	U
		Management Support		60,743				60,743	
Total Research, Development, Test & Eval, DW				60,743				60,743	

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Defense Technical Information Center
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
169	0605801KA	Defense Technical Information Center (DTIC)	06	55,114	56,853		56,853	U
173	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	4,187	4,124		4,124	U
		Management Support		59,301	60,977		60,977	
Total Defense Technical Information Center				59,301	60,977		60,977	

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Defense Technical Information Center
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
169	0605801KA	Defense Technical Information Center (DTIC)	06	57,716				57,716	U
173	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	3,027				3,027	U
		Management Support		60,743				60,743	
Total Defense Technical Information Center				60,743				60,743	

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Management HQ - Defense Technical Information Center (DTIC)	0605998KA	173	06.....	Volume 5 - 595

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Technical Information Center **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	207.780	55.114	56.853	57.716	-	57.716	59.778	61.709	62.808	64.109	Continuing	Continuing
001: <i>Defense Technical Information Center</i>	183.483	50.040	51.837	52.700	-	52.700	54.762	56.693	57.792	59.093	Continuing	Continuing
002: <i>Information Analysis Centers</i>	24.297	5.074	5.016	5.016	-	5.016	5.016	5.016	5.016	5.016	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Technical Information Center’s (DTIC) unique mission is to aggregate and fuse science and technology data to provide rapid, accurate, and reliable knowledge to researchers and developers of the next generation of technologies needed to assure our national security. DTIC, a DoD Field Activity, currently under the authority, direction and control of the Under Secretary of Defense for Research and Engineering (USD(R&E)), is the DoD’s singular executive agent and designated source for DoD-funded scientific, technical, engineering, and industry-related information. During FY 2019, DTIC is slated to realign under the DoD Chief Management Officer (CMO). Under the CMO, DTIC will focus on the enterprise data management mission of the Department. DTIC also operates DoD Information Analysis Centers (IACs) focused on Defense Systems, Cyber Security and Information Systems, and Homeland Defense and Security. Both DTIC and IAC operations are focused on actively supporting USD(R&E) efforts in generating decisive and sustained U.S. military advantages through the pursuit of three distinct lines of effort, as outlined in the 2018 National Defense Strategy (NDS):

- 1) Rebuild military readiness as we build a more lethal Joint Force: DTIC’s support, search, collection, collaboration sites, and IAC services offer an underpinning element available to all Agencies, Program Offices, and Research Labs that contribute to the rebuilding of the Joint Force.
- 2) Strengthen alliances as we attract new partners: The International Agreements Database (IAD-B); support to the OSD Comparative Technology Office (CTO); DTIC’s COCOM reading room providing industry insight into COCOM S&T needs; and participation in NATO’s Science & Technology Organization (STO) Collaboration Support Office (CSO); these efforts provide a complement of tools and cooperative activities that foster the relationships that underpin our alliances.
- 3) Reform the Department’s business practices for greater performance and affordability: DTIC’s support, search, collection, programming, collaborative sites, and IAC services are a ready source for best practices and collaborative partnering and team building as the Department works to improve processes and access.

In concert with the 2018 NDS, DTIC's investment in new tools and capabilities will address customer needs and underwrite the innovation necessary to support DoD’s enduring mission to provide combat-ready military forces to deter war and protect the security of our nation.

The Department invests over \$90 Billion annually in Research, Development, Test and Evaluation (RDT&E) needed to protect and defend our nation. DTIC preserves the fruits of these costly labors for reuse across the enterprise. As an efficient and cost-effective steward of technical information, DTIC collects data and provides answers to researchers seeking state-of-the-art data relevant to their projects. Through this interchange of information, DTIC accelerates innovation and prevents duplication of experiments, tests, and prototyping activities because researchers can build on what has been done or choose other paths if prior research resulted in a dead end. Using DTIC-created forums, researchers, Warfighters, and industry partners can also rapidly collaborate and connect across the DoD research and

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Technical Information Center Date: March 2019

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0605801KA / Defense Technical Information Center
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engineering (R&E) enterprise. Finally, DTIC provides a department-level map of R&D activity. This map gives decision-makers insight into current and past research, highlighting where progress is being made and by whom. Through the preservation and sharing of the results of billions of dollars of past DoD investments, DTIC increases the return on past investments and accelerates current efforts, saving the Department precious time and dollars. Through its collaboration tools and outreach to the R&E community, DTIC connects researchers across the lab enterprise, to include researchers and engineers, Warfighters and DoD's industry partners.

DTIC's strategic themes center on customer focus, innovation, operational excellence, and strategic partnering. In support of these themes, DTIC's organizational efforts are focused on the following priority areas:

- 1) Search: Develop new algorithms that enable our users to quickly discover useful information and to ensure we present the most relevant information. Semantic (machine learning) mapping of information for comprehensive and precise data retrieval--built on DTIC's custom thesaurus (for use by DoD and Allied partners). Expand and enhance our data collections to improve the quality and completeness of the data.
- 2) Collaboration: Provide collaboration platforms for the DoD science and technology community to work together on investments that efficiently deliver solutions to the Warfighter.
- 3) Access Identity: Strengthen methods of user authentication through the use of public key infrastructure (PKI) tokens, biometrics and other methods to grant access to recognized, trusted and authorized users. Protect intellectual property (IP) and industry proprietary data assets entrusted to DTIC's stewardship (protect information access).
- 4) Data Fusion/Analysis: Gather information from multiple data sources and provide knowledge products that fuse the disparate data sets into a single view of the life cycle of research. Present an overarching picture of research investment that enables decision-makers to link multiple efforts with integrated capabilities (employ resources to highest priority efforts and coordinate efforts across Services).
- 5) Cyber Security: Continue to leverage state-of-the art technologies, processes and practices designed to protect DTIC networks, computers, programs and data from attack, damage or unauthorized access.
- 6) Data Center Optimization/Cloud: Migrate services to cloud providers to improve availability, survivability, and mission flexibility; to reduce time to deliver new capabilities; to save costs; and to enhance cyber security.
- 7) Mobile and Emerging Technology: Ensure DTIC products, tools and interfaces are compatible with, and actively support customer/user (DOD, industry partners, academic researchers) devices, operating systems, and browsers.
- 8) Controlled Unclassified Information (CUI): An ongoing effort to standardize the way the Executive Branch handles unclassified information under a new document-marking framework.
- 9) Public Access /Open Science (for articles and digital data): Acquire and disseminate DoD-funded, openly published journal articles, free to the taxpayer, increasing access and encouraging innovation. Develop a catalog of digital data sets supporting the conclusions of journal articles.

In response to congressional direction contained within the FY 2019 National Defense Authorization Act (NDAA), DTIC is piloting the following specific efforts:

- Innovators Data Base: develop new tools in coordination with the Services and DoD Agencies.
- Global Research Watch Program: The goal of the program includes achieving technological decision advantage and attain aided-technology watch and horizon scanning. This effort will forecast the evolution of known technologies, including the maturation of emerging technologies and new applications of existing technologies, and identify new technologies with disruptive potential.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Technical Information Center		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>	
<p>- Datasets and Data Repositories: to develop and maintain datasets and other data repositories on research and engineering activities being conducted within the Department.</p> <p>Additionally, DTIC is expanding support and engagement with the newly established OUSD(R&E) organization in order to drive innovation faster:</p> <ul style="list-style-type: none">- Support the 2018 NDS: enable the development of lethality, partner engagement, and modernization.- Increase support to RDT&E Budget Activity 6.4, Advanced Component Development & Prototypes (ACD&P) activities.- The hosting of R&E websites and tools.- Establish an information sharing/repository for the Strategic Capabilities Office (SCO), the Defense Innovation Unit (DIU), and the Missile Defense Agency (MDA).- Increased knowledge resources focused on R&E Priority Areas. <p>DTIC's restructured Information Analysis Centers (IACs) drive innovation and technological development by anticipating and responding to the information needs of the defense and broader community. The IAC Program Office provides core funding, management and oversight of three IACs, which are chartered by DoD to collect, analyze, and disseminate worldwide scientific and technical information in specialized fields. The IAC multi-award task order contracts ensure that new research, analysis, and development builds on prior investments and puts to work the best practices of government, industry, and academia. The IAC approach was identified as a "best practice" by the Director of Defense Pricing and Contracting and the then-Acting Assistant Secretary of Defense for Research and Engineering in a July 2018 memo wherein they promoted maximum use of the IAC contracts across DoD as "vehicles of first choice." The IACs are structured into three application areas: Cyber Security and Information Systems, Homeland Defense and Security, and Defense Systems. As part of the Department's acquisition improvement initiatives, the IAC multi-award contracts enhance competition, increase usage of small businesses, and reduce costs to the DoD. For the last several years, competition inherent in the IAC model has produced savings of 17-25 percent over projected costs, delivering vetted technical expertise to address many of the complex challenges DoD faces. An independent assessment by the Center for Strategic and International Studies reported that the IACs improve affordability, productivity, and standardization within defense acquisition programs. Providing the acquisition enterprise access to thousands of industry subject matter experts, DTIC's IACs performed over \$1.9 Billion of customer-funded research and analysis in FY 2018. The results of the work are a rich source of new material in DTIC's technical repositories and are available to users across the Department (and other federal agencies, e.g., Department of Energy, Department of Homeland Security).</p> <p>This Program Element (PE) supports DTIC mission operations. DTIC focuses on three core mission areas (Collection, Dissemination and IACs) and purchases space and shared services (e.g., human resources (HR); financial management; contracting; IT security; communications; and civilian payroll services) from expert and efficient DoD providers.</p> <p>DTIC recognizes the need to accomplish its mission while increasing the value of its services and products. DTIC has reduced its headquarter staffing, physical footprint, civilian personnel and support contractors. DTIC has restructured the IAC program, continues to consolidate its data center, and is an active participant in the Department's Fourth Estate IT Optimization effort.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Technical Information Center **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	54.145	56.853	58.411	-	58.411
Current President's Budget	55.114	56.853	57.716	-	57.716
Total Adjustments	0.969	0.000	-0.695	-	-0.695
• Congressional General Reductions	0.000	-			
• Congressional Directed Reductions	0.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Changes	0.969	0.000	-0.695	-	-0.695

Change Summary Explanation

Program Change: The FY 2020 Base program reduction (-\$0.695 Million), as compared to the Previous President's Budget FY 2020 Base, reflects a net change resulting from the following adjustments:

- 1) Department adjustments to FY 2020 civilian pay.
- 2) An unspecified program adjustment levied by the Department.

FY 2020 Service Requirements Review Board (SRRB) Reduction: The FY 2020 base program includes a \$0.740 Million reduction in accordance with the Department's recent service contract downsizing effort.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>				Project (Number/Name) 001 / <i>Defense Technical Information Center</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
001: <i>Defense Technical Information Center</i>	183.483	50.040	51.837	52.700	-	52.700	54.762	56.693	57.792	59.093	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DTIC is responsible for developing, coordinating and enabling a strong scientific and technical information (STINFO) program for the Office of the Under Secretary of Defense for Research and Engineering (OUSDR&E) and the DoD scientific and technical (S&T) enterprise. In this role, DTIC sets policy for scientific and technical information (STI) exchanges for the research and engineering (R&E) community. DTIC's aim is to maximize the availability and use of technical information and products resulting from Defense-funded technical activities while ensuring restrictions to safeguard national security, export control, and intellectual property rights.

Recognizing the common elements across budget justification documents, progress reports, completed work reports, studies, and journal articles, DTIC is mapping relationships to enable users to access the life cycle of research projects from planning to final results. DTIC employs information technology to verify and validate information submitted and improve user confidence in DoD research documentation.

DTIC is leading the Department's efforts to implement public access to published journal articles, and digital data from research funded by taxpayers. In this role, DTIC is actively working with partners across the Services, components, other federal agencies and publishers. These ongoing efforts directly complement and support the Department's objectives associated with Citizen Science. Consistent with the Administration's (Office of Management and Budget) emphasis for open standards and machine readable formats, DTIC initiated the transition from paper and Portable Document Format (PDF) based information to Web Service Extensible Markup Language (XML) standard data submission and machine readable delivery. DTIC partnered with the OSD Comptroller to collect investment account budget justification documentation in XML and embed this XML in PDF for justification books delivered to Congress. DTIC employed this same technology in collecting S&T progress reports from the Services and Agencies, and Independent Research and Development (IR&D) data from industry. DTIC is planning the migration of its completed technical reports collection to the same open standards, i.e., machine readable formats.

Through the use of commercial search technology, DTIC provides search capability that links its knowledge of the DoD domain and metadata to support both text searches and data mining. DTIC continually works to enable additional features within our search capabilities and from commercial partners to improve information discovery and relevance.

DoD conducts science and technology research via the following means: 60+ labs, Federally Funded Research and Development Centers (FFRDCs), DTIC's Information Analysis Centers (IACs), and other contracts and grants. Spanning over a dozen distinct priority area communities of interest, the results of this work are available through DTIC's web-based R&E Gateway. To protect this information, DTIC regulates access through a database of registered users. In addition, DTIC uses commercial software in compliance with DoD Identity Management Standards to provide instant authenticated access to users of the DoD Common Access Card (CAC)/Federal Government Personal Identity Verification (PIV) cards, industry PIV-I cards or External Certificate Authority (ECA). DTIC's unclassified assets, tools and community interaction capabilities foster innovation, competition and identification of solutions in an access-controlled environment.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>	Project (Number/Name) 001 / <i>Defense Technical Information Center</i>

Focus on User Communities and Distribution Points: DTIC supports user communities on the network where they work, i.e., NIPRNet, SIPRNet and public internet, and uniquely provides access controls within unclassified and classified material to protect intellectual property in our search, distribution, and collaboration tools.

- DoD's RDT&E Enterprise: As a Field Activity to the Office of the Under Secretary of Defense for Research and Engineering (OUSDR&E), DTIC's priority is the RDT&E enterprise, hosting information assets and tools on the NIPRNet (the primary network for the community). During FY 2019, DTIC is slated to realign under the DoD Chief Management Officer (CMO).

- Warfighter: Improving coordination between the acquisition enterprise and warfighter communities, DTIC hosts a subset of information assets and tools on the SIPRNet. DTIC is working to expand the availability of science and technology (S&T) information, to include Independent Research and Development (IR&D), on the SIPRNet. DTIC is continuing its efforts to establish parity of information and capabilities on applications hosted on both NIPRNet and SIPRNet platforms.

- Industry, Academia, and Citizen Science via Public Internet: Engaging industry outside the NIPRNet firewall to support acquisition improvement initiatives and encourage the introduction of innovation, DTIC hosts unclassified public information and tools accessible to all users on the Internet. DTIC provides public access to DoD-funded journal articles and research data, and increases outreach to industry through DTIC's Defense Innovation Marketplace. The Public Access initiative adds importance to the public distribution point, to encourage technology transfer of basic and public research to the private sector, and to give an economic boost to small businesses that can use that data to provide new applications to consumers. Moreover, DTIC activities promote citizen science.

Summary. DTIC protects and preserves DoD's multi-billion dollar investment in research, which empowers the acquisition enterprise through innovative tools, information systems, and decision support capabilities. The efficiency benefits can be enormous. Each 1 percent increase in the reuse of S&T efforts produces over \$100 Million in savings that can be redirected. Those savings come from elimination of inefficient redundancy (and unnecessary delays), increased community interaction, and ultimately, a more capable military. DTIC is uniquely positioned to support and to ensure the value of DoD's R&D portfolio is fully realized.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Defense Technical Information Center	50.040	51.837	52.700
FY 2019 Plans:			
The FY 2019 National Defense Authorization Act (NDAA) directs DTIC to implement the following programs on behalf of the Department: Innovators Data Base, Global Research Watch Program, and Datasets and Data Repositories.			
-- Submit an action plan to OSD and the Congress in support of FY 2019 NDAA directives.			
-- Investigate and consider implementing technologies and tools; develop the necessary partnerships with the Services and DoD Agencies.			
- Deliver the next generation Search and Discovery capability, allowing customers to gain intricate knowledge of DTIC data and collections, the ability to use that data in a variety of ways, and to analyze that data through a single user-oriented solution.			
-- Collapse multiple user interfaces that are used to access the same data sets into a consolidated user interface that has multiple functionalities.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>	Project (Number/Name) 001 / <i>Defense Technical Information Center</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> -- Continue the effort to expose MarkLogic functionalities in this next generation Search and Discovery user interface. -- Enhance the user's ability to package relevant information generated through search and discovery for their use in research papers, presentations, and analysis and decision tools. -- Continue to encourage DoD adaptation and use of persistent open source identifiers, such as Open Researcher and Contributor ID (ORCID), in order to build complete author profiles and establish links to the author's technical documents contained within the collection. -- Improve relevance of user search and discovery results, including use of semantic technologies to pre-process metatag/label/ categorize material and to expand user search terms at runtime in order to help users--who are not experts--locate information to answer questions. - Investigate innovative commercial technologies needed to field mobile capabilities in support of user devices (desktops, laptops, tablets, etc.), operating systems, and browsers. -- Enhance current products and services to incorporate mobile technologies, such as responsive designs and mobile application integration. - Continue to develop Access and Identity Management technologies to further protect DTIC data and enhance visibility of a user's path through DTIC products and services. -- Initiate implementation of a commercial off-the-shelf access and identity management system that replaces the current DTIC Registration system on both NIPR and SIPR. - Enable the defense community to locate the most relevant technical information by leveraging the Master Data Repository (MDR) solution. -- Complete effort to surface richer metadata describing DTIC Technical Reports. -- Complete effort to feed richer metadata describing DTIC Technical Reports to public search sites. -- Initiate effort to surface richer metadata describing Information Analysis Center (IAC) Technical Reports. - Continue to broaden and expand DTIC collections to include material from the Department's Rapid Fielding and Prototyping communities, which fall under the Research, Development, Test, and Evaluation (RDT&E) Budget Activity (BA) 4, Advanced Component Development and Prototypes (ACD&P). -- Continue to develop, build and foster collaboration, partnerships, and business relationships with leadership elements from within these communities. - Continue consolidation efforts/plans for one primary interface with collection products/tools on the Defense Logistics Agency (DLA) server; begin the integration of the Unified Research & Engineering Database (URED) into DTIC's Enterprise Content Management System (ECMS). DoD-funded research documents may be submitted for inclusion into DTIC using the ECMS, a secure online platform. -- Update Communities of Interest (COI) of both main and sub-area data fields within the (legacy) URED Input application (in case URED integration into ECMS is not completed in ample time, by the annual start of the URED Defense-wide Data Call's official reporting period). 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>	Project (Number/Name) 001 / <i>Defense Technical Information Center</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Continue supporting efforts to incorporate system enhancements on the DoD Grant Awards System in FY 2019 to reflect increased attention on grants data and possible changes to DoD requirements/policies--as received by the Product Owner/ OUSD(R&E). - Expand usage of DTIC auto-indexing (MetaTagger) to other DoD components and Federal partners. - Collaborate with the DoD Intelligence community and other OSD representatives on policy and implementation of the new Controlled Unclassified Information (CUI) federal marking regulations, as DoD rewrites the guidance for marking DoD documents. -- Create requirements for changes to DTIC systems in support of the new CUI Framework. - Support DoD's public access effort; conduct outreach and educate intramural and extramural researchers on the requirement to submit journal articles to DTIC. -- Establish a pilot project to accept submissions of data management plans (DMPs) for DoD-funded research programs. -- Initiate an independent study and develop a prototype to examine options for the management of digitally formatted scientific datasets for internal DoD use. -- Initiate development of a catalog/locator of DoD-funded data sets using discovery and descriptive metadata. -- Integrate the search and display features of existing DTIC products with public access materials. -- Examine the feasibility of integrating other federal agency submission flows for publications, metadata and/or data sets in order to reduce the burden of multi-funded researchers, and aid in compliance measures. -- Extend existing collaborations with other federal agencies to comply with public access requirements. - Expand customer outreach efforts to the R&E community. -- Build and foster relationships to further enable scientific collaboration by researchers, scientist, and engineers across the services. -- Further engage Communities of Interest (COIs), DoD Labs, Combatant Commands (CCMDs), and service schools for DTIC growth opportunities. -- Continue to reach out to industry partners in order to share both information and DoD customer requirements. -- Seek out new opportunities supporting collaboration. - Achieve and maintain SIPRNet parity in the DTIC Information Technology (IT) environment for core products. -- Complete implementation of technical processes that apply enhancements to NIPR and SIPR simultaneously. -- Ensure the DTIC Information Technology (IT) infrastructure and equipment can fully provide DTIC's capabilities equally to users on SIPRNet and NIPRNet. - Establish baseline to develop a fully functional IT Continuity of Operations (COOP) capability for DTIC's unclassified infrastructure. -- Achieve Full Operational Capability (FOC) for reliable data management to include data backup and restoration of DTIC information. -- Complete an approved and executable IT COOP plan; plan and design SIPRNet COOP infrastructure. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>-- Fully integrate efforts with concurrent Cloud services planning to provide required infrastructure to support and sustain the future COOP environment.</p> <p>-- Complete the design and implementation of the cyber security architecture; implement Risk Management Framework (RMF) continuous monitoring for full COOP capabilities.</p> <p>- Continue the migration of DTIC's information systems and services to Cloud based infrastructure.</p> <p>-- Align with DoD cloud efforts; leverage enterprise-wide solutions, platforms, and contract vehicles.</p> <p>-- Complete the migration of DTIC's public infrastructure to Cloud environments as planned, allowing DTIC staff to focus on more complex activities, and improving IT infrastructure availability.</p> <p>-- DTIC will have an approved Authority To Operate (ATO) with a continuously monitored Risk Management Framework (RMF) for its Cloud-based IT infrastructure, strengthening its Cyber security posture.</p> <p>-- Implement Cloud based identity management system enhancements and actionable user metrics.</p> <p>-- Complete the establishment of well-defined processes and procedures for operating in the Cloud environments.</p> <p>-- Establish DTIC contracts and service level agreements with selected Cloud Service Providers (CSP).</p> <p>- Continue to publish the R&E Journal at the CUI and Classified levels in order to share information throughout the R&E community.</p> <p>-- Expand marketing and awareness of the Journal; seek out a broader pool of article contributors and peer reviewers to highlight the work of DoD researchers.</p> <p>-- Publish supplemental and special edition issues.</p> <p>-- Initiate development of a Portfolio of DoD Journals on DTIC sites to enhance collaboration, synergy, and knowledge development.</p> <p>FY 2020 Plans:</p> <p>- Continue efforts to increase search and discovery efficiency and Semantic (machine learning) mapping of technical information for comprehensive, precise retrieval--built on DTIC's custom thesaurus (downloadable for use across the DoD, as well as U.S. allied partners).</p> <p>-- Invest in the latest search technology to offer users a complete data picture of DoD-funded research; reduce the expertise users must hold to find relevant information.</p> <p>-- Present users with enhanced navigation features and search capabilities.</p> <p>- Advance Mobile capabilities; refine application development and delivery for the most dynamic services requiring frequent updates.</p> <p>-- Field DTIC tools compatible with mobile platforms used by the customer base.</p> <p>-- Enhance security through continuous updates needed to maintain currency with mobile devices and technologies.</p> <p>- Evaluate options to replace DTIC's custom access and identity management solution to support growing user authentication methods expanding beyond PKI credentials (CAC, PIV, PIVi, ECA) preparing to support biometric and emerging approaches.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>	Project (Number/Name) 001 / <i>Defense Technical Information Center</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> -- Implement new access and identity management system on both NIPR and SIPR platforms. - Continue maturation of the Master Data Repository (MDR). -- Complete effort to surface richer metadata describing Information Analysis Center (IAC) Technical Reports (TRs). -- Initiate development of an Application Programming Interface (API) for organizations to pull data from MDR and to federate searches to MDR. -- Establish links across data, enabling integrated displays of project, organization, topic, and user data. -- Integrate budget data, grants, contracts, reference data, and legacy access logs. -- Evaluate out-of-the-box advanced security and compatibility with Controlled Unclassified Information (CUI) policies and off-the-shelf Identity Access Management System. - Implement MDR internal interfaces for the DTIC staff to test the system, manage content, and assist users. - Expand DTIC collections; develop requirements for a submission compliance tool to assist in ensuring all relevant information is being collected, and made available to the DoD Community. -- Continue consolidation efforts/plans for one primary interface with collection products/tools on the Defense Logistics Agency (DLA) server--proceeding with the integration of Unified Research & Engineering Database (URED) into DTIC's Enterprise Content Management System (ECMS). -- Continue supporting efforts to incorporate system enhancements on the DoD Grant Awards System to reflect increased attention on grants data and possible changes to DoD requirements/policies, as received by the Product Owner/USD(R&E). -- Research and provide recommendations on technologies as a means to maintain traceability of documents disseminated by DTIC (e.g., blockchain). Provide the ability to trace what happened to the information once it leaves the DTIC network. -- Implement the capability to provide reference links within and across documents/datasets/metadata to allow users to view information in a more meaningful way. -- Implement a pilot to maintain document authenticity and integrity after dissemination beyond DTIC environment. -- Implement and deploy Document Similarity capability to further combat Fraud, Waste and Abuse (FW&A); strengthen FW&A detection capabilities. - Collaborate with the DoD Intelligence community and other OSD representatives on policy and implementation of the new Controlled Unclassified Information (CUI) federal marking regulations, as DoD coordinates the guidance for marking DoD documents. -- Upon release of OSD guidance/policies, initiate implementation of CUI changes to DTIC systems. - Support DoD's public access effort; conduct outreach and educate intramural and extramural researchers on the requirement to submit journal articles to DTIC. -- Implement an automatic authentication method for contractors/grantees journal article input. -- Begin to accept voluntary input of metadata pointing to data sets for internal DoD use. - Expand R&E engagement and outreach to the Research and Engineering customer base. -- Engage USD(R&E) Directors to support the Department's development of lethality, partner engagement, and modernization. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> -- Continue to conduct site visits to DoD labs to share information on submitting content and DTIC products and services -- Establish information sharing/repositories with business partners, such as the Strategic Capabilities Office (SCO), Defense Innovation Units, and the Missile Defense Agency (MDA). -- Increase understanding and foster communication between the research community and warfighters to focus efforts on immediate solutions to COCOM problems. - Continue efforts to achieve SIPRNet parity for core products. - Implement failover capabilities for IT Continuity of Operations (COOP) support systems using common security, authentication and identity management solutions. -- Fully implement COOP failover systems for all systems with cloud services as the primary, where appropriate. - Support DoD Cloud Computing Strategy by fostering adoption of Cloud Computing by completing migration of NIPRNet/SIPRNet hosting environments. -- Optimize Data Center consolidation compliance by leveraging technologies within new Cloud Service Provider environments. -- Implement container images or similar technologies to further efficiencies deploying applications between development and staging environments. - The FY 2019 National Defense Authorization Act (NDAA) directs DTIC to implement the following programs on behalf of the Department: Innovators Data Base, Global Research Watch Program, and Datasets and Data Repositories. -- Working within the Department's direction, continue to mature selected implementing technologies and tools as resources allow; continue to develop the necessary partnerships with the Services and DoD Agencies. - Continue to publish the R&E Journal at the CUI and Classified levels in order to share information throughout the R&E community. -- Publish supplemental and special edition issues. -- Evaluate options for increasing the publication schedule. -- Continue the Portfolio of DoD Journals initiative enhancing DoD scientist/researcher opportunities to gain: peer review, performance evaluation, acknowledgement, and monetary bonus. <p>FY 2019 to FY 2020 Increase/Decrease Statement: In the FY 2018 President's Budget, the Department recapitalized DTIC across the FYDP. The \$0.863 Million increment in the current FY 2020 PB builds upon FY 2018-19 activities and progress towards meeting urgent operational mission requirements:</p> <ul style="list-style-type: none"> - Improvements to DoD search tools. - Identity management and information protection. - Re-establishment of an IT COOP. - Parity of services on SIPRNet. - Migration to cloud services. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>	Project (Number/Name) 001 / <i>Defense Technical Information Center</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Support of Public Access/citizen science. - Address technology shortfalls in user interface and the continuing migration of users to mobile devices. - The Department's implementation of Controlled Unclassified Information (CUI) marking. <p>DTIC's investment in new tools and capabilities will address customer needs and underwrite the innovation necessary to support DoD's enduring mission to provide combat-ready military forces to deter war and protect the security of our nation.</p>			
Accomplishments/Planned Programs Subtotals	50.040	51.837	52.700

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Figures reflect FY 2018 end-of-year data.

Total Unique DTIC NIPRNet Users: 42,516

Total Unique DTIC SIPRNet Users: 5,625

Total Unique IAC (CSIAC, DSIAC, and HDIAC) Users: 130,062

Total DTIC Users: 178,203

Total scientific and technical information (STI) holdings in DTIC collections: 4.280 Million

STI added and updated to DTIC Collection: 80,345

- Total STI (NIPRNet and SIPRNet) Added: 69,970

- Total STI (NIPRNet) Updated: 10,375

STI records downloaded to Public: 60.9 Million

Records downloaded to DoD NIPRNet: 944.3 Thousand

Total unique website visits: 16.9 Million

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>	Project (Number/Name) 001 / <i>Defense Technical Information Center</i>

Total page views: 127.7 Million

IAC Customer Technical Support Requests for Analysis: 3,757

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>				Project (Number/Name) 002 / <i>Information Analysis Centers</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
002: <i>Information Analysis Centers</i>	24.297	5.074	5.016	5.016	-	5.016	5.016	5.016	5.016	5.016	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DoD Information Analysis Centers (IACs), established under DoD Instruction 3200.14, serve as a vital resource in providing timely, relevant information directly to users when and where it is needed. IACs serve as a bridge between the warfighter and the Acquisition/Research community, providing essential technical analysis and data support to a diverse customer base, to include the Combatant Commands (CCMDs), the Office of the Secretary of Defense, Defense Agencies, and the Military Services. IACs actively partner and collaborate with Defense Research and Engineering (R&E) focus groups and communities of interest in areas of specialized fields or specific technologies. The IACs create and maintain comprehensive knowledge analysis centers that include historical, technical, scientific, and other data and information collected worldwide. They are staffed with scientists, engineers and information specialists to provide research and analysis to customers with diverse, complex and challenging requirements. IAC operations, in concert with 2018 National Defense Strategy objectives, directly support the warfighter, and play an ongoing and critical role in solving key CCMD operational issues such as cyber security, unmanned aerial vehicle visual/audible signature reduction, and improvements to the ballistic resistance of body armor.

The IAC Program Management Office at DTIC performs contract acquisition, management, and operational support for IAC contract operations and the technical information that is generated as a result of research and studies. In a time of shrinking budgets and increasing responsibility, IACs are a valuable resource for accessing scientific and technical information culled from efforts to solve new and historic challenges. Direct IAC customer support activities, such as Technical Area Task (TAT) order processing, Basic Center Operations (BCO) support, Defense Finance and Accounting Service (DFAS) activities, contracting/acquisition related activities, etc., are funded in part through partnerships with the Defense R&E community and the annual collection of customer reimbursements for their share of direct costs, in accordance with the IAC Reimbursable Review Board (IRRB) recommendations. This represents the maximum cost-sharing with IAC customers allowable, per guidance from the OSD Office of General Counsel. Annual IAC efforts and accomplishments are dependent on the level of participation and collaboration by the R&E community at large.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Information Analysis Centers	5.074	5.016	5.016
FY 2019 Plans:			
- Support the DTIC mission to provide technical reports to DoD.			
- Provide administrative and operational oversight of basic core contract activities for DoD IACs to collect, analyze, synthesize and disseminate worldwide scientific and technical information (STI) in support of DoD's critical technologies and the warfighter.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>	Project (Number/Name) 002 / <i>Information Analysis Centers</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Respond to technical inquiries (average 400 per month) and provide in-depth science and technology (S&T) analysis; create and provide STI results via IAC websites; capture STI products from new/on-going analysis tasks; and support the exchange of information among members of the operational and technical communities. - Manage and support Technical Area Tasks (TATs) ordered by the DoD and non-DoD customers; provide program strategy and ensure alignment with Department goals/direction. - Begin making new Task Order awards to the IAC MAC contract (awarded in September 2018) from Homeland Defense, Defense Systems, and Cyber Systems contacts; close these contracts to new awards while continuing work on existing Task Orders. - Award the Record Digitization small business contract (\$4 Million) for the purpose of digitizing over 1 million hardcopy, microfiche, and microfilm technical documents for preservation and ease of discovery. <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - Support the DTIC mission to provide technical reports to DoD. - Provide administrative and operational oversight of basic core contract activities for DoD IACs to collect, analyze, synthesize and disseminate worldwide scientific and technical information (STI) in support of DoD's critical technologies and the warfighter. - Respond to technical inquiries (average 400 per month) and provide in-depth science and technology (S&T) analysis; create and provide STI results via IAC websites; capture STI products from new/on-going analysis tasks; and support the exchange of information among members of the operational and technical communities. - Manage and support Technical Area Tasks (TATs) ordered by the DoD and non-DoD customers; provide program strategy and ensure alignment with Department goals/direction. - Continue awarding Task Orders on the IAC MAC contract (awarded in September 2018) in support of Department R&D goals; close legacy MACs to new awards while continuing work on existing Task Orders. -- Assess first year of IAC MAC usage; adjust processes as necessary. - Expand customer base, incorporate new technologies as needed to align to USD(R&E) priorities. - Award Defense Systems Basic Center of Operations (small business) contract by 1st Quarter FY 2020. <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <ul style="list-style-type: none"> - There is no change in the FY 2020 Base, as compared to the FY 2019 Base. 			
Accomplishments/Planned Programs Subtotals	5.074	5.016	5.016

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

N/A
Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Technical Information Center		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605801KA / <i>Defense Technical Information Center</i>	Project (Number/Name) 002 / <i>Information Analysis Centers</i>

D. Acquisition Strategy

N/A

E. Performance Metrics

Figures reflect FY 2018 end-of-year data.

Number of:

- IAC web inquiries: 1,224,451
- IAC technical inquiries: 3,757
- STI documents added to IAC collection: 28,724
- STI documents generated by Technical Area Task (TAT) activities: 2,414
- Training or meeting events: 87
- Number of training attendees: 15,903
- Documents uploaded to DTIC's online repository: 60,504

Amount of funding:

- Provided by external customer requesting IAC technical analysis (TAT Funding): \$1.9 Billion

Customer satisfaction regarding:

- IAC products and technical inquiry support (scale of 1 to 5, 5 being best): 4.77
- IAC TATs and training (scale of 1 to 5, 5 being best): 5.0

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Technical Information Center **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605998KA / <i>Management HQ - Defense Technical Information Center (DTIC)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	4.400	4.187	4.124	3.027	-	3.027	2.779	3.432	3.367	3.453	Continuing	Continuing
001: <i>Management HQ - Defense Technical Information Center (DTIC)</i>	4.400	4.187	4.124	3.027	-	3.027	2.779	3.432	3.367	3.453	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program element (PE) provides funding for the Management Headquarters (HQ) element of the Defense Technical Information Center (DTIC), currently a DoD Field Activity assigned to the Under Secretary of Defense for Research and Engineering (USD(R&E)). During FY 2019, DTIC is slated to realign to the DoD Chief Management Officer (CMO). The PE supports personnel compensation for HQ-assigned civilians, along with related administrative support costs. This second DTIC PE, established in FY 2017, is designed to track activities deemed as headquarters functions, with no operational efficiencies or enhancement to mission.

- The PE supports the following HQ functions and mission essential activities critical to the success of DTIC's business operations, and mandated by law or regulation:
- Activity leadership, strategic planning, and Front Office support staff.
 - The front office staff represents a small component of this PE. Most of the specialized functions and skill-sets described below are centralized activities within the PE, yet support the larger organization and its employees. These activities were consolidated as a means to improve efficiencies throughout DTIC, and are essential to the operation of DTIC's primary PE 0605801KA.
 - Reductions to DTIC's HQ staffing levels continue, reducing civilian full time equivalents (FTEs) below FY 2017-2019 levels.
 - Financial Management and Comptroller. Provides integrated resource management at the Agency level to obtain, control, and execute budget and manpower authorities to support the organization's mission requirements. Develops and prepares agency budget documents and exhibits for submission to both OSD and Congress.
 - Accounting support to DTIC's mission operations; partners with the Defense Finance and Accounting Service to present accurate financial reporting and Fund Balance with Treasury.
 - Financial Improvement and Audit Remediation (FIAR) activities and oversight in compliance with the Department's audit goals, objectives, and milestones.
 - Human Resources (HR) Liaison Support. Provides the DTIC enterprise with payroll processing and "Hire to Retire" mission support; oversees and organizes employee training, professional development, and certification programs (e.g., Acquisition, Financial Management, and IT programs).
 - Coordinates recruitment placement and classification action for the mission areas; liaison to the Defense Finance and Accounting Service for HR servicing and the Defense Logistics Agency (DLA) for Equal Employment Opportunity (EEO) program maintenance.
 - Mandatory Records Management compliance activities and administration programs.
 - IT Management/Chief Information Officer (CIO). Collects, analyzes, and reports information necessary to effectively and efficiently manage enterprise IT resources; CIO functions are performed in compliance with DoD-CIO guidance, instructions and mandates.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Technical Information Center	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605998KA / <i>Management HQ - Defense Technical Information Center (DTIC)</i>
--	---

- IT Service Desk/Local Area Network (LAN). DTIC's Service Desk was replaced with an in-house application, developed to manage support tickets and encourage a self-service approach for routine requests. Office automation activities supports--on a part-time basis--desktop computing customers; resolves IT-related equipment or system incidents; provides assured system and network availability, info delivery, and secure IT solutions to support current and future business and mission requirements. Beginning in FY 2020, this IT service will be performed by the Defense Information Systems Agency (DISA).

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	4.187	4.124	3.927	-	3.927
Current President's Budget	4.187	4.124	3.027	-	3.027
Total Adjustments	0.000	0.000	-0.900	-	-0.900
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Changes	-	-	-0.900	-	-0.900

Change Summary Explanation

Program Change: In comparing the Current President's Budget FY 2020 Base program against the Previous President's Budget FY 2020 PB Base, there is a decrease of \$0.900 Million. This reduction is the result of the Department's "Civilian Direct Hire Efficiency" effort, which directs a realignment of agency manpower positions to staff other organizations, based on DoD priorities. This effort directed the decrease of five DTIC full time equivalents (FTEs) in FY 2020. The \$0.900 Million reflects the payroll expense decrease associated with the five FTEs.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Title: Management HQ - Defense Technical Information Center	4.187	4.124	3.027
FY 2019 Plans: - Execute the program, activities and functions as described above in Section A, Mission Description of PE 0605998KA.			
FY 2020 Plans: - Execute the program, activities and functions as described above in Section A, Mission Description of PE 0605998KA.			
FY 2019 to FY 2020 Increase/Decrease Statement: The change between FY 2019 and the FY 2020 Base (a net decrease of \$1.097 Million in FY 2020) reflects a net reduction in the number of civilian authorizations assigned to the Management Headquarters element of DTIC.			
Accomplishments/Planned Programs Subtotals	4.187	4.124	3.027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Technical Information Center Date: March 2019

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0605998KA / Management HQ - Defense Technical Information Center (DTIC)
--	--

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

N/A

Remarks

E. Acquisition Strategy

N/A

F. Performance Metrics

N/A

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



Defense Threat Reduction Agency

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Defense Threat Reduction Agency • Budget Estimates FY 2020 • RDT&E Program

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**Exhibit R-1, RDT&E Programs
Defense Threat Reduction Agency
Fiscal Year (FY) 2020 Budget Estimates**

Appropriation: RDT&E, Defense-Wide

Date: March 2019

OVERVIEW

The Defense Threat Reduction Agency (DTRA) is the Department of Defense's (DoD) principle Research, Development, Test & Evaluation (RDT&E) program for combating and countering the threat posed by the networks and capabilities of foreign weapons of mass destruction (WMD), improvised explosive devices (IEDs) and other improvised threats. These present an immediate, persistent, and evolving risk to our nation's security. Detecting, deterring and defeating these threats is a primary DoD priority, and the mission of DTRA.

The DTRA RDT&E funding for FY20 will meet critical Combatant Command and Service requirements across the chemical, biological, radiological, nuclear, and improvised threat mission space. These activities address ongoing and emerging strategic, operational, and tactical challenges to sustain and advance DoD's capabilities to provide WMD and improvised threat surveillance, detection, defeat, prevention, nonproliferation, counterproliferation, and consequence management.

DTRA develops information systems and advanced analytical tools to enable the Joint Force, coalition partners and the interagency the ability to synthesize and exchange complex technical information in real time for actionable planning and action. By rapidly delivering material solutions across the WMD and improvised mission space, capabilities are delivered that allow for the identification, detection, prevention, neutralization, exploitation, and mitigation of the impact of WMD and improvised threat use on the battle field. This RDT&E effort directly supports National Defense Strategy Line of Effort (NDS LOE) 1: Build a More Lethal Force.

The RDT&E portfolio includes a basic research initiative that balances the scientific exploration, discovery, and experimentation with near- and mid-term priorities. This portfolio facilitates innovative solutions and technologies that transition to cost effective capabilities. In addition, the RDT&E portfolio includes leading information science, advanced analytics, and modeling and simulation capabilities, while providing operational, near real-time decision support. To ensure that developed capabilities meet warfighter requirements the RDT&E portfolio also includes end-to-end test event planning and management and includes data analysis that supports DoD, federal agencies, and coalition partners counter WMD and improvised threat programs.

The RDT&E portfolio includes a long standing nuclear technology development effort focused on technologies that support a safe, secure, and effective U.S. nuclear deterrent as well as those technologies that prevent a nuclear or radiological attacks against the U.S. or its allies. This portion of the portfolio includes a broad range of issues including: nuclear weapons effects for targeting in support of U.S. strategic deterrence, nuclear survivability standards, and technology supporting the Joint Force, leading edge nuclear detection technologies that can detect, characterize and potentially attribute the use of nuclear material or detonations.

The RDT&E portfolio also develops technologies to counter WMD and improvised threats through the development of: weapons effects and planning capabilities, target sensing and characterization technologies, novel methods for the defeat and destruction of chemical and biological agents, technologies supporting sensing surveillance and reconnaissance (ISR) capabilities and tools and technologies that hold adversary networks at risk by modeling the effects and trade-offs of weapons systems against enemy targets including hard and deeply buried targets.

DTRA continually assesses the total RDT&E portfolio with respect to new and emerging requirements, the current and future threat environment and the continually changing technology landscape. This submission is driven by requirements from the combatant commands that support specific warfighter needs. This submission reflects the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles which supports. DTRA's RDT&E portfolio continues to reflect Services Requirements Review Board reductions previously implemented across the FYDP.

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 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Feb 2019

Appropriation -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Research, Development, Test & Eval, DW	667,569	479,968	183,286	663,254
Total Research, Development, Test & Evaluation	667,569	479,968	183,286	663,254

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Department of Defense
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 (Dollars in Thousands)

21 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	572,282		164,795	164,795	737,077
Total Research, Development, Test & Evaluation	572,282		164,795	164,795	737,077

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Department of Defense
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 (Dollars in Thousands)

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Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted

Basic Research	36,369	37,023		37,023
Applied Research	152,544	155,924		155,924
Advanced Technology Development	316,212	280,858	13,648	294,506
Advanced Component Development And Prototypes	144,934		169,638	169,638
System Development And Demonstration	6,199	6,163		6,163
Management Support	11,311			
Total Research, Development, Test & Evaluation	667,569	479,968	183,286	663,254
Summary Recap of FYDP Programs				

Research and Development	667,569	479,968	183,286	663,254
Total Research, Development, Test & Evaluation	667,569	479,968	183,286	663,254

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Department of Defense
 FY 2020 President's Budget
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 (Dollars in Thousands)

21 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Basic Research	26,000				26,000
Applied Research	179,096		1,677	1,677	180,773
Advanced Technology Development	340,065		49,528	49,528	389,593
Advanced Component Development And Prototypes	14,021		113,590	113,590	127,611
System Development And Demonstration	13,100				13,100
Management Support					
Total Research, Development, Test & Evaluation	572,282		164,795	164,795	737,077
<u>Summary Recap of FYDP Programs</u>					
Research and Development	572,282		164,795	164,795	737,077
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Defense-Wide
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Defense-Wide
FY 2020 President's Budget
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Total Research, Development, Test & Evaluation	667,569	479,968	183,286	663,254

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 (Dollars in Thousands)

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se c
1	0601000BR	DTRA Basic Research	01	36,369	37,023		37,023	U
		Basic Research		36,369	37,023		37,023	
10	0602134BR	Counter Improvised-Threat Studies	02					U
20	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	152,544	155,924		155,924	U
		Applied Research		152,544	155,924		155,924	
27	0603134BR	Counter Improvised-Threat Simulation	03	23,366		13,648	13,648	U
28	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	292,846	280,858		280,858	U
		Advanced Technology Development		316,212	280,858	13,648	294,506	
94	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04	144,934		169,638	169,638	U
105	0604775BR	Defense Rapid Innovation Program	04					U
		Advanced Component Development And Prototypes		144,934		169,638	169,638	
127	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	6,199	6,163		6,163	U
		System Development And Demonstration		6,199	6,163		6,163	
159	0605502BR	Small Business Innovation Research	06	11,311				U
		Management Support		11,311				
Total Research, Development, Test & Eval, DW				667,569	479,968	183,286	663,254	

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 (Dollars in Thousands)

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
1	0601000BR	DTRA Basic Research	01	26,000				26,000	U
		Basic Research		26,000				26,000	
10	0602134BR	Counter Improvised-Threat Studies	02			1,677	1,677	1,677	U
20	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	179,096				179,096	U
		Applied Research		179,096		1,677	1,677	180,773	
27	0603134BR	Counter Improvised-Threat Simulation	03			49,528	49,528	49,528	U
28	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	340,065				340,065	U
		Advanced Technology Development		340,065		49,528	49,528	389,593	
94	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04			113,590	113,590	113,590	U
105	0604775BR	Defense Rapid Innovation Program	04	14,021				14,021	U
		Advanced Component Development And Prototypes		14,021		113,590	113,590	127,611	
127	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	13,100				13,100	U
		System Development And Demonstration		13,100				13,100	
159	0605502BR	Small Business Innovation Research	06						U
		Management Support							
Total Research, Development, Test & Eval, DW				572,282		164,795	164,795	737,077	

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Defense Threat Reduction Agency
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20	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	152,544	155,924		155,924	U
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28	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	292,846	280,858		280,858	U
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105	0604775BR	Defense Rapid Innovation Program	04					U
		Advanced Component Development And Prototypes		144,934		169,638	169,638	
127	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	6,199	6,163		6,163	U
		System Development And Demonstration		6,199	6,163		6,163	
159	0605502BR	Small Business Innovation Research Management Support	06	11,311				U
				11,311				
Total Defense Threat Reduction Agency				667,569	479,968	183,286	663,254	

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Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
1	0601000BR	DTRA Basic Research	01	26,000				26,000	U
		Basic Research		26,000				26,000	
10	0602134BR	Counter Improvised-Threat Studies	02			1,677	1,677	1,677	U
20	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	179,096				179,096	U
		Applied Research		179,096		1,677	1,677	180,773	
27	0603134BR	Counter Improvised-Threat Simulation	03			49,528	49,528	49,528	U
28	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	340,065				340,065	U
		Advanced Technology Development		340,065		49,528	49,528	389,593	
94	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04			113,590	113,590	113,590	U
105	0604775BR	Defense Rapid Innovation Program	04	14,021				14,021	U
		Advanced Component Development And Prototypes		14,021		113,590	113,590	127,611	
127	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	13,100				13,100	U
		System Development And Demonstration		13,100				13,100	
159	0605502BR	Small Business Innovation Research Management Support	06						U
Total Defense Threat Reduction Agency				572,282		164,795	164,795	737,077	

R-120PB: FY 2020 President's Budget (Published Version), as of February 21, 2019 at 09:44:59

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Department of Defense
 FY 2020 OCO Review
 Exhibit R-1 FY 2020 OCO Review
 Total Obligational Authority
 (Dollars in Thousands)

21 Feb 2019

Appropriation	FY 2019 OCO Request	FY 2020 Component OCO Request	FY 2020 OSD Round1 OCO Adjustments	FY 2020 OSD Round1 OCO Review	FY 2020 OCO to Base Enduring Requirements	FY 2020 OCO for Base Requirements	FY 2020 OCO for Hurricane
Research, Development, Test & Eval, DW	256,316				164,795		
Total Research, Development, Test & Evaluation	256,316				164,795		

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Department of Defense
 FY 2020 OCO Review
 Exhibit R-1 FY 2020 OCO Review
 Total Obligational Authority
 (Dollars in Thousands)

21 Feb 2019

Appropriation	FY 2020 Total OCO for Base Requirements	FY 2020 Total OCO	FY 2021 OCO	FY 2021 OCO to Base Enduring Requirements	FY 2021 OCO for Base Requirements	FY 2021 Total OCO
Research, Development, Test & Eval, DW		164,795		121,771		121,771
Total Research, Development, Test & Evaluation		164,795		121,771		121,771

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Department of Defense
 FY 2020 OCO Review
 Exhibit R-1 FY 2020 OCO Review
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 (Dollars in Thousands)

21 Feb 2019

	FY 2019 OCO Request	FY 2020 Component OCO Request	FY 2020 OSD Round1 OCO Adjustments	FY 2020 OSD Round1 OCO Review	FY 2020 OCO to Base Enduring Requirements	FY 2020 OCO for Base Requirements	FY 2020 OCO for Hurricane
Summary Recap of Budget Activities -----							
Applied Research					1,677		
Advanced Technology Development	13,648				49,528		
Advanced Component Development And Prototypes	242,668				113,590		
Total Research, Development, Test & Evaluation	256,316				164,795		
Summary Recap of FYDP Programs -----							
Research and Development	256,316				164,795		
Total Research, Development, Test & Evaluation	256,316				164,795		

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Department of Defense
 FY 2020 OCO Review
 Exhibit R-1 FY 2020 OCO Review
 Total Obligational Authority
 (Dollars in Thousands)

21 Feb 2019

	FY 2020 Total OCO for Base Requirements	FY 2020 Total OCO	FY 2021 OCO	FY 2021 OCO to Base Enduring Requirements	FY 2021 OCO for Base Requirements	FY 2021 Total OCO
Summary Recap of Budget Activities -----						
Applied Research		1,677		1,711		1,711
Advanced Technology Development		49,528		50,110		50,110
Advanced Component Development And Prototypes		113,590		69,950		69,950
Total Research, Development, Test & Evaluation		164,795		121,771		121,771
Summary Recap of FYDP Programs -----						
Research and Development		164,795		121,771		121,771
Total Research, Development, Test & Evaluation		164,795		121,771		121,771

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Defense-Wide
 FY 2020 OCO Review
 Exhibit R-1 FY 2020 OCO Review
 Total Obligational Authority
 (Dollars in Thousands)

21 Feb 2019

Summary Recap of Budget Activities	FY 2019 OCO Request	FY 2020 Component OCO Request	FY 2020 OSD Roundl OCO Adjustments	FY 2020 OSD Roundl OCO Review	FY 2020 OCO to Base Enduring Requirements	FY 2020 OCO for Base Requirements	FY 2020 OCO for Hurricane

Applied Research					1,677		
Advanced Technology Development	13,648				49,528		
Advanced Component Development And Prototypes	242,668				113,590		
Total Research, Development, Test & Evaluation	256,316				164,795		
Summary Recap of FYDP Programs							

Research and Development	256,316				164,795		
Total Research, Development, Test & Evaluation	256,316				164,795		

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Defense-Wide
 FY 2020 OCO Review
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 Total Obligational Authority
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	FY 2020 Total OCO for Base Requirements	FY 2020 Total OCO	FY 2021 OCO	FY 2021 OCO to Base Enduring Requirements	FY 2021 OCO for Base Requirements	FY 2021 Total OCO
Summary Recap of Budget Activities						
Applied Research		1,677		1,711		1,711
Advanced Technology Development		49,528		50,110		50,110
Advanced Component Development And Prototypes		113,590		69,950		69,950
Total Research, Development, Test & Evaluation		164,795		121,771		121,771
Summary Recap of FYDP Programs						
Research and Development		164,795		121,771		121,771
Total Research, Development, Test & Evaluation		164,795		121,771		121,771

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Defense-Wide
 FY 2020 OCO Review
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 (Dollars in Thousands)

21 Feb 2019

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Defense Threat Reduction Agency	256,316				164,795		
Total Research, Development, Test & Evaluation	256,316				164,795		

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Defense-Wide
 FY 2020 OCO Review
 Exhibit R-1 FY 2020 OCO Review
 Total Obligational Authority
 (Dollars in Thousands)

21 Feb 2019

Appropriation	FY 2020 Total OCO for Base Requirements	FY 2020 Total OCO	FY 2021 OCO	FY 2021 OCO to Base Enduring Requirements	FY 2021 OCO for Base Requirements	FY 2021 Total OCO
Defense Threat Reduction Agency		164,795		121,771		121,771
Total Research, Development, Test & Evaluation		164,795		121,771		121,771

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Defense-Wide
FY 2020 OCO Review
Exhibit R-1 FY 2020 OCO Review
Total Obligational Authority
(Dollars in Thousands)

21 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2019 OCO Request	FY 2020 Component OCO Request	FY 2020 OSD Round1 OCO Adjustments	FY 2020 OSD Round1 OCO Review	FY 2020 OCO to Base Enduring Requirements	FY 2020 OCO for Base Requirements	FY 2020 OCO for Hurricane	S e c
	0602134BR	Counter Improvised-Threat Studies	02					1,677			U
		Applied Research						1,677			
	0603134BR	Counter Improvised-Threat Simulation	03	13,648				49,528			U
		Advanced Technology Development		13,648				49,528			
	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04	242,668				113,590			U
		Advanced Component Development And Prototypes		242,668				113,590			
Total Research, Development, Test & Eval, DW				256,316				164,795			

R-1OSDR: FY 2020 OCO (OSD Review), as of February 21, 2019 at 09:47:30

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Defense-Wide
 FY 2020 OCO Review
 Exhibit R-1 FY 2020 OCO Review
 Total Obligational Authority
 (Dollars in Thousands)

21 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Total OCO for Base Requirements	FY 2020 Total OCO	FY 2021 OCO	FY 2021 OCO to Base Enduring Requirements	FY 2021 OCO for Base Requirements	FY 2021 Total OCO	Sec
0602134BR	Counter Improvised-Threat Studies	Advanced	02		1,677		1,711		1,711	U
	Applied Research				1,677		1,711		1,711	
0603134BR	Counter Improvised-Threat Simulation		03		49,528		50,110		50,110	U
	Advanced Technology Development				49,528		50,110		50,110	
0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing		04		113,590		69,950		69,950	U
	Advanced Component Development And Prototypes				113,590		69,950		69,950	
Total Research, Development, Test & Eval, DW					164,795		121,771		121,771	

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Defense Threat Reduction Agency
 FY 2020 OCO Review
 Exhibit R-1 FY 2020 OCO Review
 Total Obligational Authority
 (Dollars in Thousands)

21 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2019 OCO Request	FY 2020 Component OCO Request	FY 2020 OSD Round1 OCO Adjustments	FY 2020 OSD Round1 OCO Review	FY 2020 OCO to Base Enduring Requirements	FY 2020 OCO for Base Requirements	FY 2020 OCO for Hurricane	S e c
	0602134BR	Counter Improvised-Threat Studies	02					1,677			U
	Applied Research							1,677			
	0603134BR	Counter Improvised-Threat Simulation	03	13,648				49,528			U
	Advanced Technology Development			13,648				49,528			
	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04	242,668				113,590			U
	Advanced Component Development And Prototypes			242,668				113,590			
	Total Defense Threat Reduction Agency			256,316				164,795			

R-1OSDR: FY 2020 OCO (OSD Review), as of February 21, 2019 at 09:47:30

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Defense Threat Reduction Agency
 FY 2020 OCO Review
 Exhibit R-1 FY 2020 OCO Review
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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2020 Total OCO for Base Requirements	FY 2020 Total OCO	FY 2021 OCO	FY 2021 OCO to Base Enduring Requirements	FY 2021 OCO for Base Requirements	FY 2021 Total OCO	Sec
	0602134BR	Counter Improvised-Threat Studies	02		1,677		1,711		1,711	U
	Applied Research				1,677		1,711		1,711	
	0603134BR	Counter Improvised-Threat Simulation	03		49,528		50,110		50,110	U
	Advanced Technology Development				49,528		50,110		50,110	
	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04		113,590		69,950		69,950	U
	Advanced Component Development And Prototypes				113,590		69,950		69,950	
Total Defense Threat Reduction Agency					164,795		121,771		121,771	

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Defense Threat Reduction Agency • Budget Estimates FY 2020 • RDT&E Program

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

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
1	01	0601000BR	DTRA Basic Research.....	Volume 5 - 643

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
10	02	0602134BR	Improvised Threat Reduction Applied Research.....	Volume 5 - 647
20	02	0602718BR	*Counter Weapons of Mass Destruction Applied Research.....	Volume 5 - 653

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
27	03	0603134BR	Counter Improvised-Threat Simulation.....	Volume 5 - 679
28	03	0603160BR	*Counter Weapons of Mass Destruction Advanced Technology Development.....	Volume 5 - 685

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Defense Threat Reduction Agency • Budget Estimates FY 2020 • RDT&E Program

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
94	04	0604134BR	Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing.....	Volume 5 - 717
105	04	0604775BR	Advanced Component Development and Prototypes.....	Volume 5 - 751

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
127	05	0605000BR	*Counter Weapons of Mass Destruction Systems Development.....	Volume 5 - 757

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
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Defense Threat Reduction Agency • Budget Estimates FY 2020 • RDT&E Program

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

Program Element Title	Program Element Number	Line #	BA	Page
*Counter Weapons of Mass Destruction Advanced Technology Development	0603160BR	28	03.....	Volume 5 - 685
*Counter Weapons of Mass Destruction Applied Research	0602718BR	20	02.....	Volume 5 - 653
*Counter Weapons of Mass Destruction Systems Development	0605000BR	127	05.....	Volume 5 - 757
Advanced Component Development and Prototypes	0604775BR	105	04.....	Volume 5 - 751
Counter Improvised-Threat Simulation	0603134BR	27	03.....	Volume 5 - 679
Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing	0604134BR	94	04.....	Volume 5 - 717
DTRA Basic Research	0601000BR	1	01.....	Volume 5 - 643
Improvised Threat Reduction Applied Research	0602134BR	10	02.....	Volume 5 - 647
Small Business Innovation Research	0605502BR	159	06.....	Volume 5 - 781

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Summary of the Consolidation of Select Projects in DTRA's RDT&E Portfolio

Program Element	Old Project	New Project	Project Name	FY 2019	FY 2020 ¹	Project Consolidation	Investment Changes ²	Project	Project Name	FY 2020 Revised
0602718BR	RD	RD	Detection Technologies	16,860	18,287	74,243	180	RD	Nuclear Technologies and Capabilities Development ³	92,710
	RF	RD	Forensics Technologies	10,257	10,466	(10,466)				
	RI	RD	Nuclear Survivability	32,732	33,723	(33,723)				
	RL	RD	Nuclear and Radiological Effects	29,388	30,054	(30,054)			Counter WMD Technologies and Capabilities Development ³	
	RG	RG	Defeat Technologies	8,959	13,262	12,991	(4,000)	RG		
	RM	RG	WMD Counterforce Technologies	12,780	12,991	(12,991)				
0603160BR	RD	RD	Detection Technologies	26,021	27,110	42,345	698	RD	Nuclear Technologies and Capabilities Development ⁴	70,153
	RF	RD	Forensics Technologies	33,578	32,973	(32,973)				
	RI	RD	Nuclear Survivability	5,783	5,946	(5,946)				
	RL	RD	Nuclear and Radiological Effects	3,427	3,426	(3,426)			Counter WMD Technologies and Capabilities Development ⁴	
	RG	RG	Defeat Technologies	20,277	24,491	172,667	37,929	RG		
	RE	RG	Counter-Terrorism Technologies	108,978	111,060	(111,060)				
	RM	RG	WMD Counterforce Technologies	25,243	25,905	(25,905)				
	RR	RG	Countering WMD Test and Evaluation	12,394	12,389	(12,389)				
RT	RG	Target Assessment Technologies	33,871	23,313	(23,313)					
0605000BR					0	4,821	2,679	RD	Nuclear Technologies and Capabilities Development ⁵	7,500
	RF		Forensics Technologies	6,163	4,821	(4,821)				

Net of All Project Consolidations

0

Notes:

1. This position is from the FY 2020 column of the FY 2019 President's Budget submission from February 2018.
2. Additional investment changes implemented for these consolidated projects beyond the consolidation actions.
3. In program element 0602718BR, DTRA consolidated projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects into the renamed RD-Nuclear Technologies and Capabilities Development beginning in FY 2020. Additionally, DTRA consolidated RM-WMD Counterforce Technologies into the renamed project RG-Counter WMD Technologies and Capabilities Development.
4. In program element 0603160BR, DTRA consolidated projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects into the renamed RD-Nuclear Technologies and Capabilities Development beginning in FY 2020. Additionally, DTRA consolidated projects RE-Counter-Terrorism Technologies, RM-WMD Counterforce Technologies, RR-CWMD Test and Evaluation, and RT-Target Assessment Technologies, into the renamed project RG-Counter WMD Technologies and Capabilities Development.
5. In program element 0605000BR, DTRA consolidated project RF-Forensics Technologies into the renamed project RD-Nuclear Technologies and Capabilities Development.

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ACRONYMS

AA-HPRT	Analytics Hard Problem Research Team
ACES	Arms Control Enterprise System
AD	Agent Defeat
ADMB	Agent Defeat Modeling and Simulation Baseline
AEHF	Advanced Extremely High Frequency
AFX	Air Force Explosive
AI	Active Interrogation
ANTS	Attack the Network Tool Suite
AOR	Area of Responsibility
ARAT	Adversarial Route Analysis Tool
ARIEL	Autonomous Reconnaissance Infrared Electro-optical Loitering
ASIC	Application Specific Integrated Circuit
ATAC	Advanced Targeting Assessment Capability
ATAK	Android Tactical Assault Kit
ATD	Advanced Technology Development
AUV	Autonomous Underwater Vehicle
AWE	Atomic Weapons Establishment
BAA	Broad Agency Announcement
BDA	Battle Damage Assessment
BDI	Battle Damage Information
BICES	Battlefield Information Collection and Exploitation System
BLADE	BDI Link Advanced Demonstrator
BLU	Bomb, Live Unit
C4I	Command, Control, Communications, Computers, and Intelligence
CANES	Consolidated Afloat Network and Enterprise Services

CAPE	Cost Assessment and Program Evaluation
CARDS	CBRN Air-droppable Remotely Deployed Sensor System Cost Analysis Tool for Test Site
C-B	Chemical-Biological
CBP	Customs and Border Protection
CBRNE	Chemical, Biological, Radiological, Nuclear, and High-yield Explosives
CCDR	Combatant Commander
CFD	Computational Fluid Dynamics
CHAMP	Counter Electronics High Power Microwave Advanced Missile Project
CJCS	Chairman, Joint Chiefs of Staff
CNDSP	Computer Network Defense Service Provider
CMOS	Complementary metal-oxide semiconductor
CCMD	Combatant Command
COE	Consequence of Execution
CoE-NI	Consequence of Execution – Nuclear Integration
COI	Community of Interest
CONOPS	Concept of Operations
CONUS	Continental United States
COOP	Continuity of Operations
COP	Common Operating Picture
CP	Counter-proliferation
CPGS	Conventional Prompt Global Strike
C-sUAS	Counter-Small Unmanned Aerial Systems
CSM	Computational Structure Mechanics
CTBT	Comprehensive Nuclear Test Ban Treaty
CT/CP	Counterterrorism / Counterproliferation
CTS	Component Test Structure
CTTS	CBRNE Tactical Training System
C-UAS	Counter- Unmanned Aerial System

C-WAC	Counter-WMD Analysis Center
CWMD	Countering Weapons of Mass Destruction
CWMD-T	Combating Weapons of Mass Destruction –Terrorism
DAPSS	Denied Area Persistent Sensor System
DEL	DTRA Experimentation Lab
DHS	Department of Homeland Security
DIAMONDS	Defense Integration and Management of Nuclear Data Services
DIOCC/DIA	Defense Intelligence Operations Coordination Center/Defense Intelligence Agency
DITEC	DTRA Integration Technical Experimentation Center
DoD	Department of Defense
DO	DISCREET OCULUS
DOE	Department of Energy
DOJ	Department of Justice
DPG	Dugway Proving Ground
DPPG	Defense Policy and Planning Guidance
DRDC	Defence Research and Development Canada
DSCS	Defense Satellite Communications System
DTRA	Defense Threat Reduction Agency
DT&E	Development, Test, and Evaluation
ECBC	Edgewood Chemical Biological Center
EDTC	Engineering and Development Test Center
EM-1	Capabilities of Nuclear Weapons: Effects Manual Number 1
EMP	Electromagnetic Pulse
EMREP	Electromagnetic Reliability and Effects Predictions
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
FEFLO	Finite Element Flow Solver
FFRDC	Federally Funded Research and Development Center

FinFets	Fin-Shaped Field Effect Transistors
FITS	Forensics Inversion Tool Suite
FOC	Full Operational Capability
FREAK	Force-on-Force Evaluation and Analysis of Key Performance Parameters
FYDP	Future Years Defense Program
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
GUI	Graphical User Interface
HAMMER	Heated and Mobile Munitions Employing Rockets
HANE	High Altitude Nuclear Environments
HARP	High Altitude Radiological Phenomenology
HDBT	Hard and Deeply Buried Target
HEBX	Hybridized Enhanced Blast Explosive
HEMP	High Altitude Electro Magnetic Pulse
HENRE	Health Effects from Radiological and Nuclear Environments
HPAC	Hazard Prediction and Assessment Capability
HPC	High Performance Computing
HPCMP	High Performance Computing Modernization Program
HTD	Hard Target Defeat
IBRD	Interagency Biological Restoration Demonstration
ICEPIC	Improved Concurrent Electromagnetic Particle-in-Cell
IED	Improvised Explosive Device
IMAAC	Interagency Modeling and Atmospheric Assessment Center
IMEA	Integrated Munitions Effects Assessment
IMS	International Monitoring System

IOC	Initial Operational Capability
IPODS	Integrated Precision Ordnance Delivery System
ISIS	Integrated Stand-off Inspection System
ISR	Intelligence, Surveillance, Reconnaissance
ISS	Integrated Sensor System
IR	Infrared
IT	Information Technology
ITD	Integrated Technology Demonstration
IWMDT	Integrated Weapons of Mass Destruction Toolset
JAIEG	Joint Atomic Information Exchange Group
JCAM	Joint Collaborative Analysis Model
JCDE	Joint Concept Development & Experimentation
JCIDS	Joint Capabilities Integration and Development System
JCTD	Joint Concept Technology Demonstration
JDAM	Joint Direct Attack Munition
JEM	Joint Effects Model
JMEWS	Joint Multi-Effects Warhead System
JSAF	Joint Semi-Automated Forces
JWICS	Joint Worldwide Intelligence Communications System
KAFB	Kirtland Air Force Base
keV	kilo-electronvolt
LAMP	Loop-mediated isothermal Amplification
LCP	Large Caliber Penetrator
LLE	Laboratory for Laser Energetics
LLNL	Lawrence Livermore National Laboratory
LTS	Large Test Structure
MACS	Modular Autonomous Countering WMD System
MAGICS	Modular Airborne Gaseous Isotope Collection System

MASS	MILSATCOM Atmospheric Scintillation Simulator
MCNP	Monte Carlo N-Particle
MDA	Missile Defense Agency
NLAN	Non-Classified Local Area Network
OIR	Operation Inherent Resolve (Iraq)
RS	Resolute Support (Afghanistan)
sUAS	Small Unmanned Aerial Systems
SSE	Sensitive Site Exploitation
TWAC	Targeting and Weaponering Analysis Cell
TXL	Transportable Xenon Laboratory
UAS	Unmanned Aerial Systems
UCP	Unified Command Plan
UGF	Underground Facility
UGT	Underground Test
UHPC	Ultra-High Performance Concrete
UK	United Kingdom
USANCA	U.S. Army Nuclear and Combating WMD Agency
USEUCOM	U.S. European Command
USFK	U.S. Forces Korea
USG	United States Government
USPACOM	U.S. Pacific Command
USPDS	U.S. Prompt Diagnostics System
UTAS	Underground Targeting and Analysis System
VAPO	Vulnerability Assessment Protection Option
VEO	Violent Extremist Organization
VIRTUS	Virtual Radiation Training through Ubiety System
VMS	Virtual Management System
VOIP	Voice Over Internet Protocol

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 1: <i>Basic Research</i>	R-1 Program Element (Number/Name) PE 0601000BR / <i>DTRA Basic Research</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	288.938	36.369	37.023	26.000	-	26.000	25.500	24.500	24.000	24.481	Continuing	Continuing
RU: <i>Basic Research for Countering WMD</i>	288.938	36.369	37.023	26.000	-	26.000	25.500	24.500	24.000	24.481	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Basic Research for Countering WMD project, as the nation's primary basic research portfolio solely dedicated to countering weapons of mass destruction (CWMD), is a core strategic investor in future scientific progress across the spectrum of the Defense Threat Reduction Agency's (DTRA) CWMD mission areas. This project concentrates on high risk, high-payoff research, leveraging world-class expertise in academia, government, and industry to increase the foundational body of scientific knowledge supporting DTRA's Applied Research and Advanced Technology Development budget projects.

This project aligns with DTRA's strategic objectives that support policy and planning guidance from the Office of the President, the Department of Defense (DoD), and the broader WMD threat reduction and consequence management communities. The portfolio addresses this guidance through S&T investments that support CWMD and reduce global nuclear dangers. Program managers drive interdisciplinary portfolios primarily drawing from physics, chemistry, biology, mathematics, and information and network sciences. The portfolios themselves are broadly focused on fundamental, exploratory research to support the development of: standoff radiological/nuclear detection capabilities; countermeasures and defenses to non-traditional agents; nuclear detection in-depth understanding of the capabilities, values, intent, and decision making of potential adversaries, whether they are states, networks, or individuals; WMD agent defeat technologies; and biologically-based and -inspired materials for DoD applications.

This project maintains a robust, forward-looking portfolio targeting mission-focused research demonstrating scientific merit, technical quality, and the potential for breakthrough discoveries.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	37.201	37.023	37.229	-	37.229
Current President's Budget	36.369	37.023	26.000	-	26.000
Total Adjustments	-0.832	0.000	-11.229	-	-11.229
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.832	-			
• Realignment	-	-	-11.229	-	-11.229

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 1: <i>Basic Research</i>	R-1 Program Element (Number/Name) PE 0601000BR / <i>DTRA Basic Research</i>	

Change Summary Explanation

The decrease in FY 2020 is due to reduced investment in basic research to fund increased investment in technical reachback and quick reaction capabilities in Project RA-CWMD Cross-Cutting Technical and Information Sciences in Program Element 0603160BR. The Basic Research portfolio was restructured to establish a University Partnership (UP) model with a new prioritization process. This process will focus novel UP research on high-priority CWMD gaps, to include energetics and reactives, nuclear data, weapons effects, materials science, machine learning, radiation biology, advanced analytics, and other critical areas. This model reduces administrative burdens and increases technical collaboration with partners focused on current and emerging areas of interest thereby allowing for reduced investment in FY 2020.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 1					R-1 Program Element (Number/Name) PE 0601000BR / DTRA Basic Research				Project (Number/Name) RU / Basic Research for Countering WMD			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RU: <i>Basic Research for Countering WMD</i>	288.938	36.369	37.023	26.000	-	26.000	25.500	24.500	24.000	24.481	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Basic Research for Countering WMD project, as the nation's primary basic research portfolio dedicated to countering weapons of mass destruction (CWMD), is a core strategic investor in future scientific and technological progress across the full spectrum of the Defense Threat Reduction Agency's (DTRA's) mission areas. This project concentrates on high risk, high-payoff basic research, leveraging world-class expertise in academia, government, and industry, to increase the foundational body of scientific knowledge supporting DTRA's Applied Research and Advanced Technology Development projects.

This project aligns with DTRA's strategic objectives that support policy and planning guidance from the Office of the President, the Department of Defense (DoD), and the broader WMD threat reduction community. The portfolio addresses this guidance through capability enhancements, projects, and Science and Technology (S&T) investments that support CWMD and reduce global nuclear dangers. Specifically, they include: accelerating the development of standoff radiological/nuclear detection capabilities; researching countermeasures and defenses to non-traditional agents; securing vulnerable materials; developing an in-depth understanding of the capabilities, values, intent, and decision making of potential adversaries, whether they are states, networks, or individuals; defeating WMD agents; researching biologically-based and inspired materials for DoD applications; and leveraging science, technology, and innovation through domestic and international partnerships and agreements.

This project solicits, coordinates, and conducts research to build a robust, forward-looking fundamental research portfolio targeting strategic, mission-focused, basic research with high potential impact for CWMD. The research projects are selected for scientific merit, technical quality, and the potential for innovation. Each research project offers opportunities to expand the knowledge base to help the warfighter, to bring to bear new science solutions with a fresh approach, or to leverage revolutionary approaches to technical surprise, building a foundation for future CWMD solutions. This research will enable new capabilities to: better understand the environment, threats and vulnerabilities; control, defeat, disable, and/or dispose of WMD threats; and safeguard the force by managing consequences.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Project RU: Basic Research for Countering WMD	36.369	37.023	26.000
Description: Project RU funds the exploration and discovery of fundamental scientific knowledge related to DTRA's CWMD mission by research performers from academia, government, and industry.			
FY 2019 Plans:			
- Manage and steer the CWMD Basic Research portfolio, comprised of approximately 150 active basic research awards on three-to five-year cycles. This portfolio continues to address DoD CWMD science and technology requirements, supporting specific priorities focused on current and emerging areas of interest.			
- Support collaborative relationships within the scientific community and ensure progress toward technical objectives through an annual technical review of each grant to assess scientific advancement.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency	Date: March 2019
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Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601000BR / DTRA Basic Research	Project (Number/Name) RU / Basic Research for Countering WMD
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>- Support the development of world-class talent in WMD research at universities and laboratories to foster the future Science, Technology, Engineering, and Mathematics (STEM) workforce.</p> <p>- Conduct an Internal Portfolio Review to assess the focus and scope of the portfolio related to CWMD challenges and assess the coordination of CWMD basic research across the DoD mission space and the broader basic research community to avoid duplication and ensure successful partnerships.</p> <p>FY 2020 Plans:</p> <p>- Continue transition toward a university partnership model consisting of consortia focused on select topics. This model reduces administrative burdens and increases technical collaboration with partners focused on current and emerging areas of interest.</p> <p>- Strengthen collaborative relationships within the scientific community and ensure progress toward technical objectives through annual independent technical reviews.</p> <p>- Continue to support the long-term development of a world-class STEM workforce focused on CWMD research.</p> <p>- Continue to conduct an Internal Portfolio Review to assess the focus and scope of basic research related to CWMD challenges. Assess DTRA's coordination of CWMD basic research across DoD and broader basic research community.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The decrease from FY 2019 to FY 2020 is due to reduced investment in basic research to fund increased investment in reachback and quick reaction capabilities in Project RA-CWMD Cross-Cutting Technical and Information Sciences.</p>			
Accomplishments/Planned Programs Subtotals	36.369	37.023	26.000

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

N/A

Remarks

D. Acquisition Strategy

Procurement methods include competitive selection awards through university partnerships, DTRA's Broad Agency Announcement, and collaborative funding through other organizations.

E. Performance Metrics

Project performance is measured by the number of publications from active research projects, the number of students trained in science and engineering research supporting DTRA's CWMD mission, the number of participating research organizations actively engaged in university partnerships, and the percentage of research projects transitioned to other programs for further development across DoD's research and engineering enterprise.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 2: Applied Research	R-1 Program Element (Number/Name) PE 0602134BR I Improvised Threat Reduction Applied Research
--	---

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	0.000	1.677	1.677	1.711	1.745	1.780	1.815	Continuing	Continuing
JC: Enable Rapid Capability Delivery	-	0.000	0.000	0.000	0.502	0.502	0.512	0.522	0.533	0.543	Continuing	Continuing
JS: Assist Situational Understanding	-	0.000	0.000	0.000	1.175	1.175	1.199	1.223	1.247	1.272	Continuing	Continuing

Note

Overseas Contingency Operations (OCO) for Enduring Requirements (\$1.677M): OCO for Enduring Requirements are enduring in-theater and in-CONUS costs that will likely remain after combat operations cease. This OCO program element is a new start. Funds enable and provide for urgent and emergent warfighter requirements from Combatant Commands (CCMDs) and Warfighter Senior Integration Group.

A. Mission Description and Budget Item Justification

The Defense Threat Reduction Agency (DTRA) Counter Improvised-Threat Simulation Advanced Technology Development program element funds Technology Outreach as well as development of modeling-and-simulation and analysis support tools that enhance counter-improvised explosive devices (C-IED) and counter improvised threat (C-IT) efforts.

Enable Rapid Capability Delivery. This activity is driven by current threat activities. It enables the timely validation, resourcing, research (basic or applied), and rapid prototype development and delivery to counter booby-trapped structures, buried IEDs, home-made explosives, person/suicide-borne IEDs, and radio-controlled IEDs that continue to impact deployed US Joint force maneuverability and force protection. This includes Science, Technology, Engineering, and Mathematics (STEM) manpower and also enables coordination with other stakeholders and all supporting test and evaluation activities.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	0.000	1.677	1.677
Total Adjustments	0.000	0.000	0.000	1.677	1.677
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignments	-	-	0.000	1.677	1.677

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 2: Applied Research</i>	R-1 Program Element (Number/Name) PE 0602134BR / <i>Improvised Threat Reduction Applied Research</i>	

Change Summary Explanation

The increase in FY 2020 supports investment in applied research looking for disruptive technologies that will provide a greater than 70% solution to the following investment areas: Stand-Off Detection, Anti-Armor IED (AAIED), System Attributes across the Portfolio (Machine Learning, & Artificial Intelligence), as well as increased investment in future-threat forecasting and innovative analytical research studies leveraging expertise from academia and research institutions in government and industry. These areas of investment continue to be identified time and again as challenging problem sets for the warfighters as identified by the CCMDs and warfighting commands in the CCMD integrated priority lists and JUONs. This is all in support of Assistant Secretary of Defense for Research & Engineering ASD(R&E) guidance and congressional testimony to provide the technological foundation that ensures the U.S. military of both today and tomorrow is the most capable in the fight against IEDs and emerging improvised threats. These resources will be applied to the following: designing and fabricating ultra-light weight auxetic structures that significantly reduce damage to vehicles through reducing deflection upon impact from mine blast; developing the Light Detection and Ranging (LiDAR) and unmanned aerial vehicle cameras needed to create a 3D map of an environment; developing explainable artificial intelligence (XAI) methodologies to enable human understanding of Machine Learning decisions; developing fusion strategies to improve Machine Learning algorithms by including human-in-the-loop knowledge into its learning strategies; developing methods to optimize algorithms through artificial intelligence and machine learning; and forecasting future threat scenarios and threat network resiliency.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 2					R-1 Program Element (Number/Name) PE 0602134BR / <i>Improvised Threat Reduction Applied Research</i>				Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
JC: <i>Enable Rapid Capability Delivery</i>	-	0.000	0.000	0.000	0.502	0.502	0.512	0.522	0.533	0.543	Continuing	Continuing

A. Mission Description and Budget Item Justification

Defense Threat Reduction Agency's (DTRA) takes a deliberate, structured, and proactive approach to meet future capability gaps and requirements through a continuous survey of the research realm. DTRA enables early identification and cultivation of technologies and concepts that are essential in meeting and staying ahead of the evolving improvised threats.

Improvised Threat Reduction Applied Research will fund technology outreach and investigate new technologies and scientific discoveries to progress the US into fields of study that will propel DTRA forward in countering improvised explosive devices (IEDs) and other improvised threats that will impact US Joint Force maneuverability and force protection.

Enable Rapid Capability Delivery. This activity enables the timely validation, resourcing, research, and rapid prototype development and delivery to anti-armor IEDs (i.e., explosively formed projectiles) for which a solution has never been realized.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: JC: Enable Rapid Capability Delivery	0.000	0.000	0.000	0.502	0.502
Description: This project seeks to assess and understand current and emerging technologies to take a proactive approach to rapidly address the constantly evolving environment of the warfighter.					
FY 2019 Plans: N/A					
FY 2020 Base Plans: N/A					
FY 2020 OCO Plans: - Deliver technical reports in response to Requests for Information (RFIs) submitted by DTRA program/system Integrators and initiative evaluation team members. - Convene Joint Lab Board to evaluate the feasibility and practicality of proposed solutions.					
FY 2019 to FY 2020 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602134BR / <i>Improvised Threat Reduction Applied Research</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
The increase from FY 2019 to FY 2020 supports investment in applied research to gain a better understanding of current and emerging technologies that will improve the warfighter's capability to detect, defeat, identify, neutralize, and mitigate the adversary's improvised threat to better prepare for and meet the needs of the warfighter.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000	0.502	0.502

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 27/0603134BR/JC: <i>Counter Improvised-Threat Simulation</i>	23.366	13.648	0.000	49.528	49.528	50.110	50.250	47.887	48.194	Continuing	Continuing
• 94/0604134BR/JC: <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	117.640	148.772	0.000	103.793	103.793	59.860	109.236	105.258	106.598	Continuing	Continuing

Remarks

D. Acquisition Strategy
Competitive selection of most appropriate performers to fulfill science and technology development needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics
The percentage of new technological research papers that bring forward new initiatives to the DTRA portfolio.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 2					R-1 Program Element (Number/Name) PE 0602134BR / <i>Improvised Threat Reduction Applied Research</i>				Project (Number/Name) JS / <i>Assist Situational Understanding</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
JS: <i>Assist Situational Understanding</i>	-	0.000	0.000	0.000	1.175	1.175	1.199	1.223	1.247	1.272	Continuing	Continuing

A. Mission Description and Budget Item Justification

This funding represents Defense Threat Reduction Agency's (DTRAs) Directed Studies effort, which manages and funds analytical research studies/projects to counter improvised explosive devices (C-IEDs) and emerging improvised threats. This project sponsors innovative studies which leverage expertise from academia and world-class research institutions in government and industry. The program cultivates research community partnerships and is forward-looking to: help understand the environment, threats and vulnerabilities; anticipate and plan for emerging improvised threats; and leverage innovative approaches for future counter improvised threat (C-IT) solutions to prevent or mitigate battlefield operational surprise in support of Combatant Commands (CCMDs) and deployed Warfighters.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: JS: Assist Situational Understanding	0.000	0.000	0.000	1.175	1.175
Description: This project conducts analytical research studies to counter IEDs and emerging improvised threats.					
FY 2019 Plans: N/A					
FY 2020 Base Plans: N/A					
FY 2020 OCO Plans: - Conduct 3-5 research studies to support counter C-IED and emerging improvised threat efforts. - Support collaborative relationships with the analytical community. - Conduct annual project reviews to ensure progress toward study objectives. - Assess the focus and scope of C-IT challenges within our internal portfolio and across the broader analytic community to synchronize efforts and ensure successful partnerships.					
FY 2019 to FY 2020 Increase/Decrease Statement: The increase from FY 2019 to FY 2020 supports increased investment in applied research to support analytical research studies to gain a better understanding of new technologies and scientific discoveries to counter emerging improvised threats.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000	1.175	1.175

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602134BR / <i>Improvised Threat Reduction Applied Research</i>	Project (Number/Name) JS / <i>Assist Situational Understanding</i>

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>			<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• 94/0604134BR/JS: <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	17.504	13.141	9.797	0.000	9.797	10.090	10.286	10.585	10.887	Continuing	Continuing

Remarks

D. Acquisition Strategy

Competitive selection of most appropriate performers to fulfill analytical development needs. Performer base includes best-of-breed researchers across the Department of Defense and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics

Project performance is measured via the number of deliverables/publications, number of participating research organizations, and percentage of studies transitioned for further development.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 2: Applied Research</i>	R-1 Program Element (Number/Name) PE 0602718BR / <i>*Counter Weapons of Mass Destruction Applied Research</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1,102.363	152.544	155.924	179.096	-	179.096	182.758	186.223	188.871	200.457	Continuing	Continuing
RA: <i>*CWMD Cross-Cutting Technical and Information Sciences</i>	224.468	40.189	30.603	46.317	-	46.317	48.032	49.312	49.896	58.703	Continuing	Continuing
RD: <i>**Nuclear Technologies and Capabilities Development</i>	29.653	13.745	16.860	92.710	-	92.710	93.612	95.541	97.485	99.433	Continuing	Continuing
RE: <i>Counter-Terrorism Technologies</i>	0.000	0.693	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.693
RF: <i>Forensics Technologies</i>	216.309	6.803	10.257	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	233.369
RG: <i>***Counter WMD Technologies and Capabilities Development</i>	96.456	8.483	8.959	22.253	-	22.253	22.958	22.919	23.715	24.190	Continuing	Continuing
RI: <i>Nuclear Survivability</i>	159.267	25.545	32.732	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	217.544
RL: <i>Nuclear & Radiological Effects</i>	185.241	30.320	29.388	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	244.949
RM: <i>WMD Counterforce Technologies</i>	104.355	13.956	12.780	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	131.091
RR: <i>****CWMD Test and Evaluation</i>	86.614	12.810	14.345	17.816	-	17.816	18.156	18.451	17.775	18.131	Continuing	Continuing

Note

In program element 0602718BR, DTRA consolidated projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects into the renamed RD-Nuclear Technologies and Capabilities Development beginning in FY 2020. Additionally, DTRA consolidated RM-Weapons of Mass Destruction (WMD) Counterforce Technologies into the renamed project RG-Counter WMD Technologies and Capabilities Development.

*Project RA title changes from Information Sciences and Applications to Countering Weapons of Mass Destruction (CWMD) Cross-Cutting Technical and Information Sciences in FY 2020.

**Project RD title changes from Detection Technologies to Nuclear Technologies and Capabilities Development in FY 2020.

***Project RG title changes from Defeat Technologies to Counter WMD Technologies and Capabilities Development in FY 2020.

****Project RR title changes from Countering WMD Test and Evaluation to CWMD Test and Evaluation in FY 2020.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 2: Applied Research</i>	R-1 Program Element (Number/Name) PE 0602718BR I <i>*Counter Weapons of Mass Destruction Applied Research</i>
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A. Mission Description and Budget Item Justification

The Defense Threat Reduction Agency (DTRA) Counter Weapons of Mass Destruction (CWMD) Applied Research program element funds the application and advancement of basic scientific knowledge to develop novel materials, devices, systems, and methods supporting next generation concepts and technologies, to include advances in Weapons of Mass Destruction (WMD) surveillance, detection, defeat, prevention, nonproliferation, counterproliferation, consequence management, and treaty verification.

This Applied Research portfolio is aligned with strategic planning objectives and Science and Technology (S&T) investment direction established annually by DTRA, which directly support policy and planning guidance from the Office of the President, the Department of Defense (DoD), and the broader WMD threat reduction community.

The portfolio advances DTRA's CWMD mission by balancing the following: invest in DTRA's applied research capabilities and increase the CWMD technology base to maximize future pay-off; capitalize on opportunities to deliver innovative, cost-effective solutions to technical challenges that must be resolved prior to system-specific technology investigations and development; and ensure applied research efforts are directly aligned to the mission-specific capability requirements of DTRA, the Military Departments, Combatant Commanders, other DoD and federal agencies, and international partners.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	157.908	161.151	163.576	-	163.576
Current President's Budget	152.544	155.924	179.096	-	179.096
Total Adjustments	-5.364	-5.227	15.520	-	15.520
• Congressional General Reductions	-	-4.000			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-4.676	-			
• Realignments	-	-	15.520	-	15.520
• FFRDC	-0.688	-1.227	-	-	-

Change Summary Explanation

The increase in FY 2020 is due to the net effect of increased investment in the CWMD Information Integration Cell addressing higher Combatant Command (CCMD) and Interagency demand for CWMD information sharing and data analysis support, increased investment in the institutionalization of a quick reaction capability to rapidly transition both material and non-material developmental technologies to fielded solutions, increased investment in nuclear detection in order to support battlespace efficacy in terms of situational awareness and interdiction as early as possible along the threat timeline, multi-modal CWMD modeling & simulation capabilities to better inform operational decision makers of WMD defeat options and their effects, test instrumentation and data acquisition systems to

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 2: Applied Research</i>	PE 0602718BR / <i>*Counter Weapons of Mass Destruction Applied Research</i>

remain "cutting edge" in gathering test data for customers, and decreased investment in Counter-small Unmanned Aerial Systems (C-sUAS). There is 9.5% real growth in this program element from the previous President's Budget submission which will be discussed at the R-2a project level.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 2					R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research				Project (Number/Name) RA / *CWMD Cross-Cutting Technical and Information Sciences			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RA: *CWMD Cross-Cutting Technical and Information Sciences	224.468	40.189	30.603	46.317	-	46.317	48.032	49.312	49.896	58.703	Continuing	Continuing

Note

*Project RA title changes from Information Sciences and Applications to CMWD Cross-Cutting Technical and Information Sciences in FY 2020.

A. Mission Description and Budget Item Justification

The Information Sciences and Applications project develops concepts and technologies in the areas of high-speed information processing, modeling and simulation, signal detection, and data-driven decision analysis in support of the Defense Threat Reduction Agency's (DTRA's) technical reachback teams. This project develops and maintains continuously improving collaborative architectures and WMD modeling and simulation codes that drive an integrated suite of decision support tools serving the Combatant Commands, other Department of Defense (DoD) agencies, and national and international CWMD partners. This effort also funds research activities that benefit the public through analysis and engagement to reduce and counter threats posed by WMD via the Project on Advanced Systems and Concepts for Countering WMD (PASCC). PASCC cultivates national and international research community partnerships across domains, bringing scientific, technical, and social science experts together to help understand and anticipate WMD capabilities and threats.

B. Accomplishments/Planned Programs (\$ in Millions)

Title: RA: CWMD Cross-Cutting Technical and Information Sciences	FY 2018	FY 2019	FY 2020
Description: Project RA develops concepts and technologies in the areas of high speed information processing, modeling and simulation, signal detection, and data-driven decision analysis.	40.189	30.603	46.317
FY 2019 Plans:			
- Release software update for Force-on-Force Evaluation and Analysis of Key Performance Parameters (FREAK), which provides Integrated Force-on-Force Models for Course of Action Analysis, CONOPS Development, and Sensor Performance Prediction.			
- Release software update for Virtual Radiation Training through Ubiety System (VIRTUS), which provides a mobile phone based radiation sensor emulator for search training.			
- Release software update for Android Tactical Assault Kit (ATAK), which incorporates CWMD capabilities into a mobile phone based tactical common operating picture - for customers to support new, emerging and updated modeling and simulation requirements.			
- Continue to sustain a shared, rapidly configurable computational environment to serve as the common R&D backbone: core analytic tools, shared information, and applications. Provide analytic solutions and shared computations environments to support R&D and operational needs.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RA / *CWMD Cross-Cutting Technical and Information Sciences

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>- Transition analytic investments, including machine learning, natural language processing, and statistical analytics technologies to the common R&D backbone for agency wide access.</p> <p>- Improve decision making processes and time-to-decision cycles by researching, developing, integrating, deploying, and managing advanced data analytics, data visualizations, and knowledge management capabilities to support DTRA's and associated mission partners'/customers' validated operational capability requirements.</p> <p>- Establish and advise on approaches to leverage cloud-based capabilities to improve data access, interoperability, and policy compliance. Implement and enforce system designs to support compliance with DoD cybersecurity policies.</p> <p>- Further develop and implement a sustainable and scalable analytic capability to discover emerging and disruptive technologies in support of efforts to anticipate and meet new and emerging requirements.</p> <p>FY 2020 Plans:</p> <p>- Support select NATO nations' access to a shared WMD and explosives modeling capability as requested by individual nations through the Partnership of Cooperation agreements .</p> <p>- Enhance FREAK cloud architecture to increase availability of chemical/biological personnel casualty and detector models that support Course of Action Analysis, Concept of Operations Development, and Sensor Performance Prediction.</p> <p>- Provide software releases to include DoD customer detector requests for VIRTUS, which provides a mobile phone-based radiation sensor emulator for search training.</p> <p>- Provide increased stand-alone modeling capability for ATAK, which incorporates CWMD capabilities into a mobile phone-based tactical common operating picture, to support new, emerging and updated modeling and simulation requirements.</p> <p>- Transition the Enhanced Mapping and Positioning System (EMAPS) to the Joint Program Executive Office, Chemical and Biological Defense. This system uses LIDAR to automatically create real-time 2D/3D annotated physical maps of areas denied to the Global Positioning System.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>The increase from FY 2019 to FY 2020 is due to increased investment in a new CWMD Information Integration Cell (CIIC) to for integrated information sharing capabilities to address higher CCMD and Interagency demand for CWMD information sharing and data analysis support, and increased investment to institutionalize a Quick Reaction Capability to rapidly transition both material and non-material developmental technologies to fielded solutions. This aligns with the National Defense Strategy's Level of Effort 3: Reform the Department. Develop acquisition expertise, innovation tools, and agile contract solutions to more effectively deliver capabilities to the warfighter as urgent operational requirements emerge. Additionally, there was increased investment in multi-modal CWMD modeling and simulation capabilities integration of new modeling techniques and capabilities with existing programs and models to leverage the best cutting edge technology for improved CWMD modeling and simulation capabilities in support</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RA / *CWMD Cross-Cutting Technical and Information Sciences

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
of operational planning and mission requirements to better inform operational decision makers of WMD defeat options and their effects.			
Accomplishments/Planned Programs Subtotals	40.189	30.603	46.317

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 28/0603160BR/RA: Counter Weapons of Mass Destruction Advanced Technology Development	17.732	11.286	34.825	-	34.825	30.722	32.739	35.660	37.254	Continuing	Continuing
• 105/0604775BR/RA: Advanced Component Development and Prototypes	-	-	14.021	-	14.021	12.564	6.800	6.800	6.700	Continuing	Continuing
• 159/0605502BR/RA: Small Business Innovation Research	11.311	-	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Competitive selection of most appropriate performers to fulfill science and technology development needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics

Percentage of Counter WMD technologies selected for transition to Budget Activity (BA) 3, Advanced Technology Development (ATD) and BA 4, Advanced Component Development and Prototypes (ACD&P).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 2					R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research				Project (Number/Name) RD / **Nuclear Technologies and Capabilities Development			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RD: **Nuclear Technologies and Capabilities Development	29.653	13.745	16.860	92.710	-	92.710	93.612	95.541	97.485	99.433	Continuing	Continuing

Note

In program element 0602718BR, Defense Threat Reduction Agency's (DTRA) consolidated projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects into the renamed RD-Nuclear Technologies and Capabilities Development beginning in FY 2020. There was 1.9% real growth in this project.

**Project RD title changes from Detection Technologies to Nuclear Technologies and Capabilities Development in FY 2020.

A. Mission Description and Budget Item Justification

Nuclear Technologies and Capabilities Development encompasses the following related areas.

1. Research, development, test, and evaluation to identify, develop, and exploit signatures associated with nuclear threats in support of U.S. capabilities that detect and interdict such threats; and locate, identify, and track special nuclear material and improve detection factors such as range, time, sensitivity, and accuracy to enhance Service and Special Mission Unit capabilities. These efforts support DoD requirements for countering terrorism, counterproliferation, nonproliferation, countering rogue states, and homeland defense.
2. Research, development, test, and evaluation (RDT&E) to systematically study signatures associated with adversary nuclear programs and nuclear detonations gain knowledge or understanding necessary to determine technical capabilities needed to improve Department of Defense (DoD) contingency planning activities; gain knowledge or understanding necessary to improve DoD situational awareness on the nuclear battlefield; gain knowledge or understanding necessary to improve capabilities to attribute the source of a nuclear.
3. Research and develop innovative technologies for the protection of mission-essential personnel, critical military and national defense capabilities, and associated control and support systems during a nuclear event. Research under this project supports the mission critical systems identified under Department of Defense Instruction 3150.09, Chemical, Biological, Radiological, and Nuclear Survivability Policy. System vulnerability research develops nuclear assessment capabilities to support operational planning, weapons effects predictions, and strategic system design. This activity also provides the DoD's nuclear design and protection standards for new and existing systems, e.g., command and control facilities and aircraft. Key systems include the Nuclear Command and Control System, the net-centric thin-line, and both military and civilian satellites and associated support systems. Experimental capabilities research provides the warfighter with unique x-ray, gamma ray, and EMP test capabilities in support of system survivability development, certification, and sustainment. These efforts also support international collaboration, user groups, case study reviews, and the Joint Atomic Information Exchange Group. The human survivability effort conducts research to develop and validate mortality and morbidity models associated with radiological and nuclear weapon effects.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency	Date: March 2019
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Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RD / **Nuclear Technologies and Capabilities Development
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4. Research and development modeling tools to support military operational planning, weapons effects predictions, and strategic system design decisions; consolidate validated modeling tools for integrated functionality; predict system responses to nuclear and radiological weapons producing electromagnetic, thermal, blast, shock, and radiation environments; provide detailed adversary nuclear infrastructure characterization to enhance counterforce operations and hazard effects; and, develop foreign nuclear weapon outputs.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>Title: RD: Nuclear Technologies and Capabilities Development</p> <p>Description: Project RD develops direct and indirect technologies for the detection of radiation and non-radiative signatures associated with nuclear threats, and advances warfighter capabilities to rapidly locate, characterize, and counter such threats.</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - Develop a contamination avoidance capability. - Develop wearable neutron detectors made of Boron-Coated Straw in support of the development of modern, novel detector solutions to revolutionize CONOPs. - Develop detailed studies to systematically identify new nuclear threat signatures, breaking down the problem geographically to distinguish between allies and foes, and to determine assets and coverage. - Transition those technologies that demonstrate exceptional capabilities in radiation and nuclear threat detection to advanced technology development. - Develop tools for pre-detonation diagnostics, leveraging high spatial resolution nuclear imagers, multiplicity algorithms, trace analysis tools, and high-fidelity test objects to increase capability to characterize threats. <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - Continue to develop a contamination avoidance capability. - Continue to develop wearable neutron detectors made of Boron-Coated Straw in support of the development of modern, novel detector solutions to revolutionize CONOPs. - Continue to develop detailed studies to systematically identify new nuclear threat signatures, breaking down the problem geographically to distinguish between allies and foes, and to determine assets and coverage. - Continue to develop tools for pre-detonation diagnostics, leveraging high spatial resolution nuclear imagers, multiplicity algorithms, trace analysis tools, and high-fidelity test objects to increase capability to characterize threats. - Continue to transition those technologies that demonstrate exceptional capabilities in radiation and nuclear threat detection to advanced technology development. - Improve DoD decision-making by gaining knowledge to determine how to adapt nuclear sensor capabilities to quickly characterize nuclear explosions on the nuclear battlefield and inform tactical, operational, and strategic military actions. - Systematically study techniques to improve the ability of nuclear modeling codes to support tactical DoD operations. 	13.745	16.860	92.710

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RD / **Nuclear Technologies and Capabilities Development
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>- Continue to develop system-generated electromagnetic pulse follow-on efforts and electromagnetic pulse coupling and response efforts to deliver high-fidelity early-time electromagnetic analysis and operational tools for US and Allied nuclear weapon effects stakeholders.</p> <p>- Continue research on improved nuclear battlefield casualty assessment and medical planning for nuclear/radiological events.</p> <p>- Publish updates to Weapons Output eBooks, delivering high-fidelity nuclear source terms and historical test data for use in, and validation of, modern weapon effects codes.</p> <p>- Continue to develop petroleum effects models for nuclear targeting capabilities linking higher order impacts to Political Military Economic Social Infrastructure Information (PMESII) analyses.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The increase from FY 2019 to FY 2020 is due to the realignment of Projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles. Real growth in this Project is 1.9% and is for increased investment in nuclear detection in order to support battlespace efficacy for situational awareness and interdiction as early as possible along the threat timeline.</p>			
Accomplishments/Planned Programs Subtotals	13.745	16.860	92.710

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 28/0603160BR/RD: Counter Weapons of Mass Destruction Advanced Technology Development	21.923	26.021	70.153	-	70.153	64.234	60.840	62.070	61.168	Continuing	Continuing
• 127/0605000BR/RD: Counter Weapons of Mass Destruction Systems Development	-	-	7.500	-	7.500	7.650	7.803	7.959	8.118	Continuing	Continuing

Remarks

D. Acquisition Strategy
Competitive selection of most appropriate performers to fulfill science and technology development needs. Performer base includes best-of-breed researchers across the Department of Defense and other government agency laboratories, academia, industry and international partner organizations.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / <i>*Counter Weapons of Mass Destruction Applied Research</i>	Project (Number/Name) RD / <i>**Nuclear Technologies and Capabilities Development</i>

E. Performance Metrics
Percentage of Counter WMD technologies selected for transition to Budget Activity (BA) 3, Advanced Technology Development (ATD) and BA 4, Advanced Component Development and Prototypes (ACD&P).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RE / Counter-Terrorism Technologies
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RE: <i>Counter-Terrorism Technologies</i>	0.000	0.693	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.693

A. Mission Description and Budget Item Justification

The Counter-Terrorism Technologies project is an over-arching project that develops and transitions a full spectrum of new technologies to counter emergent Weapons of Mass Destruction (WMD) thus enabling warfighters to improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, nuclear production, storage, and weaponization facilities.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RE: Counter-Terrorism Technologies	0.693	-	-
Description: Project RE provides research and development (R&D) support to Joint U.S. Military Forces, specifically U.S. Special Operations Command (USSOCOM), in the areas of Explosive Ordnance Disposal Device Defeat; Counter WMD technologies for warfighters; the USSOCOM Countering WMD – Terrorism Support program.			
Accomplishments/Planned Programs Subtotals			
	0.693	-	-

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 28/0603160BR/RE: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	101.737	108.978	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Number of technologies developed and delivered, and/or proof of concept, or successful Military Utility Assessments conducted that increase the potential mission success and reduce the number of current gaps in Special Operations Forces capabilities to counter weapons of mass destruction.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RF / Forensics Technologies
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RF: <i>Forensics Technologies</i>	216.309	6.803	10.257	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	233.369

Note

Beginning in FY 2020, efforts in this project are captured under project RD-Nuclear Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The Forensics Technologies project develops nuclear forensics technologies providing accurate, rapid, and reliable means to collect, analyze, and evaluate prompt data and debris from a nuclear or radiological event in support of exploitation and attribution efforts. These forensics technologies also enable the Defense Threat Reduction Agency's (DTRA) and its partners to detect, locate, identify, track, and interdict nuclear and radiological threats, including weapons and material and enablers to their acquisition and development. In accordance with Department of Defense Directive S-2060.04, DTRA serves as the U.S. Government lead for National Technical Nuclear Forensics (NTNF) research and development. As the central NTNF coordinator, DTRA works in consultation with partners to develop and improve ground-based capabilities supporting exploitation and attribution missions.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RF: Forensics Technologies	6.803	10.257	-
Description: Project RF develops nuclear forensics technologies providing accurate, rapid and reliable means to collect, analyze, and evaluate prompt data and debris from a nuclear or radiological event in support of exploitation and attribution efforts.			
FY 2019 Plans:			
<ul style="list-style-type: none"> - Reduce the fixed lab process timeline by 50%, increasing confidence and decreasing technical uncertainties in the materials forensics results. This will be accomplished through expanded interpretability of test results, improvement in quality of ground samples, including complex debris from transient environments, and optimization of current debris analysis constructs. - Evaluate and extract relevant data from historic nuclear tests to help calibrate codes to support device characterization improvements. - Expand signature databases with appropriate information on generic designs, known weapon designs, and known effects. - Increase capability development efforts in ubiquitous networks and airborne platforms to support prompt diagnostics and forensics technology improvements. - Conduct/lead a DoD and interagency end-to-end nuclear forensics process technology demonstration and evaluation of DTRA-developed technologies/methodologies to assess NTNF process improvements. - Identify potential development of a new advanced capability in forensic conclusion confidence, timeliness, and accuracy, and assist in assessing contribution to interagency attribution process and decisions. 			
FY 2019 to FY 2020 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RF / Forensics Technologies

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
The decrease from FY 2019 to FY 2020 is due to the realignment of Project RF-Forensics Technologies into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.			
Accomplishments/Planned Programs Subtotals	6.803	10.257	-

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 28/0603160BR/RF: Counter Weapons of Mass Destruction Advanced Technology Development	25.535	33.578	-	-	-	-	-	-	-	-	-
• 127/0605000BR/RF: Counter Weapons of Mass Destruction Systems Development	6.199	6.163	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy
Competitive selection of most appropriate performers to fulfill science and technology development needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics
Percentage of Counter WMD technologies selected for transition to Budget Activity (BA) 3, Advanced Technology Development (ATD) and BA 4, Advanced Component Development and Prototypes (ACD&P).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RG / ***Counter WMD Technologies and Capabilities Development
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RG: ***Counter WMD Technologies and Capabilities Development	96.456	8.483	8.959	22.253	-	22.253	22.958	22.919	23.715	24.190	Continuing	Continuing

Note

DTRA consolidated RM-Weapons of Mass Destruction (WMD) Counterforce Technologies into the renamed project RG-Counter WMD Technologies and Capabilities Development beginning in FY 2020. There is -9.5% real growth in this project.

***Project RG title changes from Defeat Technologies to Counter WMD Technologies and Capabilities Development in FY 2020

A. Mission Description and Budget Item Justification

Counter WMD Technologies and Capabilities Development encompasses the following areas.

1. Defeat Technologies develops innovative kinetic and non-kinetic weapon technologies to expand traditional and asymmetric options available to Combatant Commanders to deny, disrupt, and defeat adversarial use of WMD, while minimizing collateral effects. Technology development focuses on the physical or functional defeat of WMD threat materials, an adversary's ability to deliver the same, and the physical and nonphysical support networks enabling both. It does so through the systematic identification and maturation of technologies capable of defeating WMD agents or agent-based processes and selecting technologies for integration into weapons, delivery systems, or rapid WMD elimination capabilities. This effort includes developing specific WMD agent/agent-based process simulants, sub-scale test infrastructure, and sampling capability required for effective development, testing, and evaluation of next-generation CWMD capabilities. The project places a high priority on understanding, characterizing, and validating potential weapon effects within mathematical confidence as it relates to the unintended release of hazardous threat materials. Technologies with the potential for weapon and capability integration are transitioned to Budget Activity (BA) 3, Advanced Technology Development (ATD) efforts. On a limited basis, technology test data is shared with coalition partners.

2. WMD counterforce technologies research develops weapons effects modeling algorithms, full and sub-scale test series required to investigate CWMD weapon effects and sensor performance, and visualization and situational awareness tools to support the next generation Technical Reachback cell. These activities are critical enablers for the development of advanced CWMD planning tools. Energetics research develops materials and weapon design technology providing defeat capabilities for engaging hard and deeply buried targets that are beyond current high explosive blast/fragmentation warhead technology. Life sciences research develops technologies to find, locate, mitigate, and defeat WMD using bio-organisms or components.

B. Accomplishments/Planned Programs (\$ in Millions)

Title: RG: Counter WMD Technologies and Capabilities Development	FY 2018	FY 2019	FY 2020
	8.483	8.959	22.253

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RG / ***Counter WMD Technologies and Capabilities Development

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
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Description: Project RG develops innovative kinetic and non-kinetic weapons technologies to expand traditional and asymmetric options available to Combatant Commanders to deny, disrupt, and defeat adversarial use of WMD while minimizing collateral effects.

FY 2019 Plans:

- Conduct an incremental capability demonstration for an autonomous systems technology update to the Modular Autonomous Counter-WMD System B (MACS-B).
- Develop future MACS advanced holistic payloads, refining the concept and conducting technology investigation.
- Develop Combined Effects Payload for Access Denial (CEPAD) payload.
- Collect signatures on threat-improvised rotary winged and fixed wing IED/sUAS in a lab and field environment.
- Provide infrastructure to collect signatures including sensors, lab, and field equipment, collection software and collection tools.
- Provide a consolidated C-IED/C-sUAS library including database(s), database access, and database/library management including entry, creation and vetting of information.
- Analyze C-IED/C-sUAS equipment data, and create/sustain algorithms, databases and tables to monitor the creation and vetting of information.
- Monitor exploitation of rotary winged, fixed winged IED/C-sUAS to manage the capability gap (from a technology and database standpoint).

FY 2020 Plans:

- Continue to conduct incremental capability demonstrations for an autonomous systems technology update to the Modular Autonomous Counter-WMD System B (MACS-B).
- Initiate development of novel, air delivered, incendiary weapon fills for agent defeat.
- Continue to develop future MACS advanced holistic payloads, specifically for hard and deeply buried targets.
- Continue to provide infrastructure to collect signatures including sensors, lab and field equipment, collection software, and collection tools.
- Continue to advance technical capabilities or methods to detect, locate/track, identify, characterize, monitor, assess, plan and protect against, deter, delay, disrupt, neutralize, or destroy WMD through special innovative research targeted at meeting capability gaps in CWMD.
- Continue to develop and test structural reactive materials and advanced thermal agent defeat devices to improve the capability to defeat and/or neutralize CWMD-related targets.
- Continue to test biocide at larger scale to analyze prompt and persistent effects, improving capability to neutralize or destroy biological weapons or agents.

FY 2018	FY 2019	FY 2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RG / ***Counter WMD Technologies and Capabilities Development
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>- Continue to develop CWMD weapon effects modeling algorithms and scaled test series leveraging machine learning and optimization for attack planning to investigate CWMD weapon effects and enhance WMD defeat modeling and simulation planning tools.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase from FY 2019 to FY 2020 is due to the realignment of Project RM-WMD Counterforce Technologies into Project RG-Counter WMD Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles. There was also decreased investment in Counter-small Unmanned Aerial Systems (C-sUAS). Real growth in this project is 0.4%.</p>			
Accomplishments/Planned Programs Subtotals	8.483	8.959	22.253

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 28/0603160BR/RG: Counter Weapons of Mass Destruction Advanced Technology Development	40.688	20.277	235.087	-	235.087	238.668	242.425	246.630	250.582	Continuing	Continuing

Remarks

D. Acquisition Strategy
 Competitive selection of most appropriate performers to fulfill science and technology development needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics
 Percentage of Counter WMD technologies selected for transition to Budget Activity (BA) 3, Advanced Technology Development (ATD) and BA 4, Advanced Component Development and Prototypes (ACD&P).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RI / Nuclear Survivability
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RI: <i>Nuclear Survivability</i>	159.267	25.545	32.732	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	217.544

Note

Beginning in FY 2020, efforts in this project are captured under project RD-Nuclear Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The Nuclear Survivability project develops innovative technologies for the protection of mission-essential personnel, critical military and national defense capabilities, and associated control and support systems during a nuclear event. Research under this project supports the mission critical systems identified under Department of Defense Instruction 3150.09, Chemical, Biological, Radiological, and Nuclear Survivability Policy. The Defense Threat Reduction Agency is designated by the Department of Defense (DoD) as the center of excellence for electromagnetic pulse (EMP) survivability assessments. The System Vulnerability and Assessment effort develops nuclear assessment capabilities to support operational planning, weapons effects predictions, and strategic system design. This activity also provides the DoD's nuclear design and protection standards for new and existing systems, e.g., command and control facilities and aircraft. Key systems include the Nuclear Command and Control System, the net-centric thin-line, and both military and civilian satellites and associated support systems. Experimental Capabilities activities provide the warfighter with unique x-ray, gamma ray, and EMP test capabilities in support of system survivability development, certification, and sustainment. This effort leverages research from and coordinates with the National Nuclear Security Administration (United States) and the Atomic Weapons Establishment (United Kingdom) to develop enabling technologies for improved nuclear weapon effects experimentation capabilities. Nuclear technology analysis efforts support detailed planning related to policy, strategy, objectives, and programmatic integration. These efforts also support international collaboration, user groups, case study reviews, and the Joint Atomic Information Exchange Group. The human survivability effort conducts research to develop and validate mortality and morbidity models associated with radiological and nuclear weapon effects.

B. Accomplishments/Planned Programs (\$ in Millions)

Title: RI: Nuclear Survivability	FY 2018	FY 2019	FY 2020
Description: Project RI provides the capability for DoD nuclear forces and their associated control and support systems and facilities to avoid, repel, endure, or withstand attack or other hostile action, to the extent that essential functions can continue or be resumed after the onset of hostile action.	25.545	32.732	-
FY 2019 Plans: - Align nuclear detonation personnel casualty output from Defense Threat Reduction Agency's (DTRA's) Health Effects from Radiological & Nuclear Environments (HENRE) for Hazard Prediction and Assessment Capability (HPAC) to the Defense Health Agency's Joint Medical Planning Tool. - Advance cold/warm x-ray and laser experimentation in order to improve nuclear survivability. For cold x-ray impulse, initiate ion beam and diagnostics development on PITHON, leading to high fluence x-rays for materials and full system impulse capability for Re-entry Vehicles/Re-entry Bodies to improve radiation survivability. Complete debris mitigation system for Double-EAGLE in			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RI / Nuclear Survivability
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
support of cold x-rays for optics and thermostructural response efforts that support Missile Defense Agency (MDA) and satellite systems requirements - Translate radiation hardening basic mechanisms and physics of failure into engineering solutions to improve device and component hardening and survivability. - Update environment and protection standards on periodic five year intervals and respond to Service and Combatant Command requests for verification assessments, to include conduct of U.S. European Command/ U.S. Pacific Command Operational Plan and mission critical systems analytical assessments. - Continue development of Radiation Hardened by Design (RHBD) neutron Single Event Effects mitigation techniques for strategic radiation hardened digital complementary metal-oxide-semiconductor and Analog Mixed Signal Devices. - Develop High Altitude Electro Magnetic Pulse (HEMP), atmospheric, and disturbed environment standards; conduct verification assessments for the Services and MDA; develop technology insertions; and provide subject-matter expert support to provide combat readiness and survivability status to leadership and feedback for Military Standards validity.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease from FY 2019 to FY 2020 is due to the realignment of Project RI-Nuclear Survivability into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.			
Accomplishments/Planned Programs Subtotals	25.545	32.732	-

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 28/0603160BR/RI: Counter Weapons of Mass Destruction Advanced Technology Development	7.289	5.783	-	-	-	-	-	-	-	-	-
Remarks											

D. Acquisition Strategy
 Competitive selection of most appropriate performers to fulfill science and technology development needs. Performer base includes best-of-breed researchers across the DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics
 Percentage of CWMD technologies selected for transition to Budget Activity (BA) 3, Advanced Technology Development (ATD) and BA 4, Advanced Component Development and Prototypes (ACD&P).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RL / Nuclear & Radiological Effects
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RL: Nuclear & Radiological Effects	185.241	30.320	29.388	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	244.949

Note

Beginning in FY 2020, efforts in this project are captured under project RD-Nuclear Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The Nuclear and Radiological Effects project develops modeling tools to support military operational planning, weapons effects predictions, and strategic system design decisions; consolidate validated modeling tools into the Joint Information Environment for integrated functionality; predict system responses to nuclear and radiological weapons producing electromagnetic, thermal, blast, shock, and radiation environments; provide detailed adversary nuclear infrastructure characterization to enhance counterforce operations and hazard effects; and, develop foreign nuclear weapon outputs.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RL: Nuclear & Radiological Effects	30.320	29.388	-
Description: Project RL develops nuclear and radiological assessment modeling tools to support military operational planning, weapons effects predictions, and strategic system design decisions.			
FY 2019 Plans: - Develop system-generated electromagnetic pulse follow-on efforts and electromagnetic pulse coupling and response efforts to deliver high-fidelity early-time electromagnetic analysis and operational tools for US and Allied nuclear weapon effects stakeholders. - Publish updates to Weapons Output eBooks, delivering high-fidelity nuclear source terms and historical test data for use in, and validation of, modern weapon effects codes. - Develop petroleum effects models for Consequences of Execution, linking higher order impacts to Political Military Economic Social Infrastructure Information (PMESII) analyses.			
FY 2019 to FY 2020 Increase/Decrease Statement: The decrease from FY 2019 to FY 2020 is due to the realignment of Project RL-Nuclear Survivability into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.			
Accomplishments/Planned Programs Subtotals	30.320	29.388	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RL / Nuclear & Radiological Effects

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 28/0603160BR/RL: Counter Weapons of Mass Destruction Advanced Technology Development	8.505	3.427	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Competitive selection of most appropriate performers to fulfill science and technology development needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics

Percentage of Counter WMD technologies selected for transition to Budget Activity (BA) 3, Advanced Technology Development (ATD) and BA 4, Advanced Component Development and Prototypes (ACD&P).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RM / WMD Counterforce Technologies
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RM: WMD Counterforce Technologies	104.355	13.956	12.780	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	131.091

Note
Beginning in FY 2020, efforts in this project are captured under project RG-Counter Weapons of Mass Destruction (WMD) Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The WMD Counterforce Technologies Project develops Countering Weapons of Mass Destruction (CWMD) weapon effects modeling algorithms, full and sub-scale test series required to investigate CWMD weapon effects and sensor performance, and visualization and situational awareness tools to support the next generation Defense Threat Reduction Agency (DTRA) technical reachback cell. These activities are critical enablers for the development of advanced CWMD planning tools and include Advanced Energetics and Advanced Life Sciences. Advanced Energetics develops energetic materials and weapon design technology providing advanced defeat capabilities for engaging hard and deeply buried targets that are well beyond current high explosive blast/fragmentation warhead technology. Advanced Life Sciences research develops technologies to find, locate, mitigate, and defeat WMD using bio-organisms or components.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RM: WMD Counterforce Technologies	13.956	12.780	-
Description: Project RM provides novel and enhanced weapons energetic materials and structures, full-scale testing of counter WMD weapon effects, weapon effects modeling, weapon delivery optimization, and technical reachback services.			
FY 2019 Plans:			
- Transition Hellfire-sized structural reactive material warhead technology and design to the Military services to improve capabilities to hold targets at risk.			
- Advance technical capabilities or methods to detect, locate/track, identify, characterize, monitor, assess, plan and protect against, deter, delay, disrupt, neutralize, or destroy WMD through special innovative research targeted at meeting capability gaps in CWMD.			
- Test biocide at larger scale to analyze prompt and persistent effects, improving capability to neutralize or destroy biological weapons or agents.			
- Develop CWMD weapon effects modeling algorithms and scaled test series leveraging machine learning and optimization for attack planning to investigate CWMD weapon effects, and enhance WMD defeat Modeling and Simulation planning tools.			
FY 2019 to FY 2020 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RM / WMD Counterforce Technologies

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
The decrease from FY 2019 to FY 2020 is due to the realignment of Project RM-WMD Counterforce Technologies into Project RG-Counter WMD Technologies and Capabilities as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.			
Accomplishments/Planned Programs Subtotals	13.956	12.780	-

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 28/0603160BR/RM: Counter Weapons of Mass Destruction Advanced Technology Development	23.667	25.243	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy
Competitive selection of most appropriate performers to fulfill science and technology development needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics
Percentage of CWMD technologies selected for transition to Budget Activity (BA) 3, Advanced Technology Development (ATD) and BA 4, Advanced Component Development and Prototypes (ACD&P).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RR / ****CWMD Test and Evaluation
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RR: ****CWMD Test and Evaluation	86.614	12.810	14.345	17.816	-	17.816	18.156	18.451	17.775	18.131	Continuing	Continuing

Note
****Project RR title changes from Countering WMD Test and Evaluation to CWMD Test and Evaluation in FY 2020.

A. Mission Description and Budget Item Justification

The Countering WMD Test and Evaluation project provides a unique national test capability for simulated WMD facilities and processes. This capability provides structured and systematic end-to-end test event planning, preparation, management, execution, and data analysis. It also offers test instrumentation (data acquisition systems and optics), scientific analysis and predictions, test article construction, test article/test bed remediation, tunnel mining, architectural and engineering design, systems engineering and integration, and test data management. The project leverages 50 years of expertise in investigating weapons effects and target response across the spectrum of hostile environments that could be created by proliferant nations or terrorist organizations with access to advanced conventional weapons or WMD. Subject matter experts design full and sub-scale testing strategies focusing on weapon-target interaction with fixed soft and hardened facilities to include above ground facilities, cut-and-cover facilities, and deep underground tunnels. This capability does not exist anywhere else within the DoD and supports the counterproliferation pillar of the National Strategy to Counter WMD.

B. Accomplishments/Planned Programs (\$ in Millions)

Title: RR: Countering WMD Test and Evaluation	FY 2018	FY 2019	FY 2020
12.810	12.810	14.345	17.816
<p>Description: Project RR provides a unique national test bed capability for the study of weapon-target interaction, simulated WMD facility characterization, and WMD facility defeat testing to evaluate the implications of WMD and other special weapon use against U.S. military and civilian assets.</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - Develop the use of seismo-acoustic arrays as test diagnostics (both hardware and algorithms) and tools for assessing decoupling/coupling. - Continue reconstitution of instrumentation and diagnostics sensors infrastructure capabilities in support of Counter-WMD technology development projects. - Continue additional diagnostics, instrumentation, and explosives handling research in support of other testing and compliance initiatives. - Support Combatant Commands with development and testing of Chemical , Biological, Radiological, Nuclear, and High-Explosive (CBRNE) sensors and WMD countermeasures being developed to support Combatant Command requirements. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RR / ****CWMD Test and Evaluation

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Support exercises and planning events at the Nevada Test Bed in order to develop existing defeat technologies, tools, and capabilities. Further extend testing at the Nevada National Security Site in support of the National Center for Nuclear Security portfolio's nonproliferation efforts. - Continue to design and build testbeds in small-, mid-, and large-scale environments capable of capturing data needed to improve and validate high-fidelity modeling and simulation tools used to predict weapons effects on WMD storage facilities. - Provide development, maintenance, upgrades, and testing for Autonomous Systems Test Development to support an adaptable test bed for standardized evaluation of autonomous systems in development for CWMD missions. <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - Continue to develop seismo-acoustic arrays as test diagnostics (both hardware and algorithms) and tools for assessing decoupling/coupling. - Continue reconstitution of instrumentation and diagnostics sensors infrastructure capabilities in support of CWMD technology development projects. - Continue additional diagnostics, instrumentation, and explosives handling research in support of other testing and compliance initiatives. - Continue to develop and test WMD and explosives sensors and WMD countermeasures to support Combatant Command requirements. - Continue to develop existing defeat technologies, tools, and capabilities for signature characterization in support of exercises and planning events at the Nevada Test Bed. - Continue to design and build testbeds in small-, mid-, and large-scale environments capable of capturing data needed to improve and validate high-fidelity modeling and simulation tools used to predict weapons effects on WMD storage facilities. - Continue to provide development, maintenance, upgrades, and testing for Autonomous Systems Test Development to support an adaptable test bed for standardized evaluation of autonomous systems in development for CWMD missions. - Develop the test infrastructure to test transportable system to identify signature characterization that supports existing defeat technologies, tools, and capabilities. <p>FY 2019 to FY 2020 Increase/Decrease Statement: The increase from FY 2019 to FY 2020 is due to increased investment for test instrumentation and data acquisition systems to remain "cutting edge" in gathering test data for customers based on customer demand signals and to develop the test infrastructure to test transportable systems to identify signature characterization that supports existing defeat technologies, tools, and capabilities.</p>			
Accomplishments/Planned Programs Subtotals	12.810	14.345	17.816

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602718BR / *Counter Weapons of Mass Destruction Applied Research	Project (Number/Name) RR / ****CWMD Test and Evaluation

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 28/0603160BR/RR: Counter Weapons of Mass Destruction Advanced Technology Development	0.000	12.394	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Competitive selection of most appropriate performers to fulfill science and technology development needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics

Percentage of CWMD technologies selected for transition to Budget Activity (BA) 3, Advanced Technology Development (ATD) and BA 4, Advanced Component Development and Prototypes (ACD&P).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603134BR / <i>Counter Improvised-Threat Simulation</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	23.366	13.648	0.000	49.528	49.528	50.110	50.250	47.887	48.194	Continuing	Continuing
JC: <i>Enable Rapid Capability Delivery</i>	0.000	23.366	13.648	0.000	49.528	49.528	50.110	50.250	47.887	48.194	Continuing	Continuing

Note

Overseas Contingency Operations (OCO) for Enduring Requirements (\$49.528M): OCO for Enduring Requirements are enduring in-theater and in-CONUS costs that will likely remain after combat operations cease, and have previously been funded in OCO. Funds also enable and provide for urgent and emergent warfighter requirements from Combatant Commands and Warfighter Senior Integration Group.

A. Mission Description and Budget Item Justification

The Defense Threat Reduction Agency (DTRA) Counter Improvised-Threat Simulation Advanced Technology Development program element funds Technology Outreach as well as development of modeling-and-simulation and analysis support tools that enhance counter-improvised explosive devices (C-IED) and counter improvised threat (C-IT) efforts.

Enable Rapid Capability Delivery. Understanding the threat drives DTRA's deliberate, structured, and proactive approach to identify and validate urgent or emergent capability gaps and requirements. DTRA's continuous embedded presence with deployed U.S. Joint Forces enables early identification and understanding of C-IED and C-IT gaps, vulnerabilities, and risks and the timely validation, resourcing, development, and delivery of C-IED and C-IT material and non-material solutions. DTRA's technical integrators embedded with deployed forces further enables rapid adjustments to solutions as the threat's adaptation evolves.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	13.648	0.000	0.000	0.000
Current President's Budget	23.366	13.648	0.000	49.528	49.528
Total Adjustments	23.366	0.000	0.000	49.528	49.528
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	23.366	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignment	-	-	0.000	49.528	49.528

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency Date: March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603134BR / <i>Counter Improvised-Threat Simulation</i>
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Change Summary Explanation

The increase in FY 2020 supports the continuation of Overseas Contingency Operations (OCO) at a higher level of funding than in FY 2019. FY 2020 supports increased investments in Advanced Technological Development (ATD) focused on Disruptive Technologies providing a greater than 70% solution to the following areas: Buried Improvised Explosive Devices (IED), Attack the Network, Home-Made Explosives (HME), and System Attributes across the Portfolio Range including Machine Learning & Artificial Intelligence. Strategically aligned investments include increased investments in improved autonomous capabilities supporting the detection and defeat of improvised threats and the integration of Artificial Reality (AR)/Virtual Reality (VR) into C-IT capabilities. These areas of investment continue to be identified time and again as challenging problem sets for the warfighters as identified by the CCMDs and warfighting commands in their Integrated Priority List (IPLs) and Joint Urgent Operational Need (JUON). The Continuation of ATD activities is critical to advancing current initiatives to the prototype phase in the following areas: Remote Controlled IED (RCIED) & Stand-off Detection. This investment supports further development, testing, and prototyping of advanced Modelling, Visualization, and Simulation capabilities for processor-intensive analytics to support warfighters operating in tactical environments. The capability directly supports mission planning, targeting, and post-operation analysis by troops operating in tactical theaters of operation. For example, the capability will support mission planning by providing first-person experiential mission planning through immersion in a 3-D virtual model of a target mission environment that is augmented by inputs from multiple sensor platforms. The tactical user may interact with the virtual model of the target mission environment through head-mounted and/or handheld devices. Mission planning augmented in this manner may improve targeting accuracy and provide improved force protection in tactical environments.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603134BR / Counter Improvised-Threat Simulation			Project (Number/Name) JC / Enable Rapid Capability Delivery				
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
JC: Enable Rapid Capability Delivery	0.000	23.366	13.648	0.000	49.528	49.528	50.110	50.250	47.887	48.194	Continuing	Continuing

A. Mission Description and Budget Item Justification

Enable Rapid Capability Delivery: Understanding the threat drives Defense Threat Reduction Agency's (DTRA'S) deliberate, structured, and proactive approach to identify and validate urgent or emergent capability gaps and requirements. DTRA's continuous embedded presence with deployed U.S. Joint Forces enables early identification and understanding of Counter-Improvised Explosive Device (C-IED) and Counter-Improvised Threat (C-IT) gaps, vulnerabilities, and risks and the timely validation, resourcing, development, and delivery of C-IED and C-IT material and non-material solutions. DTRA's technical integrators embedded with deployed forces further enables rapid adjustments to solutions as the threat's adaptation evolves.

DTRA provides DoD up to an 18-month "head start" on addressing critical warfighter gaps, and enables DoD to deliver the most technologically advanced response to improvised threats. These capabilities are developed from previous Joint Improvised-Threat Defeat Organization (JIDO) experience and in concert with other government agencies, National Labs, Academia, Private Industry, and International Partners.

This project employs Technology Outreach as well as development of modeling-and-simulation and analysis support tools to identify and validate urgent and emergent capability requirements and associated gaps. It provides rapid acquisition and delivery of C-IED and C-IT solutions to address these requirements and gaps.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: JC: Enable Rapid Capability Delivery	23.366	13.648	0.000	49.528	49.528
Description: This project serves to understand the threat and drives a deliberate, structured, and proactive approach to identify and validate urgent or emergent capability gaps and requirements.					
FY 2019 Plans:					
- Improve detection capabilities through baseline threat signatures in support of sensor capability development.					
- Develop common database for signatures for DoD and other government agencies for use in sensor development and tactics, techniques, and procedures (TTPs).					
- Identify and maintain database of future threats and technologies that can be incorporated into improvised threats in support of future capability development.					
- Conduct testing and evaluation of future technology development in support of C-ITs.					
- Leverage capabilities and expertise primarily from DoD University Affiliated Research Centers (UARCs) such as Georgia Tech Research Institute (GTRI) and Massachusetts Institute of Technology (MIT) Lincoln Labs.					
- Convene Joint Lab Board in support of rapid development and prototyping to C-ITs.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603134BR / <i>Counter Improvised-Threat Simulation</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>- Conduct Hacking 4 Defense in support of rapid development and prototyping to C-ITs.</p> <p>- Develop Broad Area Announcement (BAA) solicitation in support of capabilities to C-ITs.</p> <p>FY 2020 Base Plans: N/A</p> <p>FY 2020 OCO Plans:</p> <ul style="list-style-type: none"> - Improve detection capabilities through baseline threat signatures for vehicles, explosives, and other threats in support of sensor capability development. - Develop common database for signatures for DoD and other government agencies to use for sensor development and tactics, techniques, and procedures (TTPs). - Identify and maintain database of future threats and technologies that can be incorporated into improvised threats in support of future capability development. - Conduct testing and evaluation of future technology development in support of C-ITs. - Increase the processing, exploitation, and dissemination of data for integrated sensors identifying improvised threat facilitation networks. - Enhance integration of sensors identifying improvised threat facilitation networks. - Create new capabilities related to next generation cellular technology. - Improve sensor integration capability for Person Borne Improvised Explosive Device (PBIED) and Vehicle Borne Improvised Explosive Device (VBIED) to improve detection rates and increase standoff detection. - Investigate incorporation of Machine Learning (ML) and Artificial Intelligence (AI) into C-IT capabilities. - Improve autonomous capabilities that support the detection and defeat of improvised threats in support of non-line of sight missions. - Integrate Artificial Reality (AR)/Virtual Reality (VR) into C-IT capabilities. - Conduct Hacking 4 Defense in support of rapid development and prototyping to C-ITs. - Develop Broad Area Announcement (BAA) solicitation in support of capabilities to C-ITs. <p>FY 2019 to FY 2020 Increase/Decrease Statement: DTRA increased investment for activities at the Technology Readiness Level (TRL) 5 to enable DoD to deliver the most technologically advanced response to improvised threats: Component and/or breadboard validation in a relevant environment or TRL 6: System/subsystem model or prototype demonstration in a relevant environment. DTRA also increased investment in ML and AI C-IT capabilities, to improve autonomous</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603134BR / <i>Counter Improvised-Threat Simulation</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
capabilities that support the detection and defeat of improvised threats in support of non-line of sight missions, and the integration of Artificial Reality (AR)/Virtual Reality (VR) into C-IT capabilities.					
Accomplishments/Planned Programs Subtotals	23.366	13.648	0.000	49.528	49.528

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 10/0602134BR/JC: <i>Improvised Threat Reduction Applied Research</i>	0.000	0.000	0.000	0.502	0.502	0.512	0.522	0.533	0.543	Continuing	Continuing
• 94/0604134BR/JC: <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	117.640	148.772	0.000	103.793	103.793	59.860	109.236	105.258	106.598	Continuing	Continuing

Remarks

D. Acquisition Strategy
Select the best performer through studies and development boards with products that can be quickly assessed and placed into development in order to produce a product valuable to the warfighter in combating improvise threat effectiveness.

E. Performance Metrics
Completing projects within a 24 month period for use by the warfighter, and transfer to the services, agencies, or organizations.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603160BR / <i>*Counter Weapons of Mass Destruction Advanced Technology Development</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1,957.505	292.846	280.858	340.065	-	340.065	333.624	336.004	344.360	349.004	Continuing	Continuing
RA: <i>*CWMD Cross-Cutting Technical and Information Sciences</i>	51.128	17.732	11.286	34.825	-	34.825	30.722	32.739	35.660	37.254	Continuing	Continuing
RD: <i>**Nuclear Technologies and Capabilities Development</i>	43.023	21.923	26.021	70.153	-	70.153	64.234	60.840	62.070	61.168	Continuing	Continuing
RE: <i>Counter-Terrorism Technologies</i>	757.112	101.737	108.978	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	967.827
RF: <i>Forensics Technologies</i>	433.928	25.535	33.578	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	493.041
RG: <i>***Counter WMD Technologies and Capabilities Development</i>	134.888	40.688	20.277	235.087	-	235.087	238.668	242.425	246.630	250.582	Continuing	Continuing
RI: <i>Nuclear Survivability</i>	50.493	7.289	5.783	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	63.565
RL: <i>Nuclear & Radiological Effects</i>	3.390	8.505	3.427	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	15.322
RM: <i>WMD Counterforce Technologies</i>	173.550	23.667	25.243	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	222.460
RR: <i>CWMD Test and Evaluation</i>	16.052	0.000	12.394	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	28.446
RT: <i>Target Assessment Technologies</i>	293.941	45.770	33.871	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	373.582

Note

In program element 0603160BR, Defense Threat Reduction Agency's (DTRA) consolidated projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects into the renamed RD-Nuclear Technologies and Capabilities Development beginning in FY 2020. Additionally, DTRA consolidated projects RE-Counter-Terrorism Technologies, RM-WMD Counterforce Technologies, RR-CWMD Test and Evaluation, and RT-Target Assessment Technologies, into the renamed project RG-Counter WMD Technologies and Capabilities Development.

*Project RA title changes from Information Sciences and Applications to CWMD Cross-Cutting Technical and Information Sciences in FY 2020.

**Project RD title changes from Detection Technologies to Nuclear Technologies and Capabilities Development in FY 2020.

***Project RG title changes from Defeat Technologies to Counter WMD Technologies and Capabilities Development in FY 2020.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603160BR / <i>*Counter Weapons of Mass Destruction Advanced Technology Development</i>
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A. Mission Description and Budget Item Justification

The Advanced Technology Development portfolio is aligned with strategic planning objectives as well as with Science and Technology (S&T) investment direction which is established annually by DTRA. The objectives directly support policy and planning guidance from the Office of the President, the Department of Defense (DoD), and the broader WMD threat reduction community.

The portfolio advances the Countering Weapons of Mass Destruction (CWMD) mission by selecting advanced technology development initiatives that meet the following criteria: (1) Efforts are clearly defined and directly linked to mission-specific capability requirements of DTRA, the Military Departments, Combatant Commanders, other DoD and federal agencies, and international partners; (2) preliminary assessments of subsystems and components offer the highest potential for technological feasibility, operability and producibility upon transition out of S&T research; (3) activities demonstrate cost effectiveness or cost reduction potential of technologies during field testing or simulation at scale.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	268.607	299.858	278.093	-	278.093
Current President's Budget	292.846	280.858	340.065	-	340.065
Total Adjustments	24.239	-19.000	61.972	-	61.972
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-29.000			
• Congressional Rescissions	-	-			
• Congressional Adds	30.000	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-5.761	-			
• Realignment	-	-	61.972	-	61.972

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: RG: ****Counter WMD Technologies and Capabilities Development*

Congressional Add: *Target Sensing Technologies*

	FY 2018	FY 2019
	10.000	10.000
Congressional Add Subtotals for Project: RG	10.000	10.000
Congressional Add Totals for all Projects	10.000	10.000

Change Summary Explanation

The increase in FY 2020 from the previous President's Budget submission is due to increased investment for the improvement of technical reachback capacity to grow operational support as current demand outpaces capacity, quick reaction capabilities to rapidly transition both material and non-material solutions to

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I</i> BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603160BR / <i>*Counter Weapons of Mass Destruction Advanced Technology Development</i>
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the field, increased investment in the development of classified and unclassified United States Central Command (USCENTCOM) and United States Special Operations Command (USSOCOM) efforts to counter threat networks by assessing, identifying, and providing capabilities to maintain technological superiority, the development of technological applications to operate in a nuclear contaminated environment, and development of battlefield tools necessary to support time-sensitive decision-making during nuclear warfare. There is 20% real growth in this program element from the previous President's Budget submission.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019			
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development					Project (Number/Name) RA / *CWMD Cross-Cutting Technical and Information Sciences			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
RA: *CWMD Cross-Cutting Technical and Information Sciences	51.128	17.732	11.286	34.825	-	34.825	30.722	32.739	35.660	37.254	Continuing	Continuing	

Note

*Project RA title changes from Information Sciences and Applications to CWMD Cross-Cutting Technical and Information Sciences in FY 2020.

A. Mission Description and Budget Item Justification

The CWMD Cross-Cutting Technical and Information Sciences project provides technical expertise through continuous reach-back and quick reaction support to the United States and its allies across the Countering Weapons of Mass Destruction (CWMD) mission space. The project performs continuous modeling of ad hoc computational analyses on the consequences of Weapons of Mass Destruction (WMD) in consultation with military and civilian planners, warfighters, and first responders, and leverages research performed by the Project on Advanced Systems and Concepts for CWMD at the Naval Postgraduate School. The project also supports international CWMD cooperation by developing technologies and concepts suitable for foreign release.

B. Accomplishments/Planned Programs (\$ in Millions)

Title: RA: CWMD Cross-Cutting Technical and Information Sciences

Description: Project RA develops modeling and simulation capabilities and provides technical reachback support to maintain and increase decision advantage for the United States and its allies through improved situational understanding across the complete CWMD mission space.

FY 2019 Plans:

- Continue to provide tailored support to DoD with 24/7 technical reachback via processes, capabilities, and expertise in CBRNE. Leverage this support for partner stakeholders, providing scientific modeling support to Department of Health and Human Services and serving as the Federal Emergency Management Agency's Interagency Modeling and Atmospheric Assessment Center (IMAAC) Technical Operations Hub.
- Research and develop capabilities to predict/simulate Higher Order Effects, including spread of infectious disease and protection from WMD, and other required capabilities to support U.S. Strategic Command (USSTRATCOM).

FY 2020 Plans:

- Develop a robust quick reaction to rapidly transition both material and non-material developmental technologies to fielded solutions. Develop acquisition expertise, innovation tools, and agile contract solutions to more effectively deliver capabilities to the warfighter as urgent operational requirements emerge.

	FY 2018	FY 2019	FY 2020
	17.732	11.286	34.825

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RA / *CWMD Cross-Cutting Technical and Information Sciences

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>- Continue to provide tailored support to DoD with Technical Reachback via processes, capabilities, and expertise in WMD and explosives modeling and simulation. Leverage this support for partner stakeholders, providing scientific modeling support to Department of Health and Human Services and serving as the Federal Emergency Management Agency's IMAAC Technical Operations Hub.</p> <p>- Continue to develop capabilities in support of USSTRATCOM and United States Northern Command (USNORTHCOM) that predict and simulate Higher Order Effects, including the spread of infectious diseases, WMD protection measures, DoD response efforts, and force health protection measures.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase from FY 2019 to FY 2020 is due to increased investment for the improvement of technical reachback capacity to grow operational support in technical reachback as current demand outpaces capacity. This is a critical resource that provides 24/7 support to CCMDs, fulfilling direct warfighter requests. Additionally, increased investment supports the quick reaction capability to rapidly transition both material and non-material developmental capabilities to fielded solutions, enhancing DTRA's ability to meet emergent needs that require short order response by providing the acquisition innovation tools, operational and acquisition experts, and flexible contract solutions designed to speed capability to the warfighter.</p>			
Accomplishments/Planned Programs Subtotals	17.732	11.286	34.825

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 20/0602718BR/RA: <i>Counter Weapons of Mass Destruction Applied Research</i>	40.189	30.603	46.317	-	46.317	48.032	49.312	49.896	58.703	Continuing	Continuing
• 105/0604775BR/RA: <i>Advanced Component Development and Prototypes</i>	0.000	0.000	14.021	0.000	14.021	12.564	6.800	6.800	6.700	Continuing	Continuing
• 159/0605502BR/RA: <i>Small Business Innovation Research</i>	11.311	-	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / <i>*Counter Weapons of Mass Destruction Advanced Technology Development</i>	Project (Number/Name) RA / <i>*CWMD Cross-Cutting Technical and Information Sciences</i>

E. Performance Metrics

Number of successful assessments resulting from technical reachback responses. Percentage of completed demonstration programs transitioning each year.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development					Project (Number/Name) RD / **Nuclear Technologies and Capabilities Development		
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RD: **Nuclear Technologies and Capabilities Development	43.023	21.923	26.021	70.153	-	70.153	64.234	60.840	62.070	61.168	Continuing	Continuing

Note

In program element 0603160BR, Defense Threat Reduction Agency's (DTRA) consolidated projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects into the renamed RD-Nuclear Technologies and Capabilities Development beginning in FY 2020. There is zero real growth in this project.

**Project RD title changes from Detection Technologies to Nuclear Technologies and Capabilities Development in FY 2020.

A. Mission Description and Budget Item Justification

1. Research, development, test, and evaluation to identify, develop, and exploit signatures associated with nuclear threats in support of U.S. capabilities that detect and interdict such threats; and locate, identify, and track special nuclear material and improve detection factors such as range, time, sensitivity, and accuracy to enhance Service and Special Mission Unit capabilities. These efforts support DoD requirements for countering terrorism, counterproliferation, nonproliferation, countering rogue states, and homeland defense.
2. Research, development, test, and evaluation (RDT&E) to systematically study signatures associated with adversary nuclear programs and nuclear detonations gain knowledge or understanding necessary to determine technical capabilities needed to improve Department of Defense (DoD) contingency planning activities; gain knowledge or understanding necessary to improve DoD situational awareness on the nuclear battlefield; gain knowledge or understanding necessary to improve capabilities to attribute the source of a nuclear.
3. Research and develop innovative technologies for the protection of mission-essential personnel, critical military and national defense capabilities, and associated control and support systems during a nuclear event. Research under this project supports the mission critical systems identified under Department of Defense Instruction 3150.09, Chemical, Biological, Radiological, and Nuclear Survivability Policy. System vulnerability research develops nuclear assessment capabilities to support operational planning, weapons effects predictions, and strategic system design. This activity also provides the DoD's nuclear design and protection standards for new and existing systems, e.g., command and control facilities and aircraft. Key systems include the Nuclear Command and Control System, the net-centric thin-line, and both military and civilian satellites and associated support systems. Experimental capabilities research provides the warfighter with unique x-ray, gamma ray, and EMP test capabilities in support of system survivability development, certification, and sustainment. These efforts also support international collaboration, user groups, case study reviews, and the Joint Atomic Information Exchange Group. The human survivability effort conducts research to develop and validate mortality and morbidity models associated with radiological and nuclear weapon effects.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency	Date: March 2019
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Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RD / **Nuclear Technologies and Capabilities Development
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4. Research and development modeling tools to support military operational planning, weapons effects predictions, and strategic system design decisions; consolidate validated modeling tools for integrated functionality; predict system responses to nuclear and radiological weapons producing electromagnetic, thermal, blast, shock, and radiation environments; provide detailed adversary nuclear infrastructure characterization to enhance counterforce operations and hazard effects; and, develop foreign nuclear weapon outputs.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>Title: RD: Nuclear Technologies and Capabilities Development</p> <p>Description: Project RD develops, integrates and transitions radiation detection technologies, as well as systems, tools, techniques, and procedures that take advantage of non-radiation based signatures, in order to advance warfighter capabilities to rapidly detect, localize, characterize, and interdict nuclear and radiological threats.</p> <p>FY 2019 Plans:</p> <ul style="list-style-type: none"> - Test the Modular Airborne Gaseous Isotope Collection System (MAGICS) gas collection system in the field in support of closer, sooner, site-specific monitoring. Novel technologies are necessary to conduct gas monitoring in support of nuclear detection missions, as timing, signature strength and complex analysis present challenges. - Develop unattended sensor networks for autonomous detection and analysis. - Catalog relevant seismic signatures, and develop algorithms for signature detection. - Continue to conduct targeted research on component-level technologies, such as low-power electronics, solid-state photodetectors, search and ID algorithms, and helium-3 replacement technologies, which will improve existing detection technology subsystem components. - Develop and integrate nuclear and radiological signature collections into new sensor systems. - Further the development of nuclear threat analysis algorithms to be implemented in existing systems in order to increase accuracy and reduce processing time. - Demonstrate, test, and transition systems that remotely monitor nuclear and radiological threat signatures in small and wide areas. - Improve the setup, maintenance, and peer-to-peer collaboration provided by systems shared among nuclear and radiological search teams. - Test and evaluate new radiation detection technologies in order to validate capabilities, improve prototypes, and provide required performance data to support follow-on development. - Improve capabilities to effectively monitor and control networked systems of sensors, and expand the use of augmented reality to increase situational awareness. - Improve low-visibility, high-precision gamma spectroscopy, particularly for indoor or concealed operation. - Develop and integrate nuclear and radiological signature collections into new sensor systems. 	21.923	26.021	70.153

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / <i>*Counter Weapons of Mass Destruction Advanced Technology Development</i>	Project (Number/Name) RD / <i>**Nuclear Technologies and Capabilities Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>- Further the development of nuclear threat analysis algorithms to be implemented in existing systems in order to increase accuracy and reduce processing time.</p> <p>- Demonstrate, test, and transition systems that remotely monitor nuclear and radiological threat signatures in small and wide areas.</p> <p>- Improve the setup, maintenance, and peer-to-peer collaboration provided by systems shared among nuclear and radiological search teams.</p> <p>- Test and evaluate new radiation detection technologies in order to validate capabilities, improve prototypes, and provide required performance data to support follow-on development.</p> <p>- Develop new capabilities to emplace detectors into previously denied areas.</p> <p>- Improve capabilities to effectively monitor and control networked systems of sensors, and expand the use of augmented reality to increase situational awareness.</p> <p>FY 2020 Plans:</p> <p>- Improve DoD decision-making by adapting, integrating, and conducting field test of nuclear sensor capabilities to quickly characterize nuclear events (e.g. tests, explosions on the battlefield) in order to inform tactical, operational, and strategic military action.</p> <p>- Develop and test techniques to improve the ability of nuclear modeling codes to support tactical DoD operations.</p> <p>- Develop and improve nuclear technologies for application to DoD, international, and other government agency missions.</p> <p>- Develop, integrate and field test technologies and techniques for “field analysis of nuclear event to provide rapid answers in support of nuclear threat, attribution processes, and counterproliferation activities, and improved situational awareness on the nuclear battlefield in order to inform tactical and strategic military action.</p> <p>- Continue to test and develop MAGICS gas collection system in the field in support of closer, sooner, site-specific monitoring. Novel technologies are necessary to conduct gas monitoring in support of nuclear detection missions, as timing, signature strength and complex analysis present challenges.</p> <p>- Continue to develop unattended sensor networks for autonomous detection and analysis.</p> <p>- Continue to conduct targeted research on component-level technologies, such as low-power electronics, solid-state photodetectors, search and ID algorithms, and helium-3 replacement technologies, which will improve existing detection technology subsystem components.</p> <p>- Continue to develop, demonstrate, test, and transition systems that remotely monitor nuclear and radiological threat signatures in small and wide areas.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RD / **Nuclear Technologies and Capabilities Development

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Continue to lead a DoD and interagency, end-to-end nuclear technology demonstration and evaluation of DTRA-developed technologies/methodologies to assess NTNF process improvements and identify potential capability gaps in confidence, timeliness, and accuracy, and assist in assessing contribution to interagency attribution process and decisions. - Continue to develop new or update existing standards and handbooks to capture critical information for DoD to verify and validate mission critical systems. - Continue to develop and collaborate on Satellite System Natural and Nuclear Environment Protection Standard with DoD Stakeholders and the DoD Standardization Program Office. - Continue producing technical reports addressing DoD radiogenic disease concerns; which address Congressional interest in historical veteran radiation exposure and present day radiological exposures of the DoD-affiliated population. - Continue to maintain Defense Integration and Management of Nuclear Data Services (DIAMONDS) while developing DIAMONDS Next Generation testing for functional and data validation. Maintain current reporting on both systems to allow for data verification and validation in preparation for initial operating capability release. - Continue to develop natural gas and water/seawater effects models in support of USSTRATCOM Consequences of Execution efforts, linking higher order effects to PMESII analyses. - Continue to integrate, demonstrate, and deliver a suite of consistent and enhanced models, tools, references, and data to US and Allied nuclear weapon effects stakeholders. <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase from FY 2019 to FY 2020 is due to the realignment of Projects RF-Forensics Technology, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles. Real growth in this project is zero.</p>			
Accomplishments/Planned Programs Subtotals	21.923	26.021	70.153

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 20/0602718BR/RD: <i>Counter Weapons of Mass Destruction Applied Research</i>	13.745	16.860	92.710	-	92.710	93.612	95.541	97.485	99.433	Continuing	Continuing
• 127/0605000BR/RD: *Counter <i>Weapons of Mass Destruction Systems Development</i>	-	-	7.500	-	7.500	7.650	7.803	7.959	8.118	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RD / **Nuclear Technologies and Capabilities Development

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
Remarks											

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics

Percentage of completed demonstration programs transitioning each year.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RE / Counter-Terrorism Technologies
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RE: <i>Counter-Terrorism Technologies</i>	757.112	101.737	108.978	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	967.827

Note

Beginning in FY 2020, efforts in this project are captured under project RG-Counter WMD Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The Counter-Terrorism Technologies project develops and transitions a full spectrum of new technologies to counter emergent weapons of mass destruction (WMD) threats. This project supports the U.S. Special Operations Command (USSOCOM) in two research areas: (1) Countering WMD-Terrorism (CWMD-T) Counterproliferation Research and Development is a collaborative effort to develop advanced, warfighter-unique technologies to defeat terrorist WMD development/acquisition pathways, to include defeat of the devices themselves, while minimizing risks to U.S. forces; (2) USSOCOM CWMD-T Support develops concepts and technologies to integrate and synchronize operations and activities that prevent terrorists and rogue nation states from developing, acquiring, proliferating, or using WMD. This effort supports Commander, USSOCOM responsibilities under the Chairman, Joint Chiefs of Staff Unified Command Plan.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RE: Counter-Terrorism Technologies	101.737	108.978	-
Description: Project RE supports Joint U.S. Military Forces, specifically USSOCOM, in the research areas of warfighter-unique, mission-specific WMD defeat, denial, counterproliferation, and interdiction technologies.			
FY 2019 Plans:			
<ul style="list-style-type: none"> - Continue to develop offensive counterproliferation, counter-WMD technologies in support of combatant command requirements. - Continue development of WMD and pathway defeat technologies, as well as threat-specific test articles and analyses necessary to support the modeling archive used to support such developmental efforts. - Continue to develop lighter, smaller, more effective breaching capabilities. - Continue to develop next generation WMD detection technology applications. - Deploy Analyzer for Wide-Area Restoration Effectiveness (AWARE) V1.0 in Dynamic Picture of the Operating Environment (DPOE) 4.0, the next generation of DPOE that will incorporate research advances in High Performance Computing (HPC), analytics, and natural language processing. AWARE v1.0 will improve users' ability to identify emerging threat entities with existing personnel resources and reduce missed opportunities. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RE / Counter-Terrorism Technologies

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
- Integrate HPC software tools into DPOE, leveraging capabilities of high performance computing to improve automated analytics to more accurately or quickly identify events, actors and threats.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease from FY 2019 to FY 2020 is due to the realignment of Project RE-Counter-Terrorism Technologies into Project RG-Counter WMD Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.			
Accomplishments/Planned Programs Subtotals	101.737	108.978	-

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 20/0602718BR/RE: <i>Counter Weapons of Mass Destruction Applied Research</i>	0.693	-	-	-	-	-	-	-	-	Continuing	Continuing

Remarks
Prior year funds are related to this project in program element 0602718BR.

D. Acquisition Strategy
Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics
Percentage of completed demonstration programs transitioning each year.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RF / Forensics Technologies
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RF: Forensics Technologies	433.928	25.535	33.578	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	493.041

Note

Beginning in FY 2020, efforts in this project are captured under project RD-Nuclear Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The Forensics Technologies project develops, integrates, tests, and demonstrates post-detonation nuclear forensics systems providing accurate, rapid, and reliable means to collect, analyze, and evaluate prompt data and debris from a nuclear or radiological event in support of exploitation and attribution efforts. These forensic capabilities enable the Defense Threat Reduction Agency (DTRA) and its trusted partners to detect, locate, identify, track, and interdict nuclear and radiological threats, including weapons and material, and enablers to their acquisition and development. In accordance with DoD Directive S-2060.04, DTRA serves as the U.S.

Government lead for post-detonation National Technical Nuclear Forensics (NTNF) research and development (R&D). As the central NTNF R&D coordinator, DTRA works in consultation with interagency partners to develop and improve ground-based capabilities supporting exploitation and attribution missions. NTNF R&D supports advanced research in the following areas: (1) Prompt nuclear effects exploitation for attribution; (2) nuclear device characterization for forensics; (3) nuclear forensic materials exploitation for attribution.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RF: Forensics Technologies	25.535	33.578	-
Description: Project RF supports nuclear forensics by developing: (1) technologies, systems and procedures for post detonation nuclear forensics; (2) on/off-site analysis to meet forensic, verification, monitoring and confidence-building requirements; (3) technologies to detect, locate, identify, track, and interdict nuclear and radiological threats, including enablers to their acquisition and development.			
FY 2019 Plans:			
- Lead a DoD and interagency, end-to-end nuclear forensics process technology demonstration and evaluation of DTRA-developed technologies/methodologies to assess NTNF process improvements and identify potential capability gaps in forensic conclusion confidence, timeliness, and accuracy, and assist in assessing contribution to interagency attribution process and decisions.			
- Demonstrate 50% decrease in the material nuclear forensics fixed lab process timeline, with increased confidence and decreased technical uncertainties, improving capacity to make conclusions with low uncertainty and high confidence in a relevant timeframe.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RF / Forensics Technologies

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Support Discreet Oculus ground-based prompt diagnostics sensor system in support of transfer/transition to USAF U.S. Prompt Diagnostics System (USPDS) program of record. - Complete design, build and installation of regional array, in preparation for transition of array to partner organization. - Modify Forensics Inversion Tool Suite (FITS) and Design Signature Database (DSD) forensic tools to better meet stakeholder needs for forensic devices. Los Alamos National Lab FITS tool modifications are being done in conjunction with the Stockpile program. - Prepare to transition recently developed device assessment research and development capabilities to partners at the National Nuclear Security Administration. <p>FY 2019 to FY 2020 Increase/Decrease Statement: The decrease from FY 2019 to FY 2020 is due to the realignment of Project RF-Forensics Technologies into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.</p>			
Accomplishments/Planned Programs Subtotals	25.535	33.578	-

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 20/0602718BR/RF: <i>Counter Weapons of Mass Destruction Applied Research</i>	6.803	10.257	-	-	-	-	-	-	-	-	-
• 127/0605000BR/RF: <i>Counter Weapons of Mass Destruction Systems Development</i>	6.199	6.163	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics

Percentage of completed demonstration programs transitioning each year.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019			
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development					Project (Number/Name) RG / ***Counter WMD Technologies and Capabilities Development			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
RG: ***Counter WMD Technologies and Capabilities Development	134.888	40.688	20.277	235.087	-	235.087	238.668	242.425	246.630	250.582	Continuing	Continuing	

Note

Defense Threat Reduction Agency's (DTRA) consolidated projects RE-Counter-Terrorism Technologies, RM-WMD Counterforce Technologies, RR-CWMD Test and Evaluation, and RT-Target Assessment Technologies, into the renamed project RG-Counter WMD Technologies and Capabilities Development. There is 15.1% real growth in this project.

***Project RG title changes from Defeat Technologies to Counter WMD Technologies and Capabilities Development in FY 2020.

A. Mission Description and Budget Item Justification

Counter WMD Technologies and Capabilities Development encompasses the following areas.

1. Defeat Technologies develops, integrates, demonstrates, and transitions innovative kinetic and non-kinetic weapon capabilities to expand traditional and asymmetric options available to Combatant Commanders to deny, disrupt, and defeat Weapons of Mass Destruction (WMD) while minimizing collateral effects.
2. Technology development focuses on the physical or functional defeat of (1) chemical, biological, nuclear, and radiological threat materials, (2) an adversary's ability to deliver the same, as well as (3) the physical and non-physical support networks enabling both. This program achieves these goals through the systematic identification and maturation of technologies capable of defeating WMD agents or agent-based processes, then integrating them into weapons, delivery systems, or rapid WMD elimination capabilities. This effort includes developing specific WMD agent/agent-based process simulants, test infrastructure, and sampling capability required for effective development, testing, and evaluation of next generation capabilities to ensure optimum weapon solutions are achieved. Requirements are delineated in Agency Priority Lists for lethal and non-lethal Countering WMD (CWMD) capability. Based on specified requirements, weapons and capabilities are transitioned to a Service program of record for system acquisition.
3. Counter-terrorism technologies research develops and transitions a full spectrum of new technologies to counter emergent WMD threats. This research supports the U.S. Special Operations Command (USSOCOM) in two areas: (1) counter proliferation research is a collaborative effort to develop advanced, warfighter-unique technologies to defeat terrorist WMD development and acquisition pathways, to include defeat of the devices themselves, while minimizing risks to U.S. forces; (2) counterterrorism concepts and technologies to integrate and synchronize activities that prevent terrorists and rogue nation states from developing, acquiring, proliferating, or using WMD. This effort supports Commander, USSOCOM responsibilities under the Chairman, Joint Chiefs of Staff Unified Command Plan.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RG / ***Counter WMD Technologies and Capabilities Development

4. Counterforce technologies research develops, integrates, demonstrates, and transitions capabilities to find, characterize, assess, and plan for the defeat of WMD threats. This research is focused in three areas: (1) WMD battlespace awareness provides warfighters with tools to find, characterize, and assess WMD threats; (2) The weapons effects research provides modernized, fast-running, validated CWMD planning tools and integrates modeling and simulation software to optimize the execution of WMD and associated hard target defeat operations; (3) innovative engineering of select promising technologies discovered under fundamental and basic research to increase the effectiveness of weapons against blast doors and other underground structures for functional defeat of Underground Facilities (UGFs), WMD, and their delivery systems.

5. DTRA provides a unique national test bed capability for simulated weapons of mass destruction (WMD) facility characterization, weapon-target interaction, and WMD facility defeat testing. This test bed is capable of responding to operational needs outside of DTRA's research portfolio and is used by the DoD, Military Services, Combatant Commanders, and other Federal Agencies to evaluate the implications of WMD, conventional weapons, and other special weapons used against U.S. military or civilian systems and targets.

6. Target assessment technologies research develops, integrates, tests, demonstrates, and transitions processes and technologies providing advanced capabilities in the areas of WMD target assessment, automated advanced targeting development (A2TD) and full dimensional defeat. This research develops analytical tools and processes required to: (1) find and characterize WMD targets and associated hard and deeply buried targets (HDBTs); and (2) assess the results of physical and functional defeat mechanisms (such as direct attack). The A2TD initiative seeks to apply emerging computer assisted technologies to automate target characterization for hard targets and WMD targets. The end result will be faster and more efficient characterization of important hard targets and WMD targets. The full dimensional defeat project aims to develop an enterprise capability for finding and identifying a facility, characterizing its function and physical layout, determining current or future vulnerabilities to available defeat mechanisms, planning and executing an attack, assessing damage, and denying reconstitution efforts. The dynamic capabilities encompassed in this effort provide Combatant Commands and the intelligence community tools and processes needed to hold at risk high value hard targets and WMD targets possessed by adversaries.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RG: Counter WMD Technologies and Capabilities Development	30.688	10.277	235.087
Description: Project RG develops advanced technologies and weapon concepts and validates their applicability to CWMD.			
FY 2019 Plans:			
<ul style="list-style-type: none"> - Complete full scale development and testing of Agent Defeat Penetrator weapon in preparation for its consideration in a United States Air Force (USAF) analysis of alternatives. - Continue full scale prototype demonstration of novel access denial technology in an operational environment. - Build-out prototype of second version of autonomous system and demonstrate system and payload in a relevant environment. - Collect signatures on IED/sUAS in a predictive environments using modeling & simulation. - Provide advanced infrastructure to improve collection of signatures including sensors, lab and field equipment, collection software, and collection tools. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RG / ***Counter WMD Technologies and Capabilities Development

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Provide advanced IED/sUAS library analytics to improve database management (including entry, creation of information and vetting of information), search functionality, and 3rd party database queries. - Provide curation, dissemination, and access to collected data. - Develop and establish standardized data collection protocols. - Build, procure, and validate advanced and improvised threats to assist in threat risk analysis. - Develop IED/sUAS Identify Friend or Foe (IFF) low cost solutions to support U.S. forces and improve sensor detection while decreasing false alarm rates and reporting. - Identify and develop passive threat detections for IED/sUAS systems as the technology continues to develop in private industry. - Develop counter-measures to detect and defeat multi-agent enemy IED/sUAS. - Develop acoustic disrupters to defeat enemy IED/sUAS. - Improve sensor integration of C-IED/C-sUAS systems to improve detection and defeat capabilities and reduce the human in the loop. - Develop capability for manned aircraft to detect IED/sUAS in order to protect manned aircraft from potential threat IED/sUAS effects. - Provide Testing site/location, personnel and Data collection/Analysis and Test reporting for DTRA Counter-Small Unmanned Aircraft Unmanned Aerial Systems (C-sUAS) Defeat One (CD-I) testing event. This test event is formerly known as Hard Kill II which also took place at White Sands Missile Range (WSMR), MNNM. - Provide RED Team personnel oversight for UAS threat device operations during test scenarios. Inventory and maintain threat UAS documentation and ensure accurate records are maintained as required. - Coordinate and maintain Vendor and Visitor personnel roster, range access request, safety briefings and communications plan as required during the duration of CD-I. <p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - Finalize full scale testing of the Agent Defeat Penetrator fill. - Continue full-scale prototype demonstration of novel access denial technology in an operational environment. - Continue to develop offensive counterproliferation, counter-WMD technologies in support of combatant command requirements. - Continue to develop WMD pathway defeat technologies, as well as threat-specific test articles and analyses. - Continue to develop lighter, smaller, more effective breaching capabilities. - Continue to develop next generation WMD detection technology applications. - Continue to integrate HPC software tools into Dynamic Picture of the Operating Environment (DPOE), leveraging capabilities of high performance computing to improve automated analytics to more accurately or quickly identify events, actors and threats. - Develop and integrate advanced algorithms and refine an operational framework for a mission planning tool to enhance warfighter capabilities to search for, detect, and identify chemical threats prior to release. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / <i>*Counter Weapons of Mass Destruction Advanced Technology Development</i>	Project (Number/Name) RG / <i>***Counter WMD Technologies and Capabilities Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Demonstrate a miniaturized chemical warfare agent collection and detection capability for trace-level and remote CWMD search missions. - Initiate development of remote sensing and characterization capabilities to aid in the detection and identification of biological weapons production facilities. - Continue to develop, integrate and demonstrate advanced CWMD sensing payloads for both unmanned and remote sensing missions. - Initiate development of a Chemical Intelligence, Surveillance, and Reconnaissance area search mission planning tool to enhance capabilities to search for, detect, and identify chemical threats prior to release. - Continue to conduct mission-oriented experiments to model, simulate, analyze, or exploit technical capabilities intended to counter WMD or mitigate risks and impacts to critical assets in operationally relevant conditions. - Continue to develop enhancements to the Integrated Munitions Effects Assessment modeling and simulation planning tool. - Continue support for Combatant Command exercises and planning events at the Nevada Test Bed to develop target defeat technologies, tools, and capabilities. - Continue to develop and maintain interagency capabilities and special tests in support of national priority programs and mission requirements. - Integrate engineering rule-based development for automated advanced targeting characterization efforts to meet CCMD and IC WMD and HDBT characterization and defeat requirements. - Continue to develop the Functional Full Dimensional Defeat Enterprise process including developing new means for identifying facility functions, determining defeat vulnerabilities in support of attack planning and execution, and determining new battle damage information methods. - Continue cooperative CWMD project technical exchange with the United Kingdom (UK) in support of US/UK Project Agreement. - Continue Coalition Warfare Program Agreement with Republic of Korea for advancement of autonomous tunnel exploitation technologies. - Continue to develop complex geotechnical models for support of geotechnical site characterization of WMDhard target sites. - Continue to develop enhancements to WMDpedia for DPOE and the Sensitive Site Exploitation mobile application. - Continue to assess and develop analytic capabilities to enhance the warfighter's ability to conduct predictive analysis and forecast potential WMD threats informing future CWMD requirements. <p>FY 2019 to FY 2020 Increase/Decrease Statement: The increase from FY 2019 to FY 2020 is due to the realignment of Project RE-Counter Terrorism Technologies, Project RM-WMD Counterforce Technologies, Project RR-CWMD Test and Evaluation, and Project RT-Target Assessment Technologies into Project RG-Counter WMD Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RG / ***Counter WMD Technologies and Capabilities Development

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Additionally, DTRA increased investment in the development of classified and unclassified USCENTCOM and USSOCOM efforts to counter threat networks by assessing, identifying, and providing capabilities to maintain technological superiority. Real growth in this project is 15.1%.			
Accomplishments/Planned Programs Subtotals	30.688	10.277	235.087

	FY 2018	FY 2019
Congressional Add: Target Sensing Technologies	10.000	10.000
FY 2018 Accomplishments: - Completed software spiral development for five prototypes for target sensing technologies. Details classified. - Completed algorithm development and integration with mission performance capabilities, resulting in software configuration control board system recommendations and analysis. Details classified. - Initiated development and fabrication of additional prototype systems. Details classified.		
FY 2019 Plans: - Funds pre-award requirement for follow-on contract vehicle for transition of program and systems development to Service/Warfighter. Procurement sensitive. - Purchases up to 20 test prototypes systems in existing and new form factors for target sensing technologies. Details classified. - Funds further development of additional algorithm development and integration with mission performance capabilities, resulting in software configuration control board system recommendations and analysis. Details classified.		
Congressional Adds Subtotals	10.000	10.000

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 20/0602718BR/RG: Counter Weapons of Mass Destruction Applied Research	8.483	8.959	22.253	-	22.253	22.958	22.919	23.715	24.190	Continuing	Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / <i>*Counter Weapons of Mass Destruction Advanced Technology Development</i>	Project (Number/Name) RG / <i>***Counter WMD Technologies and Capabilities Development</i>

D. Acquisition Strategy
Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics
Percentage of completed demonstration programs transitioning each year.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RI / Nuclear Survivability
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RI: Nuclear Survivability	50.493	7.289	5.783	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	63.565

Note

Beginning in FY 2020, efforts in this project are captured under project RD-Nuclear Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The Nuclear Survivability project develops, integrates, demonstrates, and transitions innovative technologies for the protection of mission-essential personnel, critical military and national defense capabilities, and associated control and support systems during a nuclear event. Research under this project supports the mission critical systems identified under Department of Defense (DoD) Instruction 3150.09, Chemical, Biological, Radiological, and Nuclear (CBRN) Survivability Policy. The Defense threat Reduction Agency (DTRA) is the DoD-designated center of excellence for electromagnetic pulse survivability assessments. The System Vulnerability and Assessment effort develops nuclear assessment capabilities to support operational planning, weapon effects predictions, and strategic system design. This activity also provides the DoD's nuclear design and protection standards for new and existing systems, e.g., command and control facilities and aircraft. Key systems include the Nuclear Command and Control system, the net-centric thin-line, and both military and civilian satellites and associated support systems. The radiation-hardened nano-electronics effort develops and integrates radiation-hardened, high-performance prototype nano-electronics to meet DoD space and strategic deterrence system requirements. The Human Survivability effort supports the Nuclear Test Personnel Review Program (NTPR), confirming the participation of Atomic Veterans in nuclear testing and radiological events and providing radiation dose assessments. The NTPR is administered by the Department of Veterans Affairs and the Department of Justice for radiogenic disease compensation programs.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RI: Nuclear Survivability	7.289	5.783	-
Description: Project RI develops, integrates, and transitions novel technologies that radically enhance the survivability and resilience of DoD nuclear forces and their associated control and support systems in the event of an attack or other hostile action.			
FY 2019 Plans:			
- Produce appropriate new or updated standards and handbooks to capture critical information for DoD to verify and validate mission critical systems.			
- Coordinate Satellite System Natural and Nuclear Environment Protection Standard with DoD Stakeholders and the DoD Standardization Program Office.			
- Continue producing technical reports addressing DoD radiogenic disease concerns; which address Congressional interest in historical veteran radiation exposure and present day radiological exposures of the DoD-affiliated population.			
- Evaluate Commercial Off the Shelf (COTS) radiation-hardened microelectronics from trusted, commercial sources.			
- Conduct research to characterize radiation-hardened materials and determine viability for inclusion in DOD systems.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RI / Nuclear Survivability

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
- Final independent verification and validation (IV&V) of DIAMONDS coding and data prior to migration to DIAMONDS Next Generation.			
- Codify the Information Assurance and Accreditation documentation for the transition from Defense Integration and Management of Nuclear Data Services (DIAMONDS) to DIAMONDS Next Generation. Provide supporting documentation to DISA for DIAMONDS cloud operation in support of Federal Data Center Consolidation Initiative.			
- Commence concurrent DIAMONDS and DIAMONDS Next Generation testing for functional and data validation.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease from FY 2019 to FY 2020 is due to the realignment of Project RI-Nuclear Survivability into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.			
Accomplishments/Planned Programs Subtotals	7.289	5.783	-

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 20/0602718BR/RI: <i>Counter Weapons of Mass Destruction Applied Research</i>	25.545	32.732	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics

Percentage of completed demonstration programs transitioning each year.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RL / Nuclear & Radiological Effects
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RL: Nuclear & Radiological Effects	3.390	8.505	3.427	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	15.322

Note

Beginning in FY 2020, efforts in this project are captured under project RD-Nuclear Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The Nuclear and Radiological Effects project develops, integrates, and transitions nuclear and radiological assessment modeling tools for use in military planning processes. The assessment modeling tools provide critical analytics for Consequence of Execution (COE) considerations during nuclear targeting and post-detonation nuclear response, supporting interagency strategic and tactical decision making. These COE considerations can include the full range of political, military, economic, social, infrastructure, and information (PMESII) factors and their interaction, extending analytical capabilities beyond common damage assessment practices and into second and third order effects. These activities/efforts support Combatant Commands and other Department of Defense (DoD) organizations by providing accurate and reliable consequence assessment and response information.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RL: Nuclear and Radiological Effects	8.505	3.427	-
Description: Project RL develops nuclear and radiological assessment modeling tools to support military operational planning, weapons effects predictions, and strategic system design decisions.			
FY 2019 Plans: - Develop natural gas and water/seawater effects models in support of U.S. Strategic Command (USSTRATCOM) Consequences of Execution (COE) efforts, linking higher order effects to PMESII analyses. - Integrate, demonstrate, and deliver a suite of consistent and enhanced models, tools, references, and data to US and Allied nuclear weapon effects stakeholders.			
FY 2019 to FY 2020 Increase/Decrease Statement: The decrease from FY 2019 to FY 2020 is due to the realignment of Project RL-Nuclear and Radiological Effects into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.			
Accomplishments/Planned Programs Subtotals	8.505	3.427	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RL / Nuclear & Radiological Effects

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 20/0602718BR/RL: <i>Counter Weapons of Mass Destruction Applied Research</i>	30.320	29.388	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Percentage of completed demonstration programs transitioning each year.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development				Project (Number/Name) RM / WMD Counterforce Technologies			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RM: WMD Counterforce Technologies	173.550	23.667	25.243	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	222.460

Note

Beginning in FY 2020, efforts in this project are captured under project RG-Counter WMD Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The Weapons of Mass Destruction (WMD) Counterforce Technologies project develops, integrates, demonstrates, and transitions emerging technologies enabling efforts to find, characterize, assess, and plan for the defeat of WMD threats. There are three core research efforts in this project: (1) The WMD battlespace awareness effort provides warfighters with capabilities to find, characterize, and assess WMD threats. This effort develops and integrates sensing technologies with multi-mission Unmanned Aerial System payloads. (2) The Countering WMD (CWMD) weapons effects effort develops modernized, fast-running, validated CWMD planning tools and integrates modeling and simulation software to optimize the execution of WMD and associated hard target defeat operations. (3) The Innovative Technologies and Engineering effort takes promising technologies discovered under fundamental and basic research and further develops them to increase the effectiveness of weapons against blast doors and other underground structures for functional defeat of Underground Facilities (UGFs), WMD, and their delivery systems.

B. Accomplishments/Planned Programs (\$ in Millions)

Title: RM: WMD Counterforce Technologies	FY 2018	FY 2019	FY 2020
Description: Project RM provides: (1) full-scale testing of CWMD weapons effects, weapon effects modeling, and weapon delivery system optimization; and (2) WMD sensor, surveillance, and data processing technologies.	23.667	25.243	-
FY 2019 Plans:			
- Complete Chemical Intelligence, Surveillance, and Reconnaissance (ISR) area search mission planning tool proof of concept to enhance capabilities to search for, detect, and identify chemical threats prior to release.			
- Transition the Loop-mediated isothermal Amplification (LAMP), the Biological ISR Sample Collection (SCOUT), and the Sampling Capability Improvement Project (SCIP) to the Joint Program Executive Office – Chemical and Biological Defense (JPEO-CBD) in support of Biological ISR sample collection capability improvements.			
- Conduct mission-oriented experiments to model, simulate, analyze, or exploit technical capabilities intended to counter WMD or mitigate risks and impacts to critical assets in operationally relevant conditions.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RM / WMD Counterforce Technologies

B. Accomplishments/Planned Programs (\$ in Millions)

- Release updated version of modernized, fast-running, validated Integrated Munitions Effects Assessment, a CWMD modeling and simulation (M&S) planning tool, incorporating near-miss lethality, weapons data, and concrete modeling, to optimize the execution of WMD and associated hard target defeat operations.

FY 2019 to FY 2020 Increase/Decrease Statement:

The decrease from FY 2019 to FY 2020 is due to the realignment of Project RM into Project RG-Counter WMD Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.

FY 2018	FY 2019	FY 2020
Accomplishments/Planned Programs Subtotals	23.667	25.243

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 20/0602718BR/RM: <i>Counter Weapons of Mass Destruction Applied Research</i>	13.956	12.780	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics

Percentage of completed demonstration programs transitioning each year.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development				Project (Number/Name) RR / CWMD Test and Evaluation			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RR: CWMD Test and Evaluation	16.052	0.000	12.394	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	28.446

Note

Beginning in FY 2020, efforts in this project are captured under project RG-Counter WMD Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The Countering WMD Test and Evaluation Project RR provides a unique national test bed capability for simulated weapons of mass destruction (WMD) facility characterization, weapon-target interaction, and WMD facility defeat testing to respond to operational needs by developing and maintaining test beds used by the Department of Defense (DoD), the Military Services, the Combatant Commanders and other Federal Agencies to evaluate the implications of WMD, conventional, and other special weapon use against U.S. military or civilian systems and targets.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RR: Countering WMD Test and Evaluation	0.000	12.394	-
Description: Project RR provides a unique national test bed capability for simulated WMD facility characterization, weapon-target interaction, and WMD facility defeat testing.			
FY 2019 Plans: - Continue support for Combatant Command exercises and planning events at the Nevada Test Bed in order to develop target defeat technologies, tools, and capabilities. - Maintain and further develop interagency capabilities and special tests in support of national priority programs and mission requirements. - Support the planning, execution, and analysis of two major CWMD test and demonstration events at the Nevada National Security Site or other locations within or outside the continental U.S.			
FY 2019 to FY 2020 Increase/Decrease Statement: The decrease from FY 2019 to FY 2020 is due to the realignment of Project RR-Countering WMD Test and Evaluation into Project RG-Counter WMD Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.			
Accomplishments/Planned Programs Subtotals	0.000	12.394	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RR / CWMD Test and Evaluation
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 20/0602718BR/RR: <i>Counter Weapons of Mass Destruction Applied Research</i>	12.810	14.345	17.816	-	17.816	18.156	18.451	17.775	18.131	Continuing	Continuing

Remarks

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics

Percentage of completed demonstration programs transitioning each year.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RT / Target Assessment Technologies
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RT: <i>Target Assessment Technologies</i>	293.941	45.770	33.871	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	373.582

Note

Beginning in FY 2020, efforts in this project are captured under project RG-Counter WMD Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

The Target Assessment Technologies project develops, integrates, tests, demonstrates, and transitions processes and technologies providing advanced capabilities in the areas of Weapons of Mass Destruction (WMD) target assessment and functional defeat. The functional defeat process includes finding and identifying a facility, characterizing its function and physical layout, determining current or future vulnerabilities to available defeat mechanisms, planning and executing an attack, assessing damage, and denying reconstitution efforts. Applying these processes to time-dependent constraints related to WMD target characterization and threat analysis presents a further technical challenge. This project develops analytical tools and processes required to (1) find and characterize WMD targets and associated hard and deeply buried targets (HDBTs) and to (2) to assess in real time the results of physical and functional defeat operations (such as a direct attack). These novel, dynamic capabilities enable Combatant Commands (CCMDs) and the intelligence community (IC) to hold at risk high value targets possessed by adversaries.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RT: Target Assessment Technologies	45.770	33.871	-
Description: Project RT provides CCMDs and the IC with technologies and processes to find and characterize WMD targets and hard and deeply buried targets and then assess the results of attacks against those targets.			
FY 2019 Plans:			
- Complete engineering rule-based development for automated advanced targeting characterization efforts to meet CCMD and IC WMD and HDBT characterization and defeat requirements.			
- Further develop the Functional Defeat Enterprise process including identifying facility functions, determining defeat vulnerabilities in support of attack planning and execution, and determining new battle damage information methods.			
- Develop cooperative CWMD project technical exchange with the United Kingdom (UK) in support of a U.S./UK Project Agreement.			
- Continue to develop complex geotechnical models for support of geotechnical site characterization of WMD target sites.			
FY 2019 to FY 2020 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603160BR / *Counter Weapons of Mass Destruction Advanced Technology Development	Project (Number/Name) RT / Target Assessment Technologies

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
The decrease from FY 2019 to FY 2020 is due to the realignment of Project RR-Target Assessment Technologies into Project RG-Counter WMD Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.			
Accomplishments/Planned Programs Subtotals	45.770	33.871	-

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

N/A

Remarks

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes best-of-breed researchers across DoD and other government agency laboratories, academia, industry, and international partner organizations.

E. Performance Metrics

Percentage of completed demonstration programs transitioning each year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	144.934	169.638	0.000	113.590	113.590	69.950	119.522	115.843	117.485	Continuing	Continuing
JC: <i>Enable Rapid Capability Delivery</i>	0.000	117.640	148.772	0.000	103.793	103.793	59.860	109.236	105.258	106.598	Continuing	Continuing
JR: <i>Enable DoD Responsiveness</i>	0.000	9.790	7.725	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.515
JS: <i>Assist Situational Understanding</i>	0.000	17.504	13.141	0.000	9.797	9.797	10.090	10.286	10.585	10.887	Continuing	Continuing

Note

Overseas Contingency Operations (OCO) for Enduring Requirements (\$113.590): OCO for Enduring Requirements are enduring in-theater and in-CONUS costs that will likely remain after combat operations cease, and have previously been funded in OCO. Funds also enable and provide for urgent and emergent warfighter requirements from CCMDs and Warfighter Senior Integration Group.

A. Mission Description and Budget Item Justification

The Counter Improvised-Threat (C-IT) Technology Demonstration, Prototype Development, and Testing program element supports the development, demonstration, and testing of improvised threat defeat technologies to advance the JIDO analytical infrastructure, methods, and tools (JS) and enhance counter IED and counter small unmanned aerial system (JC) solutions. Advancements in advanced analytics include the continued production of custom software tools that leverage constantly-evolving machine learning and artificial intelligence algorithms and methods increasing our ability to more quickly develop threat facilitation network connections and activities for the CCMDs. Driven by the current threat still facing deployed US forces, this investment also enables rapid development and delivery of capabilities that more-fully enable the identification, detection, prevention, neutralization, exploitation, and risk mitigation of IEDs, threat-small UASs, and their effects. This also includes test and evaluation facilities and capabilities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	255.661	12.743	0.000	12.743
Current President's Budget	144.934	169.638	0.000	113.590	113.590
Total Adjustments	144.934	-86.023	-12.743	113.590	100.847
• Congressional General Reductions	-	-89.523			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	3.500			
• Congressional Directed Transfers	144.934	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignment	-	-	-12.743	113.590	100.847

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: JC: *Enable Rapid Capability Delivery*

Congressional Add: *Hyperspectral Improvised Explosive Device (IED) Detection*

	FY 2018	FY 2019
Congressional Add Subtotals for Project: JC	0.000	3.500
Congressional Add Totals for all Projects	0.000	3.500

Change Summary Explanation

The change in FY 2020 is due to the continuation of Overseas Contingency Operations (OCO) at a lower level of funding than in FY 2019. The FY2020 OCO Request is for prioritized threat focused areas: Attack the Network, Home-made Explosives, (HME), Vehicle Borne IEDs (VBIED), and Buried IEDs. These will focus capability delivery to meet current warfighter requirements and the evolving threat where they are deployed. Investments in JS: Assist Situation Understanding are for Counter Threat Networks including early action to defeat their pathways and prevent adversaries from acquiring or enhancing their improvised threat capabilities.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604134BR / Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing					Project (Number/Name) JC / Enable Rapid Capability Delivery		
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
JC: Enable Rapid Capability Delivery	0.000	117.640	148.772	0.000	103.793	103.793	59.860	109.236	105.258	106.598	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project harnesses an in-depth understanding of the threat, leading to identification and validation of urgent or emergent counter-threat requirements and Combatant Command capability gaps. In turn, DTRA rapidly provides Counter-Improvised Explosive Device/Counter-small Unmanned Aerial Systems (C-IED/C-sUAS) and counter improvised threat (C-IT) solutions to prevent or mitigate battlefield operational surprise. DTRA's continuous embedded presence with deployed US Joint Forces and coordination with Service components enables full transparency of investment activities and provides for the early identification and understanding of C-IED and C-IT risks and vulnerabilities which enable the timely validation, development, and delivery of counter-threat material and non-material solutions.

DTRA delivers counter-threat materiel solutions in support of US Joint Forces, effectively addressing changes to threat tactics, techniques, and procedures (TTPs) affecting deployed forces. Capability incorporates an embedded tactical presence to understand a continuously evolving threat environment as well as complete visibility of the current DoD counter-threat portfolio to enable rapid response to warfighter vulnerabilities and to enhance force protection and maneuverability. DTRA responds to the following improvised threats: Anti-Armor IED (AAIED), Booby Trapped Structures (BTS), Buried IED, Home-Made Explosives (HME), Personnel-Borne IED (PBIED), Radio Controlled IED (RCIED), improvised threats within tunnels, Vehicle-Attached IED (VAIED), Vehicle-Borne IED (VBIED), Water-Borne IED (WBIED), C-sUAS and emerging threats that are identified by the forward deployed warfighter and technology outreach team.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: JC: Enable Rapid Capability Delivery	117.640	145.272	0.000	103.793	103.793
Description: This project delivers counter-threat materiel solutions in support of US Joint Forces supporting contingency operations, effectively addressing changes to threat tactics, techniques, and procedures (TTPs) affecting deployed forces.					
FY 2019 Plans:					
- Conduct and participate in test and evaluation events in support of improvised threats.					
- Develop and test C-IED/C-sUAS systems for compatibility prior to systems deploying to operational theaters in support of the warfighter.					
- Maintain production platforms that support the development and fielding of capabilities that combat improvised threats and the threat network.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>- Improve deployable forensic field kits to provide near real time feedback and reduce the reach back support requirement.</p> <p>- Conduct modeling and simulation in support of countering improvised threats</p> <p>- Continue threat device characterization, prototyping and production.</p> <p>FY 2020 Base Plans: N/A</p> <p>FY 2020 OCO Plans:</p> <p>- Increase Positive Detection (PD) and acceptable False Alarm Rate (FAR) with multiple integrated sensors in Latest Time of Value (LTOV) in support of Standoff Detection of improvised threats (PBIED & VBIED).</p> <p>- Improve size, weight, power and integration of sensors to small unmanned systems.</p> <p>- Improve on-board vs. off-board data processing to provide real time data in unmanned systems to support real time improvised threat detection.</p> <p>- Identify and develop portable technology to look through walls and identify hazards with fidelity in real-time for BTS.</p> <p>- Conduct proof of concept for unmanned vehicle that can autonomously operate within confined spaces and provide necessary imagery to operator for BTS.</p> <p>- Integrate sensors to detect various anomalies in unstructured environment with the ability to detect through clothes and report in real-time at safe standoff distances in support of PBIED.</p> <p>- Improve/develop detection and defeating sUAS (RCMA) capabilities against future technology, including acoustic detection at range, machine learning of constantly changing threat signatures (acoustic, RF signal, radar cross-section, optics, Unattended Radiated Emissions (URE), etc.).</p> <p>- Develop anti-armor detection and defeat capabilities, to include real-time reporting from sensors on mounted vehicles that can detect roadside threats in high clutter, while operating at tactical speed, with high Positive Detection and acceptable False Alarm Rate.</p> <p>- Improve mounted detection of buried IEDs through real-time reporting from sensors on mounted vehicles that can detect buried threats at depths while conducting maneuver operations at speed with high Positive Detection and acceptable False Alarm Rate. Hardware improvements enable faster sensing and software improvements enable faster systems-of-systems reporting (higher Positive Detection and lower False Alarm Rate).</p> <p>- Develop Machine Learning for counter improvised threat technologies and solutions to increase effectiveness of developed/developing capabilities. This would enhance the effectiveness of solutions such as sensors' ability to identify signatures, rapid identification, and detection of IED threats.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
- Increase Artificial Intelligence of sensors to better sort through an enormous quantity of data, illuminating the relevant actionable information and accelerating the decision making process, often autonomously. Machine learning coupled with artificial intelligence dramatically enhances the effectiveness of systems and our warfighting capabilities. - Finalize production of the Hyper Spectral Imaging Sensor form factor so that it can be utilized on C-sUAS platforms. <i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease from FY 2019 to FY 2020 is due to decreased investment in RDT&E technology enablers and technologies to respond to improvised threats such as booby trapped structures, buried IED, person born IED, and water born IED.					
Accomplishments/Planned Programs Subtotals	117.640	145.272	0.000	103.793	103.793

	FY 2018	FY 2019
<i>Congressional Add:</i> Hyperspectral Improvised Explosive Device (IED) Detection <i>FY 2018 Accomplishments:</i> N/A <i>FY 2019 Plans:</i> - Began technology development for a small Size, Weight, and Power (SWAP) Hyperspectral Airborne Sensor designed to integrate on a Group 3 Unmanned Air Vehicle (UAV) platform in order to detect Targets of Interest. The Hyperspectral Sensor will be full spectrum which is defined as capable of detecting targets within the Visible and Near-Infrared (VNIR), Short Wave Infra-Red (SWIR), and Long Wave Infra-Red (LWIR) spectrums.	0.000	3.500
Congressional Adds Subtotals	0.000	3.500

C. Other Program Funding Summary (\$ in Millions)	Line Item	FY 2018	FY 2019	FY 2020			FY 2021	FY 2022	FY 2023	FY 2024	Cost To	
				Base	OCO	Total					Complete	Total Cost
	• 10/0602134BR/JC: <i>Improvised Threat Reduction Applied Research</i>	0.000	0.000	0.000	0.502	0.502	0.512	0.522	0.533	0.543	Continuing	Continuing
	• 27/0603134BR/JC: <i>Counter Improvised-Threat Simulation</i>	23.366	13.648	0.000	49.528	49.528	50.110	50.250	47.887	48.194	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
Remarks											

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes research developers across DoD and other Government agency laboratories, academia, and industry.

E. Performance Metrics

Percentage of completed Counter Improvised-Threat Technology demonstration programs transitioning to warfighter or Services each year.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing	Project (Number/Name) JC / Enable Rapid Capability Delivery
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Anti-Armor IED (AAIED)	C/FFP	Battelle : Idaho Falls, ID	-	-		7.000	Apr 2019	0.000		7.052	Nov 2019	7.052	Continuing	Continuing	-
Booby Trapped Structures (BTS)	C/FFP	Shield AI : San Diego, CA	-	3.420	May 2018	9.350	May 2019	0.000		4.251	May 2020	4.251	Continuing	Continuing	-
Buried IED	C/CPFF	Naval Research Lab : Washington, DC	-	-		5.500	Feb 2019	0.000		2.299	Nov 2019	2.299	Continuing	Continuing	-
Home-Made Explosives (HME)	C/CPFF	Manufacturing Techniques, Inc. (MTEQ) HQ : Lorton, VA	-	17.956	Mar 2018	4.801	Mar 2019	0.000		5.002	Mar 2020	5.002	Continuing	Continuing	-
Network	C/FFP	John Hopkins : Baltimore, MD	-	16.121	Apr 2018	15.689	Apr 2019	0.000		12.875	Apr 2020	12.875	Continuing	Continuing	-
Person-Born IED (PBIED)	C/FFP	MIT Lincoln Laboratory (MIT-LL) : Lexington, MA	-	4.000	May 2018	8.400	May 2019	0.000		5.752	May 2020	5.752	Continuing	Continuing	-
Radio Controlled IED (RCIED)	C/CPFF	Rampart Technologies, Colorado Springs, CO : Sericore, Hanover, MD	-	-		-		0.000		0.500	Nov 2019	0.500	Continuing	Continuing	-
RDT&E Technology Enablers	C/CPFF	Various : Various	-	18.663	Jan 2018	37.861	Jan 2019	0.000		12.662	Jan 2020	12.662	Continuing	Continuing	-
Sensitive Integration Office Programs	C/CPFF	Various : Various	-	15.551	Jun 2018	15.000	May 2019	0.000		10.000	Nov 2019	10.000	Continuing	Continuing	-
Tunnel	C/FFP	ERDC: Vicksburg, MS : MIT Lincoln Labs: Boston, MA	-	5.250	Mar 2018	7.000	Mar 2019	0.000		0.000	Mar 2020	0.000	Continuing	Continuing	-
Unmanned Aerial Systems (UAS)	C/FFP	Technology Service Corporation (TSC) Fairfax, VA : BAE Systems, Fridley, MN	-	10.223	May 2018	5.950	May 2019	0.000		17.005	May 2020	17.005	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing	Project (Number/Name) JC / Enable Rapid Capability Delivery
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Vehicle-Attached IED (VAIED)	C/CPFF	Various : TBD	-	-		1.300	Apr 2019	0.000		0.000		0.000	Continuing	Continuing	-
Vehicle-Borne IED (VBIED)	C/CPFF	Naval Surface Warfare Center (NSWC) Dahlgren : King George County, VA	-	7.500	May 2018	10.500	May 2019	0.000		5.249	May 2020	5.249	Continuing	Continuing	-
Water-Borne IED (WBIED)	C/FFP	Various : Various	-	0.954	Aug 2018	2.000	Aug 2019	0.000		0.000	Aug 2020	0.000	Continuing	Continuing	-
Subtotal			-	99.638		130.351		0.000		82.647		82.647	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	MIPR	Naval Air Weapons Station : China Lake, CA	-	11.485	Apr 2018	12.316	Dec 2018	0.000		13.637	Dec 2019	13.637	Continuing	Continuing	-
T&E Threat Support	MIPR	Intelligence and Information Warfare Directorate (I2WD), Communications-Electronics Research, Development and Engineering Center (CERDEC) : Aberdeen Proving Ground, MD	-	5.275	Apr 2018	6.105	Dec 2018	0.000		7.509	Dec 2019	7.509	Continuing	Continuing	-
SETA Capability Research Architecture Cell (CRAC)	C/CPAF	Zel Technologies : Reston, VA	-	1.242	Sep 2018	0.000		0.000		0.000		0.000	0.000	1.242	1.242
Subtotal			-	18.002		18.421		0.000		21.146		21.146	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing	Project (Number/Name) JC / Enable Rapid Capability Delivery

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
Anti-Armor IED (AAIED)																												
Explosive Form Projectile (EFP) Detect - High Resolution Electro-Optical Infrared Camera (HREIOR)																												
Explosive Form Projectile (EFP) Detect - Stalker																												
Explosive Form Projectile (EFP) Detect Spiral																												
Non-Linear Junction Tech																												
EFP Detection & Defeat																												
Booby Trapped Structures (BTS)																												
Iron Horse																												
Buried IED																												
Microwave Frequency Oscillator (MFO) - Mineroller																												
Spectral Polarmetric Instrument Data Analysis (SPIDA)																												
SPIDA Spiral (Automated Change Detection)																												
Home-Made Explosives (HME)																												
Mini Hyper Spectral Imaging Group 3																												
SPINS (Standoff Portable Isotopic Neutron Spectroscopy)																												
Improvised Threat Device Replication																												
T&E Threat Support																												
Network																												
Cobalt Doom																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>
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	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
Explosives attribution and exploitation (EA2)																												
Gold Bloom																												
Improved National Technical Means (NTM) Integration																												
Iris Sanctum																												
North Wind																												
Tough Luck																												
Velvet Paper Product Funding																												
Person-Born IED (PBIED)																												
Atomic Magnetometer																												
PBIED Sensor Integration (Tiger Paw)																												
Radio Controlled IED (RCIED)																												
Songbird (Whistler Spiral)																												
RDT&E Technology Enablers																												
JD-MS8 Travel 4																												
Rapid Experimentation and Analysis for Development Support (READS)																												
Sensitive Integration Office SOCOM Support																												
Technical Outreach BA 4																												
UK Joint Tech Development																												
Counter-small Unmanned Aerial Systems (C-sUAS)																												
C-sUAS Test and Eval																												
C-sUAS Threat Devices																												
GroundTaker																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing	Project (Number/Name) JC / Enable Rapid Capability Delivery
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FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
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

Microwave Frequency Oscillator (MFO) C-sUAS	
Mobile C-sUAS Airborne Platform Suite (MCAPS) Spiral	
Multi vs. Multi Airborne Dispersed	
Multi vs. Multi Dismounted Deployed	
Pike on Reaper	
Test & Eval	
Test & Evaluation Support	
Vehicle-Borne IED (VBIED)	
Supernova Spiral	
VBIED Detection Sensor Integration	

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
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

Anti-Armor IED (AAIED)	
Explosive Form Projectile (EFP) Detect - High Resolution Electro-Optical Infrared Camera (HREIOR)	
Explosive Form Projectile (EFP) Detect - Stalker	
Explosive Form Projectile (EFP) Detect Spiral	
Non-Linear Junction Tech	
EFP Detection & Defeat	
Booby Trapped Structures (BTS)	
Iron Horse	

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency			Date: March 2019		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0604134BR / Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing		Project (Number/Name) JC / Enable Rapid Capability Delivery	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Buried IED																												
Microwave Frequency Oscillator (MFO) - Mineroller					██																							
Spectral Polarmetric Instrument Data Analysis (SPIDA)					██																							
SPIDA Spiral (Automated Change Detection)													██															
Home-Made Explosives (HME)																												
Mini Hyper Spectral Imaging Group 3					██																							
SPINS (Standoff Portable Isotopic Neutron Spectroscopy)					██																							
Improvised Threat Device Replication																												
T&E Threat Support													██															
Network																												
Cobalt Doom	██																											
Explosives attribution and exploitation (EA2)					██																							
Gold Bloom	██																											
Improved National Technical Means (NTM) Integration									██																			
Iris Sanctum	██				██				██				██				██				██				██			
North Wind	██				██				██				██				██				██				██			
Tough Luck	██				██				██				██				██				██				██			
Velvet Paper Product Funding	██				██				██				██				██				██				██			
Person-Born IED (PBIED)																												
Atomic Magnetometer					██																							
PBIED Sensor Integration (Tiger Paw)	██				██				██				██				██				██				██			
Radio Controlled IED (RCIED)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Songbird (Whistler Spiral)	[REDACTED]																											
RDT&E Technology Enablers	[REDACTED]																											
JD-MS8 Travel 4	[REDACTED]																											
Rapid Experimentation and Analysis for Development Support (READS)	[REDACTED]																											
Sensitive Integration Office SOCOM Support	[REDACTED]																											
Technical Outreach BA 4	[REDACTED]																											
UK Joint Tech Development	[REDACTED]																											
Counter-small Unmanned Aerial Systems (C-sUAS)	[REDACTED]																											
C-sUAS Test and Eval	[REDACTED]																											
C-sUAS Threat Devices	[REDACTED]																											
GroundTaker	[REDACTED]																											
Microwave Frequency Oscillator (MFO) C-sUAS	[REDACTED]																											
Mobile C-sUAS Airborne Platform Suite (MCAPS) Spiral	[REDACTED]																											
Multi vs. Multi Airborne Dispersed	[REDACTED]																											
Multi vs. Multi Dismounted Deployed	[REDACTED]																											
Pike on Reaper	[REDACTED]																											
Test & Eval	[REDACTED]																											
Test & Evaluation Support	[REDACTED]																											
Vehicle-Borne IED (VBIED)	[REDACTED]																											
Supernova Spiral	[REDACTED]																											
VBIED Detection Sensor Integration	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Anti-Armor IED (AAIED)				
Explosive Form Projectile (EFP) Detect - High Resolution Electro-Optical Infrared Camera (HREIOR)	1	2020	4	2021
Explosive Form Projectile (EFP) Detect - Stalker	1	2020	4	2021
Explosive Form Projectile (EFP) Detect Spiral	1	2020	4	2020
Non-Linear Junction Tech	1	2019	4	2020
EFP Detection & Defeat	1	2020	1	2020
Booby Trapped Structures (BTS)				
Iron Horse	3	2019	1	2021
Buried IED				
Microwave Frequency Oscillator (MFO) - Mineroller	1	2019	2	2021
Spectral Polarimetric Instrument Data Analysis (SPIDA)	1	2019	4	2020
SPIDA Spiral (Automated Change Detection)	3	2020	4	2022
Home-Made Explosives (HME)				
Mini Hyper Spectral Imaging Group 3	4	2018	4	2020
SPINS (Standoff Portable Isotopic Neutron Spectroscopy)	3	2019	2	2021
Improvised Threat Device Replication				
T&E Threat Support	1	2020	4	2023
Network				
Cobalt Doom	1	2018	4	2020
Explosives attribution and exploitation (EA2)	1	2019	4	2023
Gold Bloom	2	2013	4	2023

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Improved National Technical Means (NTM) Integration	4	2019	4	2021
Iris Sanctum	4	2012	4	2023
North Wind	4	2015	4	2023
Tough Luck	2	2014	4	2023
Velvet Paper Product Funding	3	2011	4	2023
Person-Born IED (PBIED)				
Atomic Magnetometer	2	2019	3	2021
PBIED Sensor Integration (Tiger Paw)	1	2018	2	2021
Radio Controlled IED (RCIED)				
Songbird (Whistler Spiral)	1	2020	4	2023
RDT&E Technology Enablers				
JD-MS8 Travel 4	1	2018	4	2023
Rapid Experimentation and Analysis for Development Support (READS)	3	2012	4	2023
Sensitive Integration Office SOCOM Support	1	2015	4	2019
Technical Outreach BA 4	1	2016	4	2020
UK Joint Tech Development	1	2019	4	2023
Counter-small Unmanned Aerial Systems (C-sUAS)				
C-sUAS Test and Eval	2	2019	4	2023
C-sUAS Threat Devices	2	2019	4	2023
GroundTaker	3	2018	4	2020
Microwave Frequency Oscillator (MFO) C-sUAS	4	2016	4	2020
Mobile C-sUAS Airborne Platform Suite (MCAPS) Spiral	2	2019	4	2020
Multi vs. Multi Airborne Dispersed	1	2020	4	2022
Multi vs. Multi Dismounted Deployed	1	2020	4	2022
Pike on Reaper	4	2019	4	2021

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Test & Eval</i>				
Test & Evaluation Support	1	2020	4	2023
<i>Vehicle-Borne IED (VBIED)</i>				
Supernova Spiral	4	2019	4	2021
VBIED Detection Sensor Integration	3	2019	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JR / <i>Enable DoD Responsiveness</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
JR: <i>Enable DoD Responsiveness</i>	0.000	9.790	7.725	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.515
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project enhances US Joint Forces' responsiveness to improvised weapons. DTRA builds counter-threat solutions in full collaboration with its partners. Through a robust communities of action approach, DTRA coordinates with the Combatant Commanders (CCDRs), the Joint Staff, the Military Departments/Services, the interagency, coalition partners, industry, and academia to develop Counter-Improvised Explosive Device (C-IED) and Counter Improvised-Threat (C-IT) solutions that further enable the maneuverability and force protection of deployed US Joint Forces. This methodology leverages the authorities, access, and capabilities of the entire US Government and its partners as counter-improvised threat solutions are developed and realized.

DTRA responds to the following improvised threats: Home-Made Explosives (HME), Vehicle-Borne IED (VBIED), Counter- small Unmanned Aerial Systems (C-sUAS) Vehicle-Attached IED (VAIED), Anti-Armor IED (AIED) Buried IED, Radio Controlled IED (RCIED), Personnel-Borne IED (PBIED), Booby Trapped Structures (BTS), Improvised WMD, Water-Borne IED (WBIED), improvised threats within tunnels, and emerging threats that are identified by the warfighter deployed forward.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: JR: Enable DoD Responsiveness	9.790	7.725	-	-	-
FY 2019 Plans: N/A					
FY 2019 to FY 2020 Increase/Decrease Statement: The decrease from FY 2019 to FY 2020 is due to the realignment of activities in Project JR-Enable DoD Responsiveness to Project JC-Enable Rapid Capability Delivery to better support advanced technology development to meet emerging improvised threats.					
Accomplishments/Planned Programs Subtotals	9.790	7.725	-	-	-

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JR / <i>Enable DoD Responsiveness</i>

D. Acquisition Strategy
Assessment and selection of best performer for developmental requirements to meet specific military capability needs. Performer base includes research developers across DoD and other Government agency laboratories, academia, and industry.

E. Performance Metrics
Percentage of completed Counter Improvised-Threat Technology demonstration programs transitioning to Warfighter each year.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JR / <i>Enable DoD Responsiveness</i>

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
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
N/A				[REDACTED]																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JR / <i>Enable DoD Responsiveness</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
N/A	1	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>				Project (Number/Name) JS / <i>Assist Situational Understanding</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
JS: <i>Assist Situational Understanding</i>	0.000	17.504	13.141	0.000	9.797	9.797	10.090	10.286	10.585	10.887	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project enables DTRA to design, develop, test, and deliver IT capabilities that support the ability to understand and analyze global threat information. The project allows DTRA to rapidly develop, test and engineer analytical products, threat models and simulations, data science methodologies, software applications, and to integrate intelligence data sources that enable the rapid collection, fusion, and dissemination of operational-intelligence and technology in order to enable the defeat of threat networks that employ disruptive technologies.

The advanced Mission Information Technology (MIT) capability, its software Systems Integration Lab (SIL), and embedded Combatant Command (CCMD)-direct support and reach back staff, continuously create capabilities to ingest, fuse, analyze, and present mission relevant data and information that provides immediate assistance to DoD and the whole of government. This capability, called Catapult, is a fully accredited SIPR and JWICS based analytical cloud architecture. The Catapult architecture pulls from over more than 850 Secret Internet Protocol Router Network (SIPR) and more than 170 Joint Worldwide Intelligence Communications System (JWICS) data sources and allows for simple and open data access, system stability, scalability, and advanced analytics. In addition to Catapult, the MIT created another significant capability called Voltron. Voltron provides analysts access to signals intelligence (SIGINT) data within a secure and IC-accredited software developer environment. Voltron, give analysts access to continuously new models in support of "Attack the Network" analysis and operations. Voltron provides analysts access to methodologies involving multi-INT fusion in an easy to use interface. These methods are based on years of experience supporting tactical targeting environment and built in collaboration with other teams across the Intelligence Community. There are currently more than 75 models in Voltron available to the user community.

DTRA's authorities and mission have enabled a unique "Path-to-Production" (PTP) for mission-driven IT solutions. This unique development environment includes an integrated Cyber Security Assessment and Authorization (A&A) process, an in-house collateral Authorizing Official (AO), a strong partnership between technologists and intelligence analysts working real-world problems, and a collaborative and innovative culture that launches practical software solutions rapidly.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: JS: Assist Situational Understanding	17.504	13.141	0.000	9.797	9.797
Description: This project enables DTRA to design, develop, test, and deliver IT capabilities that support the ability to understand and analyze global threat information. The project allows DTRA to rapidly develop analytical products, threat models and simulations, data science methodologies, software applications, and to integrate					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JS / <i>Assist Situational Understanding</i>

B. Accomplishments/Planned Programs (\$ in Millions)

intelligence data sources that enable the rapid collection, fusion, and dissemination of operational-intelligence and technology in order to enable the defeat of threat networks that employ disruptive technologies.

FY 2019 Plans:

- Effort to consolidate Web Visualizations for DTRA Improvised Explosive Device/small Unmanned Aerial Systems (IED/sUAS) data. This will include the Common Intelligence Picture/Common Operational Picture and technical data and will serve as the platform for creation of Counter-IED/Counter-sUAS (C-IED/C-sUAS) analytics.
- Build a data science enabled module that will crawl through Catapult reporting and identify reports related to IED/sUAS events. Through machine learning techniques and application of training data, the team will train this module to identify reports that normal queries may miss. These reports will serve as the base data set for the CIED/C-sUAS event table.
- Prepare a list of vetted IED/sUAS events pulled from Catapult reporting. Events will be broken down into relevant categories with associated attributes.
- Stand up a database of technical data associated with known IED/sUAS. Library will be available for direct query and incorporated into other C-IED/C-sUAS capabilities.
- Integrate Virtual Management System processes and capabilities to build 3D models for various maritime vessels requested by external Special Operations Forces (SOF) customer.
- Develop and test a software mapping tool and spatial data analytics technology web service capable of a providing user functionality to create basic geospatial analytic outputs (i.e., line of sight, route vulnerability, etc.).
- Generate additional Data Science tables populated with entities extracted from Catapult using RipIt regex trees. This will provide a "truth set" for future Natural Language Processing.
- Develop and Test new tools allowing for the visualizing (and effects) of underwater explosions.
- Develop a new application (Thor) as a "rules-based" approach to existing Avengers/Phoenix models. Thor is planned to enhance sensitive site exploitation (SSE) data with a tool will provide comprehensive approach to SSE vetting.
- Develop capability to visualize and derive trends for Air and Marine Operations Center non-commercial flight data.
- Develop and test an Interactive interface which will provide access to the Avenger tool suite on selective networks.
- Scope and Design the Data Science software and tool development environment as to create containerized

FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JS / <i>Assist Situational Understanding</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>tools which will provide a standard working image across the multiple networks.</p> <ul style="list-style-type: none"> - Provide a methodology leveraging contextual clues from reporting, to provide additional information about individual person entities extracted from reports. (e.g., job title). - Develop and Test custom webpages that will provide “pre-vetted” data against analyst problem set. Automated workflow built for specific customer needs. - Develop and test a web-based Horizon version to act as a location intelligence discovery tool. The tool will provide geospatial querying within 2D maps to users as a light weight alternative to the smart-client version. - Develop and test a web-based Cognitive Counter-Improvised Explosive Device Signature System (C2IS2) tool that will provide OP/INTEL users with the capability to capture and manage the processes, observables, and signatures associated with IED operations and use that data for training, analysis, collection planning, and exploitation. - Continued improvements to the DevOps Pipeline and maturing the approach to delivery using containers - Deploy a subset of the Attack the Network Tool Suite (ANTS) application on Non-Classified Local Area Network and an easy navigation directory. - Provide Integration and Test activities against a Battlefield Information Collection and Exploitation System (BICES) instance of Catapult. Upgrade and test all applications to work with Metrics across the ANTS Suite, upgrade the user account and authentication in relation to the F5/Certificate Authentication System, and deploy Horizon Web. - Conduct System Integration of Catapult and all ANTS applications on the new HP Moonshot hardware. - Support proper deployment procedures and provide a test environment for the newly deployed Catapult and ANTS related applications on HP Moonshot hardware. - Test all Catapult and all ANTS applications at a COOP location. <p>FY 2020 Base Plans: N/A</p> <p>FY 2020 OCO Plans:</p> <ul style="list-style-type: none"> - Extend current DTRA Mission IT capability (Vantage), which supports Force Protection and Mission Planning, with augmented reality and virtual reality technologies (Examples include: HoloLens and Oculus Rift) - Creation of new 3D visualizations for underwater/Bathymetric datasets to support maritime operations and mitigate new improvised threats 					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JS / <i>Assist Situational Understanding</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<ul style="list-style-type: none"> - Integration of C-sUAS geo-spatial enabled data from the cloud architecture (Catapult) with VMS developed applications such as Foxhole to better visualize the effectiveness of proposed C-sUAS systems and optimize C-sUAS system placement in tactical/operational environments - Integration of machine learning for automated geo-spatial feature extraction creating time efficiencies in support of Request for Support (RFS) product delivery to include line of sight analysis, threat vulnerability assessments, and blast modeling. - Develop inter-operability with geo-spatial applications/models across the 70+ production facing developed tool suite. Examples include integrating advanced geo-spatial models with multi-INT data through Team Phoenix developed capabilities to include Voltron and JIDO J6 developed Horizon tool. - Integration of new Data Science environment, which will spawn graph analytics, machine learning, and neural networks against the 126M unique documents resident within Catapult - Cross corpus entity resolution and correlation to identify similar entities across multiple reports and reporting types resident within the Catapult architecture/data lake. This will include techniques to track specific Catapult entities across time and their locations mentioned in relevant reporting. These new techniques will expand DTRA's ability to identify and track improvised threat networks through automation. - Create a set of data preparation micro-services to build an efficient pipeline for incorporation of Catapult data into future Data Science algorithms and experiments. - Enhancing location precision and categorization of Catapult-extracted locations to provide more accurate geospatial plotting of relevant locations. Improvements to Natural Language Processing extraction of location information through supplementing extracted locations with relevant attributes derived from the context of the report. <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease from FY 2019 to FY 2020 is due to the maturation and transition of the Catapult Program of Record (PoR) from an advanced technology development effort to a sustained core capability. Continued RDT&E funding supports engineering and testing of new capabilities developed for DTRA's Quick Reaction Capability (QRC) mission that transition to the PoR for sustainment because they have broader, enduring utility for the DoD community.</p>					
Accomplishments/Planned Programs Subtotals	17.504	13.141	0.000	9.797	9.797

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing	Project (Number/Name) JS / Assist Situational Understanding

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

Line Item	FY 2018	FY 2019	FY 2020	FY 2020	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Cost To	
			Base	OCO	Total					Complete	Total Cost
• 10/0602134BR/JS: Improvised Threat Reduction Applied Research	0.000	0.000	0.000	1.175	1.175	1.711	1.745	1.780	1.815	Continuing	Continuing

Remarks

D. Acquisition Strategy

Assessment and selection of best performer to provide contractual services to develop and operationalize requirements through the new Enterprise Acquisition Strategy Initiative (EASI) at the least risk, optimal cost and proven technically. Performer base selection includes research developers across DoD and other Government agency laboratories, academia, and industry.

E. Performance Metrics

- Performing contractors operate under a Cost Plus/Award Fee contract measured by a number of mutually agreed Service Level Agreements (SLAs). Measurement Awards is done semi-annually. The contractor is required to provide Monthly status and progress against the SLAs.
- System metrics are measured by usage to include network, number of users, data, scope, integrations, and access.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing	Project (Number/Name) JS / Assist Situational Understanding
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Direct Operations Support	C/CPAF	Booz Allen Hamilton : Reston, VA	-	1.199	Aug 2018	1.236	Aug 2019	0.000		0.891	Aug 2020	0.891	Continuing	Continuing	-
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	1.799	Aug 2018	1.854	Aug 2019	0.000		1.230	Aug 2020	1.230	Continuing	Continuing	-
Sandia	MIPR	Sandia National Laboratories : Reston, VA	-	0.032	Oct 2017	0.040	Oct 2018	0.000		0.040	Oct 2019	0.040	Continuing	Continuing	-
IRTM	MIPR	Office of Naval Research : Arlington, VA	-	0.257	Aug 2018	0.000		0.000		0.000		0.000	0.000	0.257	0.257
Network	C/FFP	John Hopkins : Baltimore, MD	-	1.815	Jun 2018	0.362	Jan 2019	0.000		0.000		0.000	0.000	2.177	2.177
Vehicle-Borne IED (VBIED)	C/CPFF	Naval Surface Warfare Command : Dahlgren, VA	-	8.500	Jun 2018	1.449	Jan 2019	0.000		0.000		0.000	0.000	9.949	9.949
Subtotal			-	13.602		4.941		0.000		2.161		2.161	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Direct Operations Support	C/CPAF	Booz Allen Hamilton : Reston, VA	-	0.400	Aug 2018	0.412	Aug 2019	0.000		0.297	Aug 2020	0.297	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing	Project (Number/Name) JS / Assist Situational Understanding
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	0.599	Aug 2018	0.618	Aug 2019	0.000		0.410	Aug 2020	0.410	Continuing	Continuing	-
QRC IT Network (OIR)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	-		1.366	Mar 2019	0.000		1.476	Mar 2020	1.476	Continuing	Continuing	-
QRC IT Network (RS)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	-		0.258	Mar 2019	0.000		0.260		0.260	Continuing	Continuing	-
Sandia	MIPR	Sandia National Laboratories : Reston, VA	-	0.097	Oct 2017	0.168	Oct 2018	0.000		0.120	Oct 2019	0.120	Continuing	Continuing	-
Catapult / CTN Tool Suite Program of Record Support	C/CPAF	Zel Technologies : Reston, VA	-	0.319	Sep 2018	0.550	Sep 2019	0.000		0.500	Sep 2020	0.500	Continuing	Continuing	-
Carnegie Mellon University-Software Engineering Institute (CMU-SEI)	MIPR	Carnegie Mellon University/SEI : Hanscomb AFB, MA	-	0.215	Mar 2018	0.000	Mar 2019	0.000		0.000	Mar 2020	0.000	0.000	0.215	0.215
Subtotal			-	1.630		3.372		0.000		3.063		3.063	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Direct Operations Support	C/CPAF	Booz Allen Hamilton : Reston, VA	-	0.400	Aug 2018	0.412	Aug 2019	0.000		0.297	Aug 2020	0.297	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JS / <i>Assist Situational Understanding</i>
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	0.599	Aug 2018	0.618	Aug 2019	0.000		0.410	Aug 2020	0.410	Continuing	Continuing	-
QRC IT Network (OIR)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	-		1.078	Mar 2019	0.000		1.405	Mar 2020	1.405	Continuing	Continuing	-
QRC IT Network (RS)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	-		1.030	Mar 2019	0.000		1.040	Mar 2020	1.040	Continuing	Continuing	-
Sandia	MIPR	Sandia National Laboratories : Reston, VA	-	0.194	Oct 2017	0.240	Oct 2018	0.000		0.240	Oct 2019	0.240	Continuing	Continuing	-
SETA Capability Research Architecture Cell (CRAC)	C/CPAF	Zel Technologies : Reston, VA	-	1.079	Sep 2018	1.450	Sep 2019	0.000		1.181	Sep 2020	1.181	Continuing	Continuing	-
Subtotal			-	2.272		4.828		0.000		4.573		4.573	Continuing	Continuing	N/A
Project Cost Totals			-	17.504		13.141		0.000		9.797		9.797	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JS / <i>Assist Situational Understanding</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
Assist Situational Understanding																												
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Direct Operations Support																												
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)																												
QRC IT Network (OIR)																												
QRC IT Network (RS)																												
Sandia																												
SETA Capability Research Architecture Cell (CRAC)																												
Catapult / CTN Tool Suite Program of Record Support																												

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Assist Situational Understanding																												
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Direct Operations Support																												
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)																												
QRC IT Network (OIR)																												
QRC IT Network (RS)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	Project (Number/Name) JS / <i>Assist Situational Understanding</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Assist Situational Understanding</i>				
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Direct Operations Support	4	2016	4	2021
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)	4	2016	4	2021
QRC IT Network (OIR)	2	2017	2	2022
QRC IT Network (RS)	2	2017	2	2022
Sandia	1	2020	1	2020
SETA Capability Research Architecture Cell (CRAC)	4	2016	4	2021
Catapult / CTN Tool Suite Program of Record Support	4	2016	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604775BR / <i>Advanced Component Development and Prototypes</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	14.021	-	14.021	12.564	6.800	6.800	6.700	Continuing	Continuing
RA: <i>CWMD Cross-Cutting Technical and Information Sciences</i>	-	0.000	0.000	14.021	-	14.021	12.564	6.800	6.800	6.700	Continuing	Continuing

Note

This program element is a new start.

A. Mission Description and Budget Item Justification

The CWMD Cross-Cutting Technical and Information Sciences project develops mature technologies tied to existing programs in the Defense Threat Reduction Agency's Budget Activity (BA) 3, Advanced Technology Development (ATD) portfolio. This investment helps bridge the developmental gap between science and technology and the advanced developers, effectively increasing the likelihood of transitioning capabilities to the warfighter. This project focuses on development and demonstration of high fidelity models and prototypes for testing in an operational environment, evaluation of integrated systems, technology transition, and rapid insertion of CWMD capabilities to meet critical national security and defense priorities. It specifically supports efforts to successfully transition capabilities from BA3 portfolio to advanced developers or into the hands of end-users for operational experimentation.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	14.021	-	14.021
Total Adjustments	0.000	0.000	14.021	-	14.021
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignment	-	-	14.021	-	14.021

Change Summary Explanation

The change from the 2019 President's Budget is due to realignment of funds to develop prototypes and conduct testing in appropriate operational environments. The desired end-state is to increase the speed at which capabilities will ultimately be put to operational use.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604775BR / <i>Advanced Component Development and Prototypes</i>				Project (Number/Name) RA / <i>CWMD Cross-Cutting Technical and Information Sciences</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RA: <i>CWMD Cross-Cutting Technical and Information Sciences</i>	-	0.000	0.000	14.021	-	14.021	12.564	6.800	6.800	6.700	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The CWMD Cross-Cutting Technical and Information Sciences project develops mature technologies tied to existing programs in the Defense Threat Reduction Agency's Budget Activity (BA) 3, Advanced Technology Development (ATD) portfolio. This project focuses on development and demonstration of high fidelity models and prototypes in appropriate operational environments, evaluation of integrated systems, technology transition, and rapid insertion of CWMD capabilities to meet critical national security and defense priorities. It specifically supports efforts to successfully transition capabilities from the BA3 portfolio to advanced developers or into the hands of end-users for operational experimentation.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: RA: CWMD Cross-Cutting Technical and Information Sciences	0.000	0.000	14.021	0.000	14.021
Description: Project RA develops mature technologies tied to existing programs in the Defense Threat Reduction Agency's BA Advanced Technology Development portfolio for transition to advanced developers and rapid insertion into user communities for realistic operational feedback on efficacy.					
FY 2019 Plans: N/A					
FY 2020 Base Plans: - Mature and demonstrate advanced detection and response capabilities across the threat spectrum to respond to end user requirements. - Initiate mature development and prototyping of predictive models for insertion into partner modeling and simulation platforms. - Demonstrate required maturity and complete required data collection to successfully transition CMWD technologies to advanced development partners in response to specific Combatant Command and Service requirements.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604775BR / <i>Advanced Component Development and Prototypes</i>	Project (Number/Name) RA / <i>CWMD Cross-Cutting Technical and Information Sciences</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
- Continue to demonstrate and transition targeting, analytic tools using machine learning, natural language processing, and statistical analytics supporting quick reaction and response capabilities across the CWMD enterprise.					
<i>FY 2020 OCO Plans:</i> N/A					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase from FY 2019 to FY 2020 enables DTRA to further mature and demonstrate capabilities through development of prototypes and testing in appropriate operational environments. This investment helps bridge the developmental gap between science and technology and the advanced developers, effectively increasing the likelihood of transitioning capabilities to the warfighter. The desired end-state is to increase the speed at which capabilities will ultimately be put to operational use. This Project had no investment prior to FY 2020.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	14.021	0.000	14.021

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 20/0602718BR/RA: <i>Counter Weapons of Mass Destruction Applied Research</i>	40.189	30.603	46.317	0.000	46.317	48.032	49.312	49.896	58.703	Continuing	Continuing
• 28/0603160BR/RA: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	17.732	11.286	34.825	0.000	34.825	30.722	32.739	35.660	37.254	Continuing	Continuing

Remarks

D. Acquisition Strategy
Assessment and down-selection of mature technologies to meet specific CWMD capability requirements.

E. Performance Metrics
Percentage of completed demonstrations transitioning each year both into and from Budget Activity (BA) 4, Advanced Component Development and Prototypes (ACD&P) portfolio in support of Strategic Objective 4.1, "Preserve investments to maintain our decisive technological superiority."

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604775BR / <i>Advanced Component Development and Prototypes</i>	Project (Number/Name) RA / <i>CWMD Cross-Cutting Technical and Information Sciences</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Advanced Predictive Model Maturation	FFRDC	TBD : TBD	-	-		-		3.200	Jan 2020	-		3.200	Continuing	Continuing	-
Threat Detection Technology Maturation	FFRDC	TBD : TBD	-	-		-		3.021	Jan 2020	-		3.021	Continuing	Continuing	-
Maturation of Targeting and Target Assessment Capabilities	C/CPFF	TBD : TBD	-	-		-		2.800	Jan 2020	-		2.800	Continuing	Continuing	-
Counter-Terrorism Response Capability Development	FFRDC	TBD : TBD	-	-		-		2.800	Jan 2020	-		2.800	Continuing	Continuing	-
Analytic Toolkit Maturation and Transition	C/CPFF	TBD : TBD	-	-		-		2.200	Jan 2020	-		2.200	Continuing	Continuing	-
Subtotal			-	-		-		14.021		-		14.021	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-	0.000	14.021	-	14.021	Continuing	Continuing	N/A

Remarks
 In the first budget year for Budget Activity (BA) 4, Advanced Component Development and Prototypes (ACD&P) funding, the application of funds to technologies within the existing Defense Threat Reduction Agency (DTRA) portfolio will prioritize those technologies that meet the following criteria:
 1) Meet a validated, current requirement from a Combatant Command or Service.
 2) Are approaching an appropriate level of maturity to transition to either an end-user for operational use and feedback or an advanced development partner.
 3) Require a finite amount of additional developmental work required to meet transition needs.
 4) Will provide operational capabilities to the warfighter community that enable efforts to counter threat networks.
 Appropriate technologies will receive investment to meet these transition requirements and provide improved or new capabilities to the warfighter.

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604775BR / <i>Advanced Component Development and Prototypes</i>	Project (Number/Name) RA / <i>CWMD Cross-Cutting Technical and Information Sciences</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Cross-Cutting Research and Development: Technology Transition</i>				
Cross-Cutting Research and Development: Technology Transition	2	2020	4	2024
Advanced Predictive Model Maturation	2	2020	2	2021
Threat Detection Technology Maturation	2	2020	3	2021
Maturation of Targeting and Target Assessment Capabilities	2	2020	1	2021
Counter-Terrorism Response Capability Development	2	2020	4	2021
Analytic Toolkit Maturation and Transition	2	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	25.169	6.199	6.163	13.100	-	13.100	13.150	13.303	13.459	13.618	Continuing	Continuing
RD: Nuclear Technologies and Capabilities Development	-	0.000	0.000	7.500	-	7.500	7.650	7.803	7.959	8.118	Continuing	Continuing
RF: Forensics Technologies	25.169	6.199	6.163	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	37.531
MA: Mission Assurance Risk Management System	-	0.000	0.000	5.600	-	5.600	5.500	5.500	5.500	5.500	Continuing	Continuing

Note

In program element 0605000BR, DTRA consolidated project RF-Forensics Technologies into the renamed project RD-Nuclear Technologies and Capabilities Development beginning in FY 2020.

A. Mission Description and Budget Item Justification

The Counter Weapons of Mass Destruction (WMD) Systems Development program element supports the development and demonstration of verification and monitoring technologies and systems for the Countering Weapons of Mass Destruction (CWMD) mission. This funding specifically supports International Monitoring System technology requirements under the Nuclear Arms Control Technology (NACT) program.

B. Program Change Summary (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	6.241	6.163	4.821	-	4.821
Current President's Budget	6.199	6.163	13.100	-	13.100
Total Adjustments	-0.042	0.000	8.279	-	8.279
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignment	-0.042	-	2.679	-	2.679
• Functional Transfer	-	-	5.600	-	5.600

Change Summary Explanation

The increase from FY 2019 to FY 2020 is due to increased further investment in Nuclear Arms Control Technology (NACT) to begin the investigating the use of International Monitoring System (IMS) resources for DoD nuclear event response missions.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RD / Nuclear Technologies and Capabilities Development
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

DTRA consolidated project RF-Forensics Technologies into the renamed project RD-Nuclear Technologies and Capabilities Development beginning in FY 2020. There is 53.6% real growth in this project.

A. Mission Description and Budget Item Justification

This project supports the development of verification and monitoring capabilities for the Defense Threat Reduction Agency (DTRA) to counter proliferation and weapons of mass destruction (WMD). DTRA's Nuclear Arms Control Technologies (NACT) program performs Research, Development, Test, and Evaluation (RDT&E) to improve the sustainability, reliability, and effectiveness of capabilities related to its operational mission to install, operate, maintain, and sustain the waveform and radionuclide nuclear detonation detection stations and a radionuclide analysis laboratory comprising the majority of the U.S. portion of the International Monitoring System (IMS). This system delivers data continuously to the U.S. monitoring and verification community supports warfighter and interagency nuclear-event response in support of U.S. and Department of Defense (DoD) objectives and the Comprehensive Nuclear-Test-Ban Treaty (CTBT).

The project addresses WMD monitoring, implementation of, and compliance with arms control agreement requirements validated by the Office of the Under Secretary of Defense, Acquisition and Sustainment. This project conforms to the administration's research and development priorities related to countering WMD. Technical assessments are made against nuclear treaty implementation and nuclear event response requirements to provide the basis for sound project development, evaluate existing programs, provide U.S. International Monitoring System (IMS) data, and to access international IMS data required to support U.S. monitoring policy, decision-makers, and negotiation teams.

The primary RDT&E program emphasis is to improve the efficiency, performance, reliability, and sustainability of U.S. IMS stations; optimize IMS capabilities to support both nuclear treaty monitoring and nuclear-event response; and improve capabilities to detect, characterize, and enable discrimination of nuclear events. The NACT program directly supports U.S. and allied warfighter and national technical monitoring requirements and provides vital data used by the treaty monitoring community, warfighter planners, DoD, other U.S. Government agencies, and international agencies.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: RD - Nuclear Technologies and Capabilities Development	0.000	-	7.500	-	7.500

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RD / Nuclear Technologies and Capabilities Development

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Description: Project RD supports the NACT Program, conducting RDT&E to meet IMS technology requirements in support of CTBT implementation, compliance, monitoring, inspection, and other emerging nuclear arms control activities.</p> <p>FY 2020 Base Plans:</p> <ul style="list-style-type: none"> - Continue to provide data from IMS infrastructure in support of DoD and Interagency nuclear-event response missions to enhance nuclear event response and consequence management mission capabilities. - Integrate IMS into appropriate DoD and interagency exercises to ensure stakeholder involvement in system optimization and to leverage, to the fullest extent possible, all IMS data streams in informing partner exercise activities. - Analyze technical requirements for new and upgraded capabilities within the IMS infrastructure that will support nuclear event response. - Leverage conventional high explosive test events to evaluate U.S. IMS performance. - Participate in CTBT Organization international- and interagency-sponsored technology development exchanges to ensure IMS research and engineering activities remain current and relevant. <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p> <p>The increase from FY 2019 to FY 2020 is due to the realignment of Project RF-Forensics Technologies into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles. Additionally, there was increased investment for NACT to apply IMS capabilities to support DoD and Interagency nuclear-event response missions. Real growth in this project is 19.7%.</p>					
Accomplishments/Planned Programs Subtotals	0.000	-	7.500	-	7.500

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 20/0602718BR/RD: <i>Counter Weapons of Mass Destruction Applied Research</i>	13.745	16.860	92.710	-	92.710	93.612	95.541	97.485	99.433	Continuing	Continuing
• 28/0603160BR/RD: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	21.293	26.021	70.153	-	70.153	64.234	60.840	62.070	61.168	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency	Date: March 2019
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Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RD / Nuclear Technologies and Capabilities Development
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

Assess government, academic, and industrial performers and make selections based upon a "best fit for task" criteria. Common government awardees include DoD Service Laboratories and the Department of Energy National Laboratories.

E. Performance Metrics

The goal of the NACT RDT&E program is to enable full compliance of all emerging data availability/data quality requirements and other operational requirements as documented in nuclear CTBT treaty requirements, nuclear event response requirements, language, CTBT-issued Radionuclide and Waveform Operations Manuals, other CTBT Organization communications, and DoD Treaty Implementation Manager directives. The IMS data availability/timeliness performance specifications are currently 98% data availability for IMS waveform and 95% for IMS radionuclide systems. The data quality specifications are various data metrics that allow accurate time, location, and yield estimation of a nuclear event. RDT&E is conducted in support of the NACT's operational mission to operate, maintain, and sustain the Provisional Technical Secretariat certified waveform and radionuclide CTBT IMS monitoring stations and radionuclide laboratory in accordance with CTBT requirements at the lowest cost. Data quality metrics continue to evolve as the entire CTBT IMS capability is exercised and tested.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RD / Nuclear Technologies and Capabilities Development
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Radionuclide sensor, station, laboratory and network improvements	FFRDC	Pacific Northwest National Laboratory : Richland, WA	-	-		-		1.550	Jan 2020	-		1.550	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Sandia National Laboratory : Albuquerque, NM	-	-		-		1.850	Jan 2020	-		1.850	Continuing	Continuing	-
Radionuclide sensor, station, and network Improvements	MIPR	Air Force Technical Application Center : Patrick AFB, FL	-	-		-		0.500	Dec 2019	-		0.500	Continuing	Continuing	-
Radionuclide sensor, station, laboratory and network improvements	C/CPFF	General Dynamics Mission Systems, Inc : Fairfax, VA	-	-		-		0.435	Nov 2019	-		0.435	Continuing	Continuing	-
Station, and network Improvements	C/CPFF	Leidos Innovations Corp : Alexandria, VA	-	-		-		0.200	Apr 2020	-		0.200	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	Pennsylvania State University : State College, PA	-	-		-		0.400	Feb 2020	-		0.400	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	University of Alaska Fairbanks : Fairbanks, AK	-	-		-		0.143	Mar 2020	-		0.143	Continuing	Continuing	-
IMEA Software Development	C/CPFF	Applied Research Associates, Inc : Alexandria, VA	-	-		-		0.200	Jan 2020	-		0.200	Continuing	Continuing	-
IMS Gas Background Analysis	FFRDC	Argonne National Laboratory : Argonne, IL	-	-		-		0.200	Dec 2019	-		0.200	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	C/TBD	TBD : TBD	-	-		-		0.160	Mar 2020	-		0.160	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RD / Nuclear Technologies and Capabilities Development
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Seismic and Infrasound sensor, station, and network Improvements	MIPR	US Army Corps of Engr : Vicksburg, MS	-	-		-		0.100	Dec 2019	-		0.100	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	MIPR	Missile Defense Agency : Fort Belvoir, VA	-	-		-		0.650	Mar 2020	-		0.650	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/TBD	University of Alaska : Fairbanks, AK	-	-		-		0.500	Feb 2020	-		0.500	Continuing	Continuing	-
Radionuclide sensor, station, and network Improvements	FFRDC	Savanah River National Laboratory : Savannah River Site Aiken, SC	-	-		-		0.500	Apr 2020	-		0.500	Continuing	Continuing	-
Subtotal			-	-		-		7.388		-		7.388	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	Reqn	Various : Ft. Belvoir, VA	-	-		-		0.112	Nov 2019	-		0.112	Continuing	Continuing	-
Subtotal			-	-		-		0.112		-		0.112	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		-	-	0.000	7.500	-	7.500	Continuing	Continuing	N/A

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RD / Nuclear Technologies and Capabilities Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Nuclear Arms Control Technologies (NACT)</i>				
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: infrasound calibration standards, procedures, instrumentation	1	2020	4	2021
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: radionuclide system improvements to address detection limits and cost effectiveness	1	2020	4	2021
Optimize and improve IMS station performance: validation and verification testing of RDTE concepts to enable operational implementation	1	2020	4	2024
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: testing and evaluation of next generation systems	1	2020	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RF / Forensics Technologies
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RF: <i>Forensics Technologies</i>	25.169	6.199	6.163	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	37.531
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2020, efforts in this project are captured under project RD-Nuclear Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

This project supports the development of verification and monitoring capabilities for the Defense Threat Reduction Agency (DTRA) to counter proliferation and weapons of mass destruction (WMD). DTRA's Nuclear Arms Control Technologies (NACT) program performs Research, Development, Test, and Evaluation (RDT&E) to improve the sustainability, reliability, and effectiveness of capabilities related to its operational mission to install, operate, maintain, and sustain the waveform and radionuclide nuclear detonation detection stations comprising the U.S. portion of the International Monitoring System (IMS). This delivers data to the U.S. monitoring and verification community and enables U.S. compliance with the Comprehensive Nuclear Test Ban Treaty (CTBT) in support of U.S. and Department of Defense (DoD) nonproliferation objectives.

The project addresses WMD monitoring, implementation of, and compliance with arms control agreement requirements validated by the Office of the Under Secretary of Defense, Acquisition, Technology, and Logistics. This project conforms to the administration's research and development priorities related to WMD arms control and disablement. Technical assessments are made against CTBT implementation requirements and U.S. objectives to provide the basis for sound project development, evaluate existing programs, provide data required to inform compliance assessments, and support U.S. monitoring policy, decision-makers, and negotiation teams.

The primary RDT&E program emphasis is on improvements that enable the installation of treaty-specific stations, which reduce costs and increase the reliability in diverse and often harsh environments; improve efficiency, performance, reliability, and sustainability of existing stations and treaty-specified verification capabilities; and improve capabilities to detect, characterize, and enable discrimination of, nuclear weapons tests. The NACT program directly supports U.S. and allied warfighter and national technical monitoring requirements and provides vital data used by the treaty monitoring community, warfighter planners, DoD, other U.S. Government agencies, and international agencies.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: RF - Forensics Technologies	6.199	6.163	-	-	-
Description: Project RF supports the NACT Program, conducting RDT&E to meet IMS technology requirements in support of CTBT implementation, compliance, monitoring, inspection, and other emerging nuclear arms control activities.					
FY 2019 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RF / Forensics Technologies

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<ul style="list-style-type: none"> - Implement use of IMS infrastructure to provide data in support DoD and interagency nuclear-event response missions in order to enhance National Technical Nuclear Forensics (NTNF) and consequence management mission capabilities. - Integrate IMS into appropriate DoD and interagency exercises to ensure stakeholder involvement in system optimization and to leverage, to the fullest extent possible, all IMS data streams in informing partner exercise activities. - Analyze technical requirements for the addition of capabilities within the IMS infrastructure that will support nuclear-event response. - Advance nuclear treaty monitoring capabilities to higher technology readiness levels to establish a resilient, multi-mission, and state-of-the-art IMS capability. - Leverage conventional high-explosive testing events in order to increase opportunities to evaluate U.S. IMS performance. - Participate in CTBT Organization Provisional Technical Secretariat international/interagency- sponsored technology development exchanges to leverage expertise and to provide synergy for R&D activities. <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease from FY 2019 to FY 2020 is due to the realignment of Project RF-Forensics Technologies into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.</p>					
Accomplishments/Planned Programs Subtotals	6.199	6.163	-	-	-

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 20/0602718BR/RF: <i>Counter Weapons of Mass Destruction Applied Research</i>	6.803	10.257	-	-	-	-	-	-	-	-	Continuing Continuing
• 28/0603160BR/RF: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	25.535	33.578	-	-	-	-	-	-	-	-	Continuing Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / <i>*Counter Weapons of Mass Destruction Systems Development</i>	Project (Number/Name) RF / <i>Forensics Technologies</i>

D. Acquisition Strategy

Assess government, academic, and industrial performers and make selections based upon a "best fit for task" criteria. Common government awardees include DoD Service Laboratories and the Department of Energy National Laboratories.

E. Performance Metrics

The goal of the NACT RDT&E program is to enable full compliance of all emerging data availability/data quality requirements and other operational requirements as documented in nuclear CTBT treaty requirements, nuclear-event response requirements, language, CTBT-issued Radionuclide and Waveform Operations Manuals, other CTBT Organization communications, and DoD Treaty Implementation Manager directives. The IMS data availability/timeliness performance specifications are currently 98% data availability for IMS waveform and 95% for IMS radionuclide systems. The data quality specifications are various data metrics that allow accurate time, location, and yield estimation of a nuclear event. RDT&E is conducted in support of the NACT's operational mission to operate, maintain, and sustain the Provisional Technical Secretariat certified waveform and radionuclide CTBT IMS monitoring stations and radionuclide laboratory in accordance with CTBT requirements at the lowest cost. CTBT IMS data availability/timeliness performance specifications are currently 98% data availability for IMS waveform and 95% for IMS radionuclide systems. Data quality metrics continue to evolve as the entire CTBT IMS capability is exercised and tested.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RF / Forensics Technologies
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Radionuclide sensor, station, laboratory and network improvements	FFRDC	Pacific Northwest National Laboratory : Richland, WA	5.951	1.582	Jan 2018	1.550	Jan 2019	-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Sandia National Laboratory : Albuquerque, NM	5.594	1.827	Jan 2018	1.850	Jan 2019	-		-		-	Continuing	Continuing	-
Radionuclide sensor, station, and network improvements	MIPR	Air Force Technical Application Center : Patrick AFB, FL	2.630	0.724	Nov 2017	0.250	Nov 2018	-		-		-	Continuing	Continuing	-
Engineering & Technical Services	C/CPFF	Engility Corp : Chantilly, VA	1.986	-		-		-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	Dynetics, Inc : Arlington, VA	1.828	-		-		-		-		-	Continuing	Continuing	-
Radionuclide sensor, station, laboratory and network improvements	C/CPFF	General Dynamics Misson Systems, Inc. : Fairfax, VA	2.048	0.441	Dec 2017	0.431	Nov 2018	-		-		-	Continuing	Continuing	-
Station, and network Improvements	C/CPFF	Leidos Innovations Corp. : Alexandria, VA	0.466	0.250	Apr 2018	0.200	Apr 2019	-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	Pennsylvania State University : State College, PA	0.802	0.180	Jan 2018	0.200	Jan 2019	-		-		-	Continuing	Continuing	-
Station failure and logistics modeling and simulation	C/CPFF	Systems Exchange, Inc. : Carmel, CA	0.274	0.039	Jul 2018	-		-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	MIPR	Naval Research Laboratory : Washington DC	0.204	-		0.200	Jan 2019	-		-		-	Continuing	Continuing	-
EIF Readiness Planning	C/CPFF	Alion Science and Technology Corp. : McLean, VA	0.300	-		0.100	Jan 2019	-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RF / Forensics Technologies
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Radionuclide sensor, station, laboratory and network improvements	C/CPFF	Raytheon Company : Dulles, VA	0.200	-		-		-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	University of Alaska Fairbanks : Fairbanks, AK	0.330	0.129	Mar 2018	0.129	Mar 2019	-		-		-	Continuing	Continuing	-
IMEA Software Development	C/CPFF	Applied Research Associates, Inc. : Alexandria, VA	-	0.200	Dec 2017	0.200	Dec 2018	-		-		-	Continuing	Continuing	-
IMS Gas Background Analysis	FFRDC	Argonne National Laboratory : Argonne, IL	-	0.130	Apr 2018	0.100	Apr 2019	-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	C/TBD	TBD : TBD	-	-		0.295	May 2019	-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	MIPR	US Army Corps of Engineers : Vicksburg, MS	0.032	0.139	Mar 2018	0.100	Dec 2018	-		-		-	Continuing	Continuing	-
Subtotal			22.645	5.641		5.605		-		-		-	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS Support to Program Office	C/CPFF	Engility Corp. : Chantilly, VA	1.026	0.446	Dec 2017	0.446	Dec 2018	-		-		-	Continuing	Continuing	-
A&AS Support to Program Office	MIPR	OUSD AT&L : Arlington, VA	0.948	-		-		-		-		-	Continuing	Continuing	-
Travel	Reqn	Various : Ft. Belvoir, VA	0.550	0.112	Nov 2017	0.112	Nov 2018	-		-		-	Continuing	Continuing	-
Subtotal			2.524	0.558		0.558		-		-		-	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RF / Forensics Technologies

FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
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

NACT	
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: infrasound calibration standards, procedures, instrumentation	██████████
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: automated seismic calibration process	██████████
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: radionuclide system improvements to address detection limits and cost effectiveness	██████████
Optimize and improve IMS station performance: validation and verification testing of RDTE concepts to enable operational implementation	██████████
Provide analysis of 800 additional nuclear material samples for treaty verification purposes	██████████

FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
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

NACT	
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: infrasound calibration standards, procedures, instrumentation	██

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RF / Forensics Technologies

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NACT				
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: infrasound calibration standards, procedures, instrumentation	2	2017	4	2020
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: automated seismic calibration process	2	2017	4	2018
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: radionuclide system improvements to address detection limits and cost effectiveness	1	2017	4	2020
Optimize and improve IMS station performance: validation and verification testing of RDTE concepts to enable operational implementation	1	2017	1	2023
Provide analysis of 800 additional nuclear material samples for treaty verification purposes	1	2017	1	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development			Project (Number/Name) MA / Mission Assurance Risk Management System				
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MA: Mission Assurance Risk Management System	-	0.000	0.000	5.600	-	5.600	5.500	5.500	5.500	5.500	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In an October 29, 2018 memorandum, the Deputy Secretary of Defense directed the transfer of Mission Assurance Risk Management System (MARMS) program management responsibilities from the Department of Defense Chief Management Officer (DoD CIO) to the Defense Threat Reduction Agency (DTRA), in light of DTRA's role in conducting Joint Mission Assurance Assessments. Funding for MARMS prior to FY 2020 is captured in Program Element 0605170D8Z.

A. Mission Description and Budget Item Justification

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.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: MA - Mission Assurance Risk Management System	0.000	0.000	5.600	0.000	5.600
Description: 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 Requirements Definition Package (RDP)-1 defines multiple spirals of major technological improvements. Each spiral is comprised of multiple Capability Drops (CD) that defined specific capabilities. RDP-1 defined 7 capability drops focusing on the collection, analysis, warehousing, sharing, protection, and accessing of Defense Critical Infrastructure (DCI) and AntiTerrorism (AT) data supporting multiple types and levels of trusted users.					
FY 2019 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) MA / Mission Assurance Risk Management System

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Funding for MARMS prior to FY 2020 is captured in Program Element 0605170D8Z.					
<p>FY 2020 Base Plans:</p> <ul style="list-style-type: none"> - Continue System engineering and Agile Development per MARMS RDP-1. - Continue to improve capability of the Information Sharing Data Registry (CD1) and Mission Assurance Assessments (CD2) - Continue development of the Mission Assurance Viewer and Analysis Portal on SIPR (CD6) toward initial capability fielding in 4th Quarter FY22. - Continue the development effort of the Mission Assurance Workspace and Viewer on JWICS (CD5) toward initial capability fielding in 4th Quarter FY20. - Initiate the development effort of the Cross Domain Solutions (CDS) – Low to High (CD6) - Complete the MA Workspace and Viewer which 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 DODI 3020.45. <p>FY 2020 OCO Plans: N/A</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: The increase from FY 2019 to FY 2020 is due to the functional transfer of MARMS from the Department of Defense Chief Information Officer (DoD CIO) to DTRA's core mission.</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	5.600	0.000	5.600

C. Other Program Funding Summary (\$ in Millions) N/A
Remarks
D. Acquisition Strategy N/A
E. Performance Metrics N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) MA / Mission Assurance Risk Management System

FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
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

Capability Drop 1: Information Sharing	
Development	
Modernization and Integration	
Capability Drop 2: Assessment Capability	
Development	
Modernization and Integration	
Capability Drop 3: System Upgrades	
Development	
Modernization and Integration	
Capability Drop 4: Workspace/Viewer on SIPR	
Development	
Modernization and Integration	
Capability Drop 5: Workspace/Viewer on JWICS	
Development	
Modernization and Integration	
Capability Drop 6: Cross Domain Solution - Low to High	
Development	
Modernization and Integration	
Capability Drop 7: Cross Domain Solution - High to Low	
Development	
Modernization and Integration	

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) MA / Mission Assurance Risk Management System

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Capability Drop 1: Information Sharing																												
Development	██																											
Modernization and Integration													██															
Capability Drop 2: Assessment Capability																												
Development	██																											
Modernization and Integration													██															
Capability Drop 3: System Upgrades																												
Development	██																											
Modernization and Integration													██															
Capability Drop 4: Workspace/Viewer on SIPR																												
Development	██																											
Modernization and Integration													██															
Capability Drop 5: Workspace/Viewer on JWICS																												
Development									██																			
Modernization and Integration													██															
Capability Drop 6: Cross Domain Solution - Low to High																												
Development													██															
Modernization and Integration													██															
Capability Drop 7: Cross Domain Solution - High to Low																												
Development													██															
Modernization and Integration													██															

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) MA / Mission Assurance Risk Management System

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Capability Drop 1: Information Sharing				
Development	4	2017	3	2019
Modernization and Integration	1	2020	4	2022
Capability Drop 2: Assessment Capability				
Development	1	2018	3	2019
Modernization and Integration	1	2020	4	2022
Capability Drop 3: System Upgrades				
Development	1	2018	4	2020
Modernization and Integration	1	2021	4	2022
Capability Drop 4: Workspace/Viewer on SIPR				
Development	2	2018	4	2020
Modernization and Integration	1	2021	4	2022
Capability Drop 5: Workspace/Viewer on JWICS				
Development	1	2019	4	2020
Modernization and Integration	1	2021	4	2022
Capability Drop 6: Cross Domain Solution - Low to High				
Development	1	2020	4	2021
Modernization and Integration	1	2021	4	2022
Capability Drop 7: Cross Domain Solution - High to Low				
Development	1	2021	4	2022
Modernization and Integration	1	2023	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605502BR / <i>Small Business Innovation Research</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	59.541	11.311	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RA: <i>Information Sciences and Applications</i>	59.541	11.311	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Funding for this program element is not allocated until the year of execution. Program Element 0605502BR "Small Business Innovative Research" is used in reporting year-end actual expenses only.

A. Mission Description and Budget Item Justification

The Small Business Innovative Research (SBIR) and the Small Business Technology Transfer (STTR) programs provide the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting the Department of Defense (DoD) research and development needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of the DoD supported research and development results. These efforts are responsive to Public Law 106-554.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	11.311	0.000	0.000	-	0.000
Total Adjustments	11.311	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	11.311	-			

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: RA: *Information Sciences and Applications*

Congressional Add: *N/A*

	FY 2018	FY 2019
Congressional Add Subtotals for Project: RA	0.000	-
Congressional Add Totals for all Projects	0.000	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity
0400: *Research, Development, Test & Evaluation, Defense-Wide / BA 6:*
RDT&E Management Support

R-1 Program Element (Number/Name)
PE 0605502BR / *Small Business Innovation Research*

Change Summary Explanation

Funding for the SBIR Program is consolidated in this program element during the year of execution.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605502BR / <i>Small Business Innovation Research</i>				Project (Number/Name) RA / <i>Information Sciences and Applications</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RA: <i>Information Sciences and Applications</i>	59.541	11.311	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

*Funding is not allocated until the year of execution. Program Element 0605502BR "Small Business Innovative Research (SBIR)" is used in reporting year-end actual expenses only.

A. Mission Description and Budget Item Justification

The Small Business Innovative Research (SBIR) and the Small Business Technology Transfer (STTR) programs provide the means for stimulating technological innovation in the private sector and strengthens the role of small business in meeting the Department of Defense (DoD) research and development needs. These programs foster and encourage participation of minority and disadvantaged businesses in technological innovation and increase the commercial application of DoD supported research and development results. These efforts are responsive to Public Law 106-554 Small Business Act (15 U.S.C. 638).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: RA: Information Sciences and Applications	11.311	-	-
Description: This project provides the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting the DoD research and development needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of the DoD supported research and development results. These efforts are responsive to Public Law 106-554.			
Accomplishments/Planned Programs Subtotals	11.311	-	-

	FY 2018	FY 2019
Congressional Add: N/A	0.000	-
FY 2018 Accomplishments: N/A		
Congressional Adds Subtotals	0.000	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502BR / <i>Small Business Innovation Research</i>	Project (Number/Name) RA / <i>Information Sciences and Applications</i>
--	--	---

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 20/0602718BR/RA: <i>Counter Weapons of Mass Destruction Applied Research</i>	40.189	30.603	46.317	0.000	46.317	48.032	49.312	49.896	58.703	Continuing	Continuing
• 28/0603160BR/RA: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	17.732	11.286	34.825	0.000	34.825	30.722	32.739	35.660	37.254	Continuing	Continuing
• 105/0604775BR/RA: <i>Advanced Component Development and Prototypes</i>	0.000	0.000	14.021	0.000	14.021	12.564	6.800	6.800	6.700	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



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Department of Defense
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

05 Mar 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
-----	-----	-----	-----	-----
Research, Development, Test & Eval, DW				
Total Research, Development, Test & Evaluation				

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	105,000				105,000
Total Research, Development, Test & Evaluation	105,000				105,000

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Department of Defense
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

05 Mar 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Summary Recap of Budget Activities -----				
Advanced Technology Development				
Advanced Component Development And Prototypes				
Total Research, Development, Test & Evaluation				
Summary Recap of FYDP Programs -----				
Space				
Total Research, Development, Test & Evaluation				

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

Summary Recap of Budget Activities	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Advanced Technology Development	20,000				20,000
Advanced Component Development And Prototypes	85,000				85,000
Total Research, Development, Test & Evaluation	105,000				105,000
Summary Recap of FYDP Programs					
Space	105,000				105,000
Total Research, Development, Test & Evaluation	105,000				105,000

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

05 Mar 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Summary Recap of Budget Activities -----				
Advanced Technology Development				
Advanced Component Development And Prototypes				
Total Research, Development, Test & Evaluation				
Summary Recap of FYDP Programs -----				
Space				
Total Research, Development, Test & Evaluation				

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

05 Mar 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Advanced Technology Development	20,000				20,000
Advanced Component Development And Prototypes	85,000				85,000
Total Research, Development, Test & Evaluation	105,000				105,000
 Summary Recap of FYDP Programs -----					
Space	105,000				105,000
Total Research, Development, Test & Evaluation	105,000				105,000

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

05 Mar 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Space Development Agency				
Total Research, Development, Test & Evaluation				

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

Appropriation -----	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Space Development Agency	105,000				105,000
Total Research, Development, Test & Evaluation	105,000				105,000

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

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

Line No	Element Number	Program Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
69	1206310	SDA Space Science and Technology Research and Development	03					U
		Advanced Technology Development						
120	1206410	SDA Space Technology Development and Prototyping	04					U
		Advanced Component Development And Prototypes						
Total Research, Development, Test & Eval, DW								

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
69	1206310	SDA Space Science and Technology Research and Development	03	20,000				20,000	U
		Advanced Technology Development		20,000				20,000	
120	1206410	SDA Space Technology Development and Prototyping	04	85,000				85,000	U
		Advanced Component Development And Prototypes		85,000				85,000	
Total Research, Development, Test & Eval, DW				105,000				105,000	

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Space Development Agency
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
69	1206310SDA	Space Science and Technology Research and Development	03					U
		Advanced Technology Development						
120	1206410SDA	Space Technology Development and Prototyping	04					U
		Advanced Component Development And Prototypes						
Total Space Development Agency								

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Space Development Agency
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

05 Mar 2019

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

Line No	Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	See
69	1206310	SDA Space Science and Technology Research and Development	03	20,000				20,000	U
		Advanced Technology Development		20,000				20,000	
120	1206410	SDA Space Technology Development and Prototyping	04	85,000				85,000	U
		Advanced Component Development And Prototypes		85,000				85,000	
Total Space Development Agency				105,000				105,000	

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69	03	1206310SDA	Space Science and Technology Research and Development.....	Volume 5 - 805

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
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Program Element Title	Program Element Number	Line #	BA	Page
Space Science and Technology Research and Development	1206310SDA	69	03.....	Volume 5 - 805
Space Technology Development and Prototyping	1206410SDA	120	04.....	Volume 5 - 809

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Space Development Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 1206310SDA / <i>Space Science and Technology Research and Development</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	20.000	-	20.000	0.000	0.000	0.000	0.000	Continuing	Continuing
032: <i>Proliferated Low Earth Orbit (pLEO) Sensor Technology</i>	0.000	0.000	0.000	20.000	-	20.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

This is a new program element in FY 2020.

A. Mission Description and Budget Item Justification

The Space Development Agency (SDA) is established to develop the next generation space architecture to enable U.S. military operations to be responsive to emerging multi-domain threats against our national security. To achieve that goal, the SDA will help inform the Department's decision to develop and implement a proliferated architecture enabled by lower cost, commercially-derived spacecraft and routine space access, shift the Department to a development organization focused on experimentation, prototyping, and accelerated fielding, and change the Department to a concentrated, decoupled structure to generate speed. The SDA will manage, direct, and execute the development of the space capabilities in accordance with DoD's Space Vision and field space capabilities at speed and scale, with the following goals:

- bold breakthroughs designed to obsolesce our competitors,
- technology maturation and systems engineering,
- lean engineering, manufacturing, and support,
- industrial base expansion; streamlined development and acquisition process, and
- increased acquisition cooperation with the National Reconnaissance Office (NRO).

The SDA will rapidly deploy critical elements of the next-generation space capabilities, initially focusing on these essential capabilities:

- Persistent global surveillance for advanced missile targeting,
- Indications, warnings, targeting, and tracking for defense against advanced missile threats,
- Alternate position, navigation, and timing (PNT) for a GPS-denied environment,
- Global and near-real time space situational awareness,
- Development of a deterrent capability,
- Responsive, resilient, common ground-based space support infrastructure (e.g., ground stations and launch capability),
- Cross-domain, networked, node-independent battle management command, control, and communications (BMC3), including nuclear command, control, and communications (NC3), and,
- Highly-scaled, low-latency, persistent, artificial intelligence-enable global surveillance.

The establishment of a communications and data transport layer in Low Earth Orbit (LEO) is essential to developing a new, responsive space architecture, and will be SDA's primary initial focus. The SDA will heavily leverage DARPA's Blackjack program (PE 0603287E) and its plan to demonstrate a 20-satellite constellation to

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Space Development Agency	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 1206310SDA / <i>Space Science and Technology Research and Development</i>
---	--

build this transport layer. The SDA will develop an initial wedge of sub-constellations on this transport layer to provide additional capabilities, such as advanced missile warning.

This program element funds efforts to develop and demonstrate a prototype proliferated Low Earth Orbit (pLEO) communications and data transport layer and its sub-constellations in support of the DoD Space Vision.

B. Program Change Summary (\$ in Millions)	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	20.000	-	20.000
Total Adjustments	0.000	0.000	20.000	-	20.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FY 2020 Program Start	-	-	20.000	-	20.000

Change Summary Explanation

This is a new start in FY 2020.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1206310SDA / <i>Space Science and Technology Research and Development</i>	Project (Number/Name) 032 / <i>Proliferated Low Earth Orbit (pLEO) Sensor Technology</i>
--	--	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
032: <i>Proliferated Low Earth Orbit (pLEO) Sensor Technology</i>	0.000	0.000	0.000	20.000	-	20.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

This is a new start in FY 2020.

A. Mission Description and Budget Item Justification

The Space Science and Technology Research and Development will develop and demonstrate the next generation sensor technologies to support future prototyping efforts to deliver the eight capabilities outlined in the DoD Space Vision. This effort will develop and demonstrate lower size, weight, power, and cost (SWAP-C) sensors for national security space missions.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Proliferated Low Earth Orbit (pLEO) Sensor Technology	0.000	-	20.000
Description: This effort will demonstrate LEO sensor technologies on an initial wedge of sub-constellations on the data transport layer architecture to enable other national security space missions such as global surveillance for advanced missile targeting; indications, warnings, targeting, and tracking for defense against advanced missile threats; alternate position, navigation, and timing (PNT) services for Global Positioning System (GPS) denied environments; deterrent capabilities; and other national security space missions.			
FY 2020 Plans: - Conduct trade studies and feasibility assessments of different sensor modalities to perform national security space missions. - Conduct Preliminary Design Review (PDR) of selected sensor payload(s).			
FY 2019 to FY 2020 Increase/Decrease Statement: The increase is due to establishment of this line in FY 2020.			
Accomplishments/Planned Programs Subtotals	0.000	-	20.000

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1206310SDA / <i>Space Science and Technology Research and Development</i>	Project (Number/Name) 032 / <i>Proliferated Low Earth Orbit (pLEO) Sensor Technology</i>

D. Acquisition Strategy

Partners for these activities may include in-house research centers, small businesses, large defense contractors, commercial space providers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

E. Performance Metrics

Performance metrics will be specific to each of the efforts. Each effort will include measures identified in the management approach and Statement of Work (SOW). The activities will be monitored against schedules and deliverables as stated in the initiative's management approach.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Space Development Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	85.000	-	85.000	80.000	105.000	115.000	140.000	Continuing	Continuing
033: <i>Transport Layer Architecture and Standards</i>	-	0.000	0.000	15.000	-	15.000	15.000	15.000	15.000	15.000	Continuing	Continuing
034: <i>Space Situational Awareness and Launch</i>	-	0.000	0.000	10.000	-	10.000	25.000	50.000	50.000	50.000	Continuing	Continuing
039: <i>Proliferated Low Earth Orbit (pLEO) Missile Warning Ground Integration</i>	-	0.000	0.000	30.000	-	30.000	40.000	40.000	50.000	75.000	Continuing	Continuing
191: <i>Space-Based Interceptors</i>	-	0.000	0.000	15.000	-	15.000	0.000	0.000	0.000	0.000	Continuing	Continuing
193: <i>Space-Based Discrimination</i>	-	0.000	0.000	15.000	-	15.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

This is a new program element in FY 2020.

A. Mission Description and Budget Item Justification

The Space Development Agency (SDA) is established to develop the next generation space architecture to enable U.S. military operations to be responsive to emerging multi-domain threats against our national security. To achieve that goal, the SDA will help inform the Department's decision to develop and implement a proliferated architecture enabled by lower-cost, commercially-derived spacecraft and routine space access, shift the Department to a development organization focused on experimentation, prototyping, and accelerated fielding, and change the Department to a concentrated, decoupled structure to generate speed. The SDA will manage, direct, and execute the development of the space capabilities in accordance with DoD's Space Vision and field space capabilities at speed and scale, with the following goals:

- bold breakthroughs designed to obsolesce our competitors,
- technology maturation and systems engineering,
- lean engineering, manufacturing, and support,
- industrial base expansion; streamlined development and acquisition process, and
- increased acquisition cooperation with the National Reconnaissance Office (NRO).

The SDA will rapidly deploy critical elements of the next-generation space capabilities, initially focusing on these essential capabilities:

- Persistent global surveillance for advanced missile targeting,
- Indications, warnings, targeting, and tracking for defense against advanced missile threats,
- Alternate position, navigation, and timing (PNT) for a GPS-denied environment,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Space Development Agency **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>
---	---

- Global and near-real time space situational awareness,
- Development of a deterrent capability
- Responsive, resilient, common ground-based space support infrastructure (e.g., ground stations and launch capability),
- Cross-domain, networked, node-independent battle management command, control, and communications (BMC3), including nuclear command, control, and communications (NC3), and
- Highly-scaled, low-latency, persistent, artificial intelligence-enable global surveillance.

The establishment of a communications and data transport layer in Low Earth Orbit (LEO) is essential to developing a new, responsive space architecture, and will be SDA's primary initial focus. The SDA will heavily leverage DARPA's Blackjack program (PE 0603287E) and its plan to demonstrate a 20-satellite constellation to build this transport layer. The SDA will develop an initial wedge of sub-constellations on this transport layer to provide additional capabilities, such as advanced missile warning.

This program element funds efforts to develop and demonstrate a prototype proliferated Low Earth Orbit (pLEO) communications and data transport layer and its sub-constellations in support of the DoD Space Vision.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	85.000	-	85.000
Total Adjustments	0.000	0.000	85.000	-	85.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FY 2020 Program Start	-	-	85.000	-	85.000

Change Summary Explanation

This is a new start in FY 2020.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>				Project (Number/Name) 033 / <i>Transport Layer Architecture and Standards</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
033: <i>Transport Layer Architecture and Standards</i>	-	0.000	0.000	15.000	-	15.000	15.000	15.000	15.000	15.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2020.

A. Mission Description and Budget Item Justification

The Space Technology Development and Prototyping effort will develop and demonstrate a prototype proliferated Low Earth Orbit (pLEO) communications and data transport layer and its sub-constellations to provide the eight capabilities outlined in the DoD Space Vision. The SDA will rapidly develop and field the next generation space architecture that will enable the US to deploy space capabilities that out-pace adversarial threats. This architecture is underpinned by a communications and data transport layer, which will reside on a proliferated small satellite constellation in Low Earth Orbit (LEO). The Transport Layer will support the transfer of data between the space segment of the next generation space architecture, to potentially include payloads co-hosted with the Transport Layer or other non-located space elements, and the ground, to include ground support infrastructure and very large numbers of users/subscribers. The Transport Layer will provide the "connective tissue" for the next generation space architecture.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Transport Layer Architecture and Standards	0.000	0.000	15.000	0.000	15.000
Description: Develop and demonstrate a prototype a resilient and unified military communications and data transport layer, enabled by a proliferated Low Earth Orbit (pLEO) architecture. This effort will demonstrate capability to provide very low latency (low or high bandwidth) communications and data between any two points on the globe to enable mission-agnostic battle management, command, control, and communications (BMC3). This effort will leverage technologies developed under the DARPA Blackjack program and, wherever feasible, leverage commercial industry plans to provide broadband internet access from space to form the foundation of the transport layer architecture.					
FY 2019 Plans: N/A					
FY 2020 Base Plans: - Conduct Preliminary Design Review (PDR) for user terminal system.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 033 / <i>Transport Layer Architecture and Standards</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
- Develop interface and messaging standards for data transport layer architecture. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: This program is a new start in FY 2020.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	15.000	0.000	15.000

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

N/A

Remarks

N/A

D. Acquisition Strategy

Partners for these activities may include in-house research centers, small businesses, large defense contractors, commercial space providers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

E. Performance Metrics

Performance metrics will be specific to each of the efforts. Each effort will include measures identified in the management approach and Statement of Work (SOW). The activities will be monitored against schedules and deliverables as stated in the initiative's management approach.

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 033 / <i>Transport Layer Architecture and Standards</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Transport Layer Architecture and Standards</i>				
Conduct Preliminary Design Review (PDR) for user terminal system.	1	2020	4	2021
Develop interface and messaging standards for data transport layer architecture.	1	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>				Project (Number/Name) 034 / <i>Space Situational Awareness and Launch</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
034: <i>Space Situational Awareness and Launch</i>	-	0.000	0.000	10.000	-	10.000	25.000	50.000	50.000	50.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2020.

A. Mission Description and Budget Item Justification

The Space Technology Development and Prototyping effort will develop and demonstrate a prototype proliferated Low Earth Orbit (pLEO) communications and data transport layer and its sub-constellations to provide the eight capabilities outlined in the DoD Space Vision. Developing and fielding a pLEO space architecture will significantly improve U.S. resilience posture in space. The Space Situational Awareness (SSA) and Launch project will further support this vision of enhanced resilience. Global and near real-time SSA will provide a detailed understanding of the space order of battle and a responsive launch capability to enable rapid constitution or replenishment of space capabilities.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Space Situational Awareness and Launch	0.000	0.000	10.000	0.000	10.000
Description: Working with commercial providers, develop and demonstrate enhanced space situational awareness (SSA) and small-to-medium launch service access to provide SSA on large numbers of small satellites in LEO, including tracking, orbit determination, orbital state and uncertainty propagation, conjunction prediction, and collision avoidance. This effort will leverage existing Government and commercial tools and approaches to extend capabilities for a pLEO environment. In addition, this effort will identify and contract for launch of small-to-medium size payloads, to demonstrate responsive constitution and replenishment.					
FY 2019 Plans: N/A					
FY 2020 Base Plans: - Conduct trade studies of existing space traffic management capabilities and approaches for pLEO applications. - Conduct trade studies of small-to-medium payload launch service providers and ability to responsively support pLEO constitution and replenishment.					
FY 2020 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 034 / <i>Space Situational Awareness and Launch</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> This program is a new start in FY 2020.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	10.000	0.000	10.000

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

Remarks
N/A

D. Acquisition Strategy
Partners for these activities may include in-house research centers, small businesses, large defense contractors, commercial space providers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

E. Performance Metrics
Performance metrics will be specific to each of the efforts. Each effort will include measures identified in the management approach and Statement of Work (SOW). The activities will be monitored against schedules and deliverables as stated in the initiative's management approach.

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 034 / <i>Space Situational Awareness and Launch</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Space Situational Awareness and Launch</i>				
Conduct trade studies of existing space traffic management capabilities and approaches	1	2020	4	2021
Conduct trade studies of small-to-medium size payload	1	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 1206410SDA / Space Technology Development and Prototyping				Project (Number/Name) 039 / Proliferated Low Earth Orbit (pLEO) Missile Warning Ground Integration			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
039: Proliferated Low Earth Orbit (pLEO) Missile Warning Ground Integration	-	0.000	0.000	30.000	-	30.000	40.000	40.000	50.000	75.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2020.

A. Mission Description and Budget Item Justification

The pLEO Missile Warning (MW) Ground Integration project will enable a persistent global surveillance capability, enabled by a pLEO data communications transport layer, that will provide indications, warnings, targeting, and tracking to support the defeat of advanced missile threats.

B. Accomplishments/Planned Programs (\$ in Millions)

Title: pLEO Missile Warning Ground Integration

Description: Develop and demonstrate a prototype MW ground infrastructure compatible with a proliferated Low Earth Orbit (pLEO) sensor infrastructure. This effort will focus on integrating MW technologies and on-orbit residual capability in the form of sensors, command and control software, and data products demonstrated by DARPA's Blackjack program, and any follow-on MW prototyping efforts, into a MW ground support infrastructure. To the maximum extent possible, this effort will leverage commercial approaches for pLEO constellation management while maximizing support for the legacy MW ground segment. The development will be a phased approach to transition current command and control to a new, consolidated Battle Management, Command, Control, and Communications (BMC3) infrastructure consistent with the DoD Space Vision.

FY 2019 Plans:

N/A

FY 2020 Base Plans:

- Examine current MW ground segment and conduct trade studies of alternative approaches
- Conduct Preliminary Design Review of MW ground infrastructure

FY 2020 OCO Plans:

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
	0.000	0.000	30.000	0.000	30.000

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 039 / <i>Proliferated Low Earth Orbit (pLEO) Missile Warning Ground Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> This program is a new start in FY 2020.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	30.000	0.000	30.000

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

Remarks
N/A

D. Acquisition Strategy
Partners for these activities may include in-house research centers, small businesses, large defense contractors, commercial space providers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

E. Performance Metrics
Performance metrics will be specific to each of the efforts. Each effort will include measures identified in the management approach and Statement of Work (SOW). The activities will be monitored against schedules and deliverables as stated in the initiative's management approach.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Space Development Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 039 / <i>Proliferated Low Earth Orbit (pLEO) Missile Warning Ground Integration</i>	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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

Missile Warning Technology																												
Examine current MW ground segment and conduct trade studies of alternative																												
Conduct Preliminary Design Review of MW ground infrastructure																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 039 / <i>Proliferated Low Earth Orbit (pLEO) Missile Warning Ground Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Missile Warning Technology</i>				
Examine current MW ground segment and conduct trade studies of alternative	1	2020	4	2021
Conduct Preliminary Design Review of MW ground infrastructure	1	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 191 / <i>Space-Based Interceptors</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
191: <i>Space-Based Interceptors</i>	-	0.000	0.000	15.000	-	15.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2020.

A. Mission Description and Budget Item Justification

The Space Technology Development and Prototyping effort will develop and demonstrate a prototype proliferated Low Earth Orbit (pLEO) communications and data transport layer and its sub-constellations to provide the eight capabilities outlined in the DoD Space Vision. Developing and fielding a pLEO space architecture will significantly improve U.S. resilience posture in space. This effort is focused on developing a government reference architecture for a space-based kinetic interceptor layer for boost-phase defense.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Space-Based Interceptor Assessment	0.000	-	15.000	-	15.000
Description: The SDA, under the leadership of the Under Secretary of Defense for Research and Engineering and in coordination with the Missile Defense Agency, Joint Staff, Air Force, and Director, Cost Assessment and Program Evaluation, will execute a Space-Based Interceptor assessment.					
FY 2020 Base Plans: The space-based interceptor assessment entails developing a government reference architecture for a space-based kinetic interceptor layer for boost-phase defense. These efforts include developing an independent cost estimate and assessment of technical risks, potential countermeasures, and development timelines.					
FY 2019 to FY 2020 Increase/Decrease Statement: This is a new start in FY 2020.					
Accomplishments/Planned Programs Subtotals	0.000	-	15.000	-	15.000

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 191 / <i>Space-Based Interceptors</i>

D. Acquisition Strategy

Partners for these activities may include in-house research centers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Space Development Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>					Project (Number/Name) 191 / <i>Space-Based Interceptors</i>						
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Space-Based Interceptor Assessment	TBD	TBD : TBD	-	-		-		15.000		-		15.000	Continuing	Continuing	-
Subtotal			-	-		-		15.000		-		15.000	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		0.000		15.000		-		15.000	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 191 / <i>Space-Based Interceptors</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Space-Based Interceptor</i>				
Space-Based Interceptor Assessment	1	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 193 / <i>Space-Based Discrimination</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
193: <i>Space-Based Discrimination</i>	-	0.000	0.000	15.000	-	15.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2020.

A. Mission Description and Budget Item Justification

The Space Technology Development and Prototyping effort will develop and demonstrate a prototype proliferated Low Earth Orbit (pLEO) communications and data transport layer and its sub-constellations to provide the eight capabilities outlined in the DoD Space Vision. Developing and fielding a pLEO space architecture will significantly improve U.S. resilience posture in space. This effort is focused on developing a government reference architecture for a space-based discrimination layer for missile defense.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Space-Based Discrimination Assessment	0.000	-	15.000	-	15.000
Description: The SDA, under the leadership of the Under Secretary of Defense for Research and Engineering and in coordination with the Missile Defense Agency, Joint Staff, Air Force, and Director, Cost Assessment and Program Evaluation, will execute a Space-Based Discrimination assessment.					
FY 2020 Base Plans: The Space-Based Discrimination assessment entails developing a government reference architecture for a space-based discrimination layer for missile defense. These efforts include developing an independent cost estimate and assessment of technical risks, potential countermeasures, and development timelines.					
FY 2019 to FY 2020 Increase/Decrease Statement: This is a new start in FY 2020.					
Accomplishments/Planned Programs Subtotals	0.000	-	15.000	-	15.000

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 193 / <i>Space-Based Discrimination</i>

D. Acquisition Strategy

Partners for these activities may include in-house research centers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Space Development Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>					Project (Number/Name) 193 / <i>Space-Based Discrimination</i>						
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Space-Based Discrimination Assessment	TBD	TBD : TBD	-	-		-		15.000		-		15.000	Continuing	Continuing	-
Subtotal			-	-		-		15.000		-		15.000	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		0.000		15.000		-		15.000	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Space Development Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 193 / <i>Space-Based Discrimination</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Space-Based Discrimination</i>				
Space-Based Discrimination Assessment	1	2020	4	2021

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



The Joint Staff

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Research, Development, Test & Eval, DW	123,975	138,000		138,000
Total Research, Development, Test & Evaluation	123,975	138,000		138,000

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	157,479				157,479
Total Research, Development, Test & Evaluation	157,479				157,479

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted

Advanced Component Development And Prototypes	23,638	22,435		22,435
Management Support	97,300	112,528		112,528
Operational System Development	3,037	3,037		3,037
Total Research, Development, Test & Evaluation	123,975	138,000		138,000
Summary Recap of FYDP Programs				

General Purpose Forces	25,749	19,695		19,695
Intelligence and Communications	673	652		652
Research and Development	60,219	75,000		75,000
Training Medical and Other	37,334	42,653		42,653
Total Research, Development, Test & Evaluation	123,975	138,000		138,000

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Advanced Component Development And Prototypes	20,062				20,062
Management Support	132,880				132,880
Operational System Development	4,537				4,537
Total Research, Development, Test & Evaluation	157,479				157,479
 Summary Recap of FYDP Programs					
General Purpose Forces	13,753				13,753
Intelligence and Communications	553				553
Research and Development	103,100				103,100
Training Medical and Other	40,073				40,073
Total Research, Development, Test & Evaluation	157,479				157,479

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

<u>Summary Recap of Budget Activities</u>	<u>FY 2018</u> <u>(Base + OCO)</u>	<u>FY 2019</u> <u>Base Enacted</u>	<u>FY 2019</u> <u>OCO Enacted</u>	<u>FY 2019</u> <u>Total Enacted</u>
Advanced Component Development And Prototypes	23,638	22,435		22,435
Management Support	97,300	112,528		112,528
Operational System Development	3,037	3,037		3,037
Total Research, Development, Test & Evaluation	123,975	138,000		138,000
 <u>Summary Recap of FYDP Programs</u>				
General Purpose Forces	25,749	19,695		19,695
Intelligence and Communications	673	652		652
Research and Development	60,219	75,000		75,000
Training Medical and Other	37,334	42,653		42,653
Total Research, Development, Test & Evaluation	123,975	138,000		138,000

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Component Development And Prototypes	20,062				20,062
Management Support	132,880				132,880
Operational System Development	4,537				4,537
Total Research, Development, Test & Evaluation	157,479				157,479
<u>Summary Recap of FYDP Programs</u>					
General Purpose Forces	13,753				13,753
Intelligence and Communications	553				553
Research and Development	103,100				103,100
Training Medical and Other	40,073				40,073
Total Research, Development, Test & Evaluation	157,479				157,479

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

<u>Appropriation</u>	<u>FY 2018</u> <u>(Base + OCO)</u>	<u>FY 2019</u> <u>Base Enacted</u>	<u>FY 2019</u> <u>OCO Enacted</u>	<u>FY 2019</u> <u>Total Enacted</u>
The Joint Staff	123,975	138,000		138,000
Total Research, Development, Test & Evaluation	123,975	138,000		138,000

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Defense-Wide
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
The Joint Staff	157,479				157,479
Total Research, Development, Test & Evaluation	157,479				157,479

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
107	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	23,638	22,435		22,435	U
		Advanced Component Development And Prototypes		23,638	22,435		22,435	
142	0603829J	Joint Capability Experimentation	06					U
150	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	36,581	52,565		52,565	U
180	0204571J	Joint Staff Analytical Support	06	22,712	16,658		16,658	U
183	0303166J	Support to Information Operations (IO) Capabilities	06	673	652		652	U
190	0804767J	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06	37,334				U
191	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06		42,653		42,653	U
		Management Support		97,300	112,528		112,528	
203	0208043J	Planning and Decision Aid System (PDAS)	07	3,037	3,037		3,037	U
		Operational System Development		3,037	3,037		3,037	
Total Research, Development, Test & Eval, DW				123,975	138,000		138,000	

R-120PB: FY 2020 President's Budget (Published Version), as of February 25, 2019 at 10:38:13

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
107	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	20,062				20,062	U
		Advanced Component Development And Prototypes		20,062				20,062	
142	0603829J	Joint Capability Experimentation	06	13,000				13,000	U
150	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	70,038				70,038	U
180	0204571J	Joint Staff Analytical Support	06	9,216				9,216	U
183	0303166J	Support to Information Operations (IO) Capabilities	06	553				553	U
190	0804767J	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06						U
191	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	40,073				40,073	U
		Management Support		132,880				132,880	
203	0208043J	Planning and Decision Aid System (PDAS)	07	4,537				4,537	U
		Operational System Development		4,537				4,537	
Total Research, Development, Test & Eval, DW				157,479				157,479	

R-120PB: FY 2020 President's Budget (Published Version), as of February 25, 2019 at 10:38:13

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The Joint Staff
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
107	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	23,638	22,435		22,435	U
		Advanced Component Development And Prototypes		23,638	22,435		22,435	
142	0603829J	Joint Capability Experimentation	06					U
150	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	36,581	52,565		52,565	U
180	0204571J	Joint Staff Analytical Support	06	22,712	16,658		16,658	U
183	0303166J	Support to Information Operations (IO) Capabilities	06	673	652		652	U
190	0804767J	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06	37,334				U
191	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06		42,653		42,653	U
		Management Support		97,300	112,528		112,528	
203	0208043J	Planning and Decision Aid System (PDAS)	07	3,037	3,037		3,037	U
		Operational System Development		3,037	3,037		3,037	
Total The Joint Staff				123,975	138,000		138,000	

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The Joint Staff
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
107	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	20,062				20,062	U
		Advanced Component Development And Prototypes		20,062				20,062	
142	0603829J	Joint Capability Experimentation	06	13,000				13,000	U
150	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	70,038				70,038	U
180	0204571J	Joint Staff Analytical Support	06	9,216				9,216	U
183	0303166J	Support to Information Operations (IO) Capabilities	06	553				553	U
190	0804767J	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06						U
191	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	40,073				40,073	U
		Management Support		132,880				132,880	
203	0208043J	Planning and Decision Aid System (PDAS)	07	4,537				4,537	U
		Operational System Development		4,537				4,537	
Total The Joint Staff				157,479				157,479	

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

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
107	04	0604826J	Joint C5 Capability Development, Integration, and Interoperability Assessments.....	Volume 5 - 857

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
142	06	0603829J	Joint Capability Experimentation.....	Volume 5 - 881
150	06	0605126J	Joint Integrated Air & Missile Defense Organization (JIAMDO).....	Volume 5 - 885
180	06	0204571J	Joint Staff Analytical Support.....	Volume 5 - 905
183	06	0303166J	Support to Information Operations (IO) Capabilities.....	Volume 5 - 913
190	06	0804767J	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA.....	Volume 5 - 917
191	06	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA.....	Volume 5 - 935

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
203	07	0208043J	Planning and Decision Aid System (PDAS).....	Volume 5 - 961

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

Program Element Title	Program Element Number	Line #	BA	Page
COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	0804767J	190	06.....	Volume 5 - 917
COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA	0804768J	191	06.....	Volume 5 - 935
Joint C5 Capability Development, Integration, and Interoperability Assessments	0604826J	107	04.....	Volume 5 - 857
Joint Capability Experimentation	0603829J	142	06.....	Volume 5 - 881
Joint Integrated Air & Missile Defense Organization (JIAMDO)	0605126J	150	06.....	Volume 5 - 885
Joint Staff Analytical Support	0204571J	180	06.....	Volume 5 - 905
Planning and Decision Aid System (PDAS)	0208043J	203	07.....	Volume 5 - 961
Support to Information Operations (IO) Capabilities	0303166J	183	06.....	Volume 5 - 913

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604826J <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	45.330	23.638	22.435	20.062	-	20.062	20.274	20.066	21.316	21.087	Continuing	Continuing
001: <i>C5 Assessments and Analyses</i>	23.082	12.898	11.648	9.275	-	9.275	9.487	9.279	10.529	10.300	Continuing	Continuing
002: <i>C5 Capability Development</i>	13.673	6.590	5.787	5.787	-	5.787	5.787	5.787	5.787	5.787	Continuing	Continuing
003: <i>Joint Fires C2 Interoperability</i>	8.575	4.150	5.000	5.000	-	5.000	5.000	5.000	5.000	5.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Lead command, control, communications, computers, and cyber (C5) assessments, analyses, capability development, and joint fires command and control (C2) interoperability efforts required to achieve an effective, integrated, and interoperable joint force. Efforts include C5 requirements determination, C5 architectures development and integration, C5 data standardization, joint fires C2 interoperability, and C5 integration and interoperability assessments.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	23.638	22.435	20.062	-	20.062
Current President's Budget	23.638	22.435	20.062	-	20.062
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	0.000	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• N/A	-	-	0.000	-	0.000

Change Summary Explanation

The FY 2020 requested amount reflects the mandated 25% Major Headquarters Activities (MHA) reductions prescribed by the 2016 NDAA.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>				Project (Number/Name) 001 / <i>C5 Assessments and Analyses</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
001: <i>C5 Assessments and Analyses</i>	23.082	12.898	11.648	9.275	-	9.275	9.487	9.279	10.529	10.300	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Conduct analysis and assessment activities to inform and enhance joint warfighter capabilities in support of national security requirements. Provide timely, facts-based findings and recommendations to DoD decision-making processes that validate operational requirements and apply funding to field effective, interoperable capabilities. Conduct interoperability assessments and analyses that evaluate capability and interoperability of fielded and emerging command, control, communications, computers, and cyber (C5), and systems in response to operational issues and shortfalls. Conduct integration assessment efforts focused on emerging capabilities in wireless devices and security, operational and tactical command and control, networking, satellite communications, advanced secure digital datalinks, and allied/coalition data exchanges.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: C5 Assessments and Analyses	12.898	11.648	9.275
<p>Description: Support the Chairman's statutory requirement to advise the Secretary of Defense "on development of joint command, control, communications and cyber capability, including integration and interoperability of such capability through requirements, integrated architectures, data standards and assessments." Also supports the Chairman's focus area of improving joint warfighting capability and the SECDEF's line of effort to strengthen alliances and attract new partners. Interoperability is assessed and integrated solutions are developed to improve C5 system performance by providing recommendations based on operational architectures and evolving standards and data products. Combatant Commands, Services, Agencies and Allies/Coalition partners are provided a laboratory, exercise and assessment venue for the warfighter and capability developer to identify and solve interoperability, integration, and cyber issues.</p> <p>FY 2019 Plans: Conduct analysis, assessment, and integration activities to inform and enhance Joint warfighter capabilities in support of national security requirements. Provide timely, facts-based findings and recommendations for action through formal DoD decision-making processes used to validate operational requirements and apply funding to field integrated, interoperable capabilities. Conduct interoperability assessments, analyses, and integration that evaluate and enhance capability and interoperability of fielded and emerging command, control, communications, computers, and cyber (C5), and systems in response to operational needs and issues. Conduct integration and integration assessment efforts focused on emerging capabilities in wireless devices and security, tactical command and control and networking, satellite communications, advanced secure digital datalinks, and coalition data</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 001 / <i>C5 Assessments and Analyses</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>exchanges. Employ a deployable capability supporting the collection and analysis of decision quality data for command and control operations from the operational to lowest tactical echelons of command. Joint analysis supports capability development, acquisition, and systems employment decisions based on quantifiable performance in both actual and replicated operational environments. Projects include:</p> <p>Coalition Interoperability and Assurance Validation (CIAV) – CIAV assessments of US and coalition systems support in-theater operations by ensuring C5 system adequacy before their operational employment in the Afghan and Iraq areas of operations. CIAV is also increasing efforts in the Pacific. CIAV assessments validate complete and timely exchange of critical information and improve interoperability, enabling coalition forces to fight more effectively and efficiently.</p> <p>Classified reconfigurable operational wireless network – the integration, employment, and assessment of a single, rapidly deployed and configurable wireless network that carries multiple classifications. Network is suitable for tactical field settings, temporary installations, and fixed headquarters thereby addressing tactical, operational, and strategic requirements. Employs National Security Agency approved communications security and provides secure communications faster with less hardware and overhead.</p> <p>Joint fires support joint mission thread interoperability assessment – assess joint and coalition fire support command and control systems digital (machine-to-machine) interoperability and provide findings and observations.</p> <p>Advanced tactical cellular (4G/LTE) integration – multiple efforts to increase the availability of 4G/LTE to tactical forces. Addresses communications security, smart-phone battlefield apps, and 4G/LTE survivability in contested and austere environments.</p> <p>Bold Quest (BQ) 2019 coalition interoperability demonstrations – support the design, plan, and execution of the BQ events which address close air support, counter UAS, IFF testing, and cyber effects on operations for U.S. forces and coalition partners. Support includes accredited exercise networks, associated C2 systems, and data collection and analysis capabilities.</p> <p>Joint expeditionary integration capabilities – integrate, refine, and accelerate the migration of Special Operating Forces (SOF) battle-proven capabilities to general purpose forces in accordance with governing instructions. Rapid migration of SOF “best practices” provides greater capability to general purpose forces and enhances interoperability with SOF and coalition partners. The capabilities include integrated secure radio networks, tactical data links, tactical cellular, enroute satellite communications, enhanced situational awareness, fratricide prevention, and a more efficient kill-chain.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 001 / <i>C5 Assessments and Analyses</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Battlefield intelligence trusted network environment – the integration and assessment of an enterprise environment featuring a single, aggregated intelligence sharing capability for multiple partner nations that does not compromise respective national networks or domains.</p> <p>Joint Planning Services (JPS) – operational assessment of the JPS pilot will determine if the combatant commanders and Service operational planning requirements would be met by JPS. JPS is intended to enable planners to develop and maintain complex strategic/contingency plans in a dispersed, collaborative, cross-functional joint, interagency, intergovernmental, multinational environment. JPS should also provide rapid access to authoritative, geospatially-enabled planning data and tools and efficient and expeditious information dissemination.</p> <p>Mode 5 analysis – Plan and execute analysis events at various live venues (such as RED FLAG or BOLD QUEST) in support of certification of Service Mode 5 IFF capabilities.</p> <p>USCENTCOM counter-UAS (C-UAS) support – Conduct analysis activities both at CONUS C-UAS events and in active operational theaters to evaluate effectiveness of rapidly fielded C-UAS systems. Results will inform follow-on fielding and rapid procurement decisions.</p> <p>FY 2020 Plans: Conduct quantifiable analysis, assessment, and integration activities in both actual and replicated operational environments to inform and enhance C5I Joint warfighter capabilities in support of capability development, acquisition, and systems employment decisions. Conduct interoperability assessments, analyses, and integration through rapidly reconfigurable C5 laboratories replicating joint and coalition system of systems operational environments that can respond to emerging warfighter needs and issues. Employ a deployable assessment capability supporting the collection and analysis of decision quality data for command and control operations from the operational to lowest tactical echelons of command, in field conditions, in real time to provide immediate feedback on the data being collected. Projects include:</p> <p>Cyber Guard (CG)/Cyber Flag (CF) - Provide assessment and technical support to cyber exercises to include C2 information systems, while conducting assessments of cyber effects on systems integrated into the DoD Information Network.</p> <p>Trusted Network Environment - Support cross domain security solution that provides cross domain collaborative services (e-mail with attachments, chat, VoIP, and file share) between US SIPRNET, coalition bi-lateral and multilateral networks that does not compromise respective national networks or domains.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 001 / <i>C5 Assessments and Analyses</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Counter-UAS (CUAS) – Data collection and analysis during RTD&E test events as well as in support of urgent operational needs in active operational theaters. Analysis covers all aspects of CUAS defense, including lethal engagements.			
Small Unit Situational Awareness – Support DARPA Squad-X and related efforts to enhance Joint/Coalition small unit situational awareness and lethality with quantitative/qualitative field assessments. Efforts include assessments of GPS-denied navigation aids, unmanned systems performance, command of kinetic/non-kinetic engagements, and employment of expert systems/artificial intelligence systems at small unit level.			
Bold Quest (BQ) 2020 Coalition Interoperability Demonstrations – Support the design, plan, and execution of the BQ events which address close air support, Mission Partner Environment (MPE) / Federated Mission Networking (FMN) development/assessments, counter UAS, IFF testing, and cyber effects on operations for U.S. forces and coalition partners. Support includes accredited exercise networks, associated C2 systems, and data collection and analysis capabilities.			
Joint Tactical Integration - Integrate, refine, and accelerate the migration of Special Operating Forces (SOF) battle-proven capabilities to rapidly improve the Joint warfighting capabilities and lethality of general purpose forces in accordance with governing instructions. Capabilities include integrated secure radio networks, tactical data links, tactical cellular, enroute satellite communications, enhanced situational awareness, fratricide prevention, and a more efficient kill-chain.			
Coalition Interoperability and Assurance Validation (CIAV) - Assess US and coalition systems support in-theater operations by ensuring C5 capabilities adequacy before current operational employment in the Afghan and Iraq areas of operations. Conduct CIAV projects in the INDOPACOM AOR. CIAV assessments improve interoperability and joint warfighting capabilities.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> \$276K in FY 2019 resources were transferred to support the Small Business Innovation Research program. The FY 2020 requested amount reflects the mandated 25% Major Headquarters Activities (MHA) reductions prescribed by the 2016 NDAA.			
Accomplishments/Planned Programs Subtotals	12.898	11.648	9.275

C. Other Program Funding Summary (\$ in Millions) N/A
Remarks
D. Acquisition Strategy Biannual review of C4/Cyber resources includes an examination of the current and future Budget/Spend Plan, Lines of Effort, Acquisition Strategy and current Execution.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 001 / <i>C5 Assessments and Analyses</i>

The award of a Multi Award Contract (MAC) seeks efficiencies in the performance of requirements for C4/Cyber and Information services, and promotes contractor teaming to provide critical technical and management support. The MAC approach also seeks to reduce the costs of current contract support through the elimination of multiple fees for service contracts, and through the competitive award of contract services.

E. Performance Metrics

1. Conduct a minimum of 15 interoperability assessments designed to identify joint and coalition interoperability issues and recommend solutions to program managers, Combatant Commands, Services, and agencies.
2. Conduct a minimum of one broad-spectrum Counter-UAS (C-UAS) analysis event; providing data collection, analysis, and recommendations that directly address identified C-UAS capability gaps and interoperability shortfalls for partners including: Joint, Services, intergovernmental, and coalition stakeholders.
3. Provide C2 systems and persistent command, control, communications, and computers (C4) environment supporting at least two Combatant Command exercises to satisfy Combatant Command training objectives, including the cyber threat to mission systems.
4. Support up to four Squad-X experiment events, providing objective analysis on performance and interoperability that directly informs the acquisition of improved C2 capabilities for U.S. small units.
5. Support a minimum of 30 coalition interoperability assurance and validation events and provide a minimum of 100 observations/findings to resolve end-to-end mission based interoperability issues, validate tactics, techniques, and procedures, and support NATO future mission networking (FMN) and U.S. mission partner environment (MPE) plans.
6. Provide analyses for at least six field assessments/demonstrations in the areas of joint fires, C2, coalition intelligence, surveillance, and reconnaissance (CISR), digitally aided close air support (DACAS), FMN and MPE. Analyses results will inform continued development of evaluated capabilities, including acquisition/fielding decisions and tactics, techniques and procedures.
7. Provide C2 Systems and persistent C4 environment supporting at least four individual or team training events per year to meet cyber training and certification objectives.
8. Provide C2 Systems and Persistent C4 Environment to support at least four cyber assessments promoting cyber capability development.
9. Integrate at least two new capabilities per year supporting Combatant Command, Service, agency, and commercial solutions for classified and mobile computing program requirements.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 001 / <i>C5 Assessments and Analyses</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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

Joint C5I																												
C5 Assessments and Analyses																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 001 / <i>C5 Assessments and Analyses</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Joint C5I				
C5 Assessments and Analyses	1	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments					Project (Number/Name) 002 / C5 Capability Development		
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
002: C5 Capability Development	13.673	6.590	5.787	5.787	-	5.787	5.787	5.787	5.787	5.787	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

C5 capability development functions as the DoD requirements lead for the joint command and control family of programs, Joint cyber, and requirements lead for mission partner environment (MPE). The program also develops joint C4 architectures, joint common systems functions, joint mission threads, leads analysis and reviews architectures and standards in joint capability development systems. C5 development enables warfighter access to authoritative data sources and improves data interoperability by establishing common C2 data and service standards.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: C5 Capability Development	6.590	5.787	5.787
Description: Lead C2 capability development and integration in order to achieve an interdependent joint force. Supports Chairman's focus to improve joint warfighter capability and enhance global integration. This will be accomplished through four focus areas: capability development, C4 architectures, data and services, and interoperability and integration.			
FY 2019 Plans: Capability Development – analyze and coordinate the Department's FY 2021-2025 C2 integrated priority lists and capability gap assessment for JROC approval. Develop and coordinate annual Joint C2 FY 2020 and FY 2021 operational priorities for JROC approval. Facilitate Nuclear C3 requirements through the JROC process for C4/Cyber-aligned capabilities. Enhance C2 requirements creation, validation, and management through the Net-enabled Requirements Identification Database (NRID) and Decision Support Tool (DST) suite, and development and management of aligned JCIDS capability development documents. Provide requirements management and operational focus to test and field the Global Command and Control System-Joint (GCCS-J) version 6.0 and begin development of its follow-on GCCS-J Enterprise (GCCS-JE) cloud-accessible solution utilizing Agile/DevOps acquisition methodologies. Ensure warfighter demands for a functional denied-disconnected, intermittent, low-bandwidth capability at the Combined/Joint Task Force-level are adequately understood and addressed by the capability developer. Ensure capability needs are addressed for 1) Command and Control of the Information Environment (C2IE) transition and enhancement, 2) Joint Force Capability Catalog/Global Laydown Server (JFCC/GLS)/ORION development and sustainment, and 3) Joint Planning Services (JPS) materiel development and transition.			
C4 Architectures - provide architecture and joint mission thread development and analysis efforts as required to support the Chairman's directed focus areas and Chief Information Officer (CIO) lines of operations. Provide architectures and analytical			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 002 / <i>C5 Capability Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>support as required to the Chairman's Joint Military Net Assessment. Conduct analysis and validate architectures and engineering designs for continued implementation of the Joint Information Environment (JIE). Update the warfighter mission area (WMA) architecture development standards to improve WMA architecture portal usability. Continue to improve the quality of and expand the amount of the C4/Cyber portfolio architecture information available on the WMA architecture portal. Conduct analyses and develop architectures and metrics for JCIDS capability requirement documents.</p> <p>Data and Services – develop, promote, and integrate warfighter data and services requirements, standards, technical specifications, and policy to improve warfighter interoperability and information sharing with joint, mission partners, and other U.S. government departments and agencies. Perform and lead proof of concept activities of the North Atlantic Treaty Organization (NATO) core data framework and the National Information Exchange Model (NIEM) with selected communities of interest, such as robotics and autonomous systems, to achieve coalition interoperability and demonstrate operational effectiveness for the Mission Partner Environment and for the Federated Mission Networking domain. Continue to align and standardize emerging tactical data link, symbology (including cyber symbology) and messaging standards with enterprise information sharing. Support and guide the maturation of and implementation of NIEM in the interagency, joint and coalition domains as the common enterprise level interoperability information exchange standard for new and updated IT services.</p> <p>Integration and interoperability – lead mission partner environment (MPE) implementation and support cyber priorities across DoD by performing analysis, conducting assessments and supporting materiel developers. Review and monitor the continued development of the MPE information system to ensure it meets the operational requirements of the Combatant Commands and Services and complements the greater MPE initiative. Continue to shape NATO future mission networking implementation to ensure it remains aligned with MPE, including related capability development. Support development and maturation of DOD enterprise cyber-range environment command and control information system to support US and coalition cyber force readiness, cyber defense of coalition networks, integration, interoperability, and defensibility of mission partner environment federated networks. Coordinate and lead non-overseas contingency operations-funded coalition interoperability events across the geographic Combatant Commands.</p> <p>FY 2020 Plans: Capability Development – Analyze and coordinate the Department's FY 2022-2026 C2 integrated priority lists and capability gap assessment for JROC approval. Develop and coordinate annual Joint C2 FY 2021 and FY 2022 operational priorities for JROC approval. Enhance C2 requirements validation and management through the Net-enabled Requirements Identification Database (NRID) and Decision Support Tool (DST) suite, and development and management of aligned JCIDS capability development documents. Provide requirements management and operational focus to develop and field the Global Command and Control System-Joint Enterprise (GCCS-JE) cloud-accessible solution utilizing Agile/DevOps acquisition methodologies. Additionally,</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 002 / <i>C5 Capability Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>participate in quarterly Program Increment planning session for Agile/DevOps development of GCCS-JE. Ensure warfighter demands for a functional denied-disconnected, intermittent, low-bandwidth capability at the Combined/Joint Task Force-level are adequately understood and addressed by the capability developer. Ensure joint capability needs are addressed for:</p> <p>(1) Nuclear C3 requirements for C4/Cyber-aligned capabilities</p> <p>(2) Command and Control of the Information Environment(C2IE)</p> <p>(3) Joint Force Capability Catalog/Global Laydown Server (JFCC/GLS)/ORION</p> <p>(4) Joint Planning Services (JPS) modernization and sustainment</p> <p>(5) Multi-domain Battle C2 initial prototype capability development. Integrate missile warning enhancements identified in VCJCS Competitive Area Study into GCCS-J. Collaborate with J2 and OSD(I) to identify/prioritize Intelligence Support to C2 requirements for materiel solution development.</p> <p>C4 Architectures - Provide architecture and joint mission thread development and analysis products as required to support the Chairman's directed focus areas and Chief Information Officer (CIO) lines of operations (e.g. operational context for Artificial Intelligence). Provide architecture and analysis as required in support of Chairman's Priorities (e.g. Joint Military Net Assessment, Coalition Interoperability). Conduct analysis and validate architectures and engineering designs for continued implementation of the Joint Information Environment (JIE). Update the Joint Common Service/System Function List and Warfighter Mission Area (WMA) architecture development standards to improve WMA architecture integration and interoperability. Continue to improve the quality of and expand the amount of the FCB portfolio architectures available on the WMA architecture portal. Conduct analyses and develop architectures and metrics for JCIDS capability requirement documents.</p> <p>Data and Services – Develop, promote, and integrate warfighter data and services requirements, standards, technical specifications, and policy to improve warfighter interoperability and information sharing with joint, mission partners, and other U.S. government departments and agencies. Perform and lead proof of concept activities of the North Atlantic Treaty Organization (NATO) core data framework and the National Information Exchange Model (NIEM) with selected communities of interest, such as robotics and autonomous systems, to achieve coalition interoperability and demonstrate operational effectiveness for the Mission Partner Environment and for the Federated Mission Networking domain including one complex demonstration with NATO and one Service partners. Continue to lead, align and standardize emerging tactical data link, symbology (including cyber symbology) and messaging standards with enterprise information sharing. Support and guide the maturation of and implementation of NIEM</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 002 / <i>C5 Capability Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)

in the interagency, joint and coalition domains as the common enterprise level interoperability information exchange standard for new and updated IT services. Support standardization of common warfighter Identity Access Management, robust cyber security, standardized interfaces and common data tagging to promote warfighter interoperability. Support joint command and control governance and requirements documents development (Information Support Plan (ISP))to ensure data and service equities are properly represented on behalf of the warfighter.

Interoperability and Integration - Lead mission partner environment (MPE) implementation and support coalition cyber priorities across DoD by performing analysis, conducting assessments and supporting materiel developers. Review and monitor the continued development of the MPE information system to ensure it meets the operational requirements of the Combatant Commands and Services and complements the greater MPE initiative. Continue to shape North Atlantic Treaty Organization (NATO) federated mission networking (FMN) implementation to ensure it remains aligned with MPE, including related capability development. Participate in the Combined Communications-Electronics Board to ensure interoperability among the Five Eyes nations (Canada, New Zealand, Australia, UK and US). Coordinate and lead Coalition Interoperability Assurance and Validation (CIAV) interoperability mission-based assessments across the geographic Combatant Commands. Lead the NATO-sponsored Coalition Warrior Interoperability Exploration, Experimentation, Examination, Exercise's FMN Focus Area to ensure standardized, effective development of Joining, Membership, and Exit Instructions.

FY 2019 to FY 2020 Increase/Decrease Statement:

\$137K in FY 2019 resources were transferred to support the Small Business Innovation Research program. The FY 2020 requested amount reflects the mandated 25% Major Headquarters Activities (MHA) reductions prescribed by the 2016 NDAA.

FY 2018	FY 2019	FY 2020
Accomplishments/Planned Programs Subtotals		
6.590	5.787	5.787

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

N/A

Remarks

D. Acquisition Strategy

Biannual review of C4/Cyber resources includes an examination of the current and future Budget/Spend Plan, Lines of Effort, and Acquisition Strategy.

The award of a Multi Award Contract (MAC) seeks efficiencies in the performance of requirements for C4/Cyber and Information services, and promotes contractor teaming to provide critical technical and management support. The MAC approach also seeks to reduce the costs of current contract support through the elimination of multiple fees for service contracts, and through the competitive award of contract services.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 002 / <i>C5 Capability Development</i>

E. Performance Metrics

1. Secure DoD approval for following JCIDS documents to meet warfighter capability gaps: Information Systems-Initial Capability Document (IS-ICD) for Cyber C2, and Capability Definition Package (CDP)/Capability Package (CP) for Joint Cyber C2 in coordination with USAF and USCYBERCOM; CPs for Intelligence Support to C2/targeting in coordination with J2; IS-ICD for Fires in coordination with U.S. Army; CPs for Global-Theater Security Cooperation Management Information System (G-TSCMIS) in coordination with DSCA; CP for C2IE in coordination with JS J39; CP for Missile Warning in coordination with USSTRATCOM; and Joint Planning and Execution Services Phase II functional requirements specifications in coordination with J3.
2. Secure JROC approval of the FY 2020 and FY 2021 joint C2 operational priorities defining C2 capability needs/gaps providing senior level oversight and direction to joint C2 capability development.
3. Ensure Joint C2 requirements development supports the DoD-directed better buying power by continuing the rapid development and fielding of virtualized C2 system capabilities to Combatant Commands and Services. Advocate and participate in quarterly GCCS-JE Program Increment planning sessions to prioritize Agile backlog of capabilities for development IAW warfighter demand signal.
4. Revise the warfare mission area architecture development standards, Joint Common Service/System Function List and JMT governance to align with new JCIDS Manual Requirements, new JCAs and changes to cyberspace operations functionality.
5. Review, analyze and validate warfighter capability requirements in 35 JCIDS, joint information environment and mission partner environment architectures.
6. Conduct three National Information Exchange Model Military Operations Domain Configuration Control Board sessions to improve and increase information sharing via promulgation of one domain content update.
7. Include mission partnering concepts in four Combatant Command and Service exercises.
8. Establish at least two new or enhanced information/sharing and collaboration areas.
9. Establish and refine processes and procedures to ensure FMN implementation is included in two NATO exercises.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 002 / <i>C5 Capability Development</i>
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contract Managemnt and Engineering Technical Services	C/CPFF	Various : Norfolk, Suffolk	13.673	6.590	Oct 2017	5.787	Oct 2018	5.787	Oct 2019	-		5.787	Continuing	Continuing	-
Subtotal			13.673	6.590		5.787		5.787		-		5.787	Continuing	Continuing	N/A
			Prior Years	FY 2018	FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			13.673	6.590	5.787		5.787		-		5.787	Continuing	Continuing	N/A	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 002 / <i>C5 Capability Development</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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

C5 Capability Development

C5 Capability Development																												
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Exhibit R-4A, RDT&E Schedule Details: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 002 / <i>C5 Capability Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
C5 Capability Development				
C5 Capability Development	1	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments					Project (Number/Name) 003 / Joint Fires C2 Interoperability		
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
003: Joint Fires C2 Interoperability	8.575	4.150	5.000	5.000	-	5.000	5.000	5.000	5.000	5.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Lead interoperability efforts across DoD and partner nations at the operational and tactical level for mission partner operations, fire support, combat identification (CID), and friendly force tracking (FFT) capabilities. Conduct joint fire support, joint close air support and CID-FFT action plans to fulfill CJCS-directed, General Officer/Flag Officer (GOFO) level responsibilities. Conduct Joint Fire Support Executive Steering Committee (JFS ESC) standardization team accreditation visits to U.S. and partner nation schoolhouses to ensure memorandum of agreement signatories are accomplishing schoolhouse training in compliance with the memoranda.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Joint Fires C2 Interoperability	4.150	5.000	5.000
<p>Description: These efforts directly support Chairman, Joint Chiefs of Staff (CJCS) guidance to increase interoperability with allies and partners, to more effectively counter trans-regional threats. Supports Chairman's focus area of improving joint warfighting capability and the SECDEF's line of effort to strengthen alliances and attract new partners. Execute Joint Staff-sponsored Bold Quest systems-of-systems interoperability assessment, including integration of cyber capabilities with command and control of conventional and Special Operations Force missions from a multinational perspective at the tactical level. Lead the Joint Fire Support Executive Steering Committee (JFS ESC), composed of Flag/General Officer representatives and supporting staffs from the U.S. Services, Special Operations Command and 21 partner nations. Those nations include NATO nations, Australia, Republic of Korea and key Gulf State allies. Also lead the Combat Identification – Friendly Force Tracking Executive Steering Committee (CID-FFT ESC), focused on more effective and efficient combat operations and reduced potential for friendly fire incidents.</p> <p>FY 2019 Plans: Plan and execute Joint Staff-sponsored Bold Quest 2019 capability demonstration and assessment, focused on interoperability for joint and coalition fires. Bold Quest data and assessments inform US and Partner Nation investment in multiple capability areas: combat identification, friendly force tracking, digitally aided close air support and fires, integrated air and missile defense, coalition intelligence surveillance and reconnaissance, and cyber. These efforts directly support the National Military Strategy, the CJCS' global integration objectives and the Combatant Commanders conventional and SOF international engagement programs. Continue leading accreditation visits of current JFS ESC member programs and provided staff assistance for development of close air support-related training and certification programs.</p> <p>FY 2020 Plans:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 003 / <i>Joint Fires C2 Interoperability</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Plan and execute Joint Staff-sponsored Bold Quest 2020 capability demonstration and assessment, focused on interoperability for joint and coalition fires. Bold Quest data and assessments inform US and Partner Nation investment in multiple capability areas: combat identification, friendly force tracking, digitally aided close air support and fires, integrated air and missile defense (Mode 5 Identify Friend or Foe), coalition intelligence surveillance and reconnaissance, integrated interoperable simulations, and cyber. These efforts directly support the National Military Strategy, the CJCS' global integration objectives and the Combatant Commanders conventional and SOF international engagement programs. Continue leading accreditation visits of current JFS ESC member programs and provide staff assistance visits for development of close air support-related training and certification programs.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> \$119K in FY 2019 resources were transferred to support the Small Business Innovation Research program. The FY 2020 requested amount reflects the mandated 25% Major Headquarters Activities (MHA) reductions prescribed by the 2016 NDAA.			
Accomplishments/Planned Programs Subtotals	4.150	5.000	5.000

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

N/A

Remarks

D. Acquisition Strategy

Biannual review of C4/Cyber resources includes an examination of the current and future Budget/Spend Plan, Lines of Effort and Acquisition Strategy.

The award of a Multi Award Contract (MAC) seeks efficiencies in the performance of requirements for C4/Cyber and Information services, and promotes contractor teaming to provide critical technical and management support. The MAC approach also seeks to reduce the costs of current contract support through the elimination of multiple fees for service contracts, and through the competitive award of contract services.

E. Performance Metrics

1. Lead development, demonstration and assessment of situational awareness and cooperative/non-cooperative identification capabilities that enable U.S. and NATO/Coalition warfighters to identify friendly, enemy, and neutral forces for "shoot/don't shoot" decisions.
2. Synchronize Service testing, acquisition and fielding of Mode 5 IFF capability, with focus on Full Operational Capability (FOC) in 2020. Monitor Service fielding progress of 169 platform types.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 003 / <i>Joint Fires C2 Interoperability</i>
<p>3. Due to resource re-phasing, lead the design, planning and execution of two risk reduction sized Bold Quest coalition capability demonstrations and assessments, in order to inform U.S. and partner nation investment in networked capabilities to improve the detection and engagement of targets via surface (ground and maritime) and air delivered fires and other non-kinetic means.</p> <p>4. Lead the digitally aided close air support (DACAS) coordinated implementation initiative among all US Services, USSOCOM, and 16 partner nations; develop and document engineering change proposals' technical solutions to operational interoperability issues in the CAS mission area; maintain the associated equipment and currency of assessment tools software and licensing agreements.</p> <p>5. Lead US and partner nations with international fire support interoperability capability development initiatives, to ensure on-going efforts optimize: unity-of-effort; resource/cost benefit; and enhanced fire support integration.</p> <p>6. Expand digital call-for-fire solution development to include enhanced multi-national interoperability with 11 partner nations.</p> <p>7. Lead, coordinate, organize, and execute an annual Joint Fire Support Symposium to exchange information, identify issues, examine capability shortfalls, assess emerging technologies, and recommend areas for DoD action/resolution.</p> <p>8. Conduct accreditation assessments for 18 of 33 current signatory programs (11 Joint Terminal Attack Controller, 2 Forward Air Controller (Airborne), and 5 Joint Fires Observer).</p> <p>9. Lead development and refinement of four U.S. and NATO joint fires-related doctrine and tactics, techniques, and procedures publications.</p> <p>10. Plan and conduct quarterly Joint Fire Support and Combat ID-Friendly Force Tracking Executive Steering Committees and working group meetings to address identified shortfalls in those mission areas.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments	Project (Number/Name) 003 / Joint Fires C2 Interoperability
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Contract Management and Engineering Technical Services	C/CPFF	Various : Norfolk	8.575	4.150	Oct 2017	5.000	Oct 2018	5.000	Oct 2019	-		5.000	Continuing	Continuing	-
Subtotal			8.575	4.150		5.000		5.000		-		5.000	Continuing	Continuing	N/A

Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals		8.575	4.150	5.000	5.000	-	5.000	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 003 / <i>Joint Fires C2 Interoperability</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Joint Fires C2 Interoperability</i>																												
Joint Fires C2 Interoperability																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	Project (Number/Name) 003 / <i>Joint Fires C2 Interoperability</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Joint Fires C2 Interoperability</i>				
Joint Fires C2 Interoperability	1	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0603829J <i>I Joint Capability Experimentation</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	13.000	-	13.000	0.000	0.000	0.000	0.000	Continuing	Continuing
001: <i>Joint Capability Experimentation</i>	-	0.000	0.000	13.000	-	13.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

NDAA 19 amends the Chairman’s responsibilities to address experimentation on future concepts and the 2018 National Defense Strategy Implementation Guidance directs that rigorous experimentation take place on concepts to ensure Department investments adequately address future requirements as well as those of today. As such, the Joint Staff will establish an experimentation capability to analyze and validate priority joint concept required capabilities.

Concept analysis and validation will have a multi-faceted nature to meet the Chairmen’s Title 10 responsibility of, “identifying new joint military capabilities based on advances in technology and concepts of operation, and recommending investments and experiments in such capabilities.” Wargames will assess baseline mission and campaign level outcomes of the concepts as well as identify a tradespace of potential new capabilities. This tradespace of capabilities is further explored with quantitative models and software that identify the most efficient cost and capability tradeoffs to help meet the Title 10 responsibility of “advising the Secretary on new and alternative joint military capabilities, and alternative program recommendations and budget proposals, within projected resource levels.”

The National Defense Strategy directs “early design tradeoffs in the requirements process to increase the speed of delivery.” The Joint Staff approach to tradespace exploration follows that guidance by providing a cost conscious and operationally relevant prioritization tradeoff technique early in the portfolio design process. Using this rigorous prioritization approach, the capability development cycle can efficiently focus resources on more detailed experimentation of specific capabilities to inform the requirements process. The analysis from the experimentation program will be used to provide foundational evidence to directly inform the Joint Military Net Assessment (JMNA), the Chairman’s Program Recommendation (CPR), and ultimately the Defense Planning Guidance for Joint Force development and design.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	13.000	-	13.000
Total Adjustments	0.000	0.000	13.000	-	13.000
• Congressional General Reductions	-	0.000			
• Congressional Directed Reductions	-	0.000			
• Congressional Rescissions	-	0.000			
• Congressional Adds	-	0.000			
• Congressional Directed Transfers	-	0.000			
• Reprogrammings	-	0.000			
• SBIR/STTR Transfer	-	0.000			
• New program start	-	-	13.000	-	13.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0603829J / <i>Joint Capability Experimentation</i>	

Change Summary Explanation

FY 2020 increase is due to a new program element start in FY 2020 to expand joint experimentation activities.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0603829J / <i>Joint Capability Experimentation</i>				Project (Number/Name) 001 / <i>Joint Capability Experimentation</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
001: <i>Joint Capability Experimentation</i>	-	0.000	0.000	13.000	-	13.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The FY19 NDAA amends the Chairman’s responsibilities to address experimentation on future concepts and the 2018 National Defense Strategy Implementation Guidance directs vigorous experimentation take place on concepts to ensure department investments are adequately addressing future requirements as well as those today. As such, the Joint Staff will establish an experimentation capability to analyze and prioritize joint concept required capabilities. The specific and rigorous analysis from the this experimentation program will be used to provide foundational evidence to directly inform portion of the Joint Military Net Assessment (JMNA), the Chairman’s Program Recommendation (CPR), and ultimately the Defense Planning Guidance. The project will deliver analytically rigorous, resource conscious and operationally validated portfolio investment strategies for the CJCS to ensure an enduring competitive advantage.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Joint Capability Experimentation	0.000	0.000	13.000
Description: The FY19 NDAA amends the Chairman’s responsibilities to address experimentation on future concepts and the 2018 National Defense Strategy Implementation Guidance directs vigorous experimentation take place on concepts to ensure department investments are adequately addressing future requirements as well as those today. The project will deliver analytically rigorous, resource conscious and operationally validated portfolio investment strategies for the CJCS to ensure an enduring competitive advantage.			
FY 2019 Plans: Not applicable. This is a new program element starting in FY 2020.			
FY 2020 Plans: Integrate, synthesize, and prioritize concept required capabilities for Joint Force development and design efforts out to 2030 that are aligned with the Capstone Concept for Joint Operations: Joint Force 2030 and based on Joint Operating Concepts for Russia and North Korea.			
Identify priority concept required capabilities using a set criteria of criticality, strategic guidance, and Combatant Command and Service priorities.			
Evaluate and validate priority concept required capabilities through an integrated and federated experimentation, exercises, wargames, and studies approach.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0603829J / <i>Joint Capability Experimentation</i>	Project (Number/Name) 001 / <i>Joint Capability Experimentation</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Conduct tradespace exploration studies to help prioritize the most efficient options based on cost and capability tradeoffs.</p> <p>In FY 2020, the top 5 to 10 priority CRC's will be evaluated and validated in two joint and/or service exercises; at least one technology demonstration; at least one Globally Integrated Operations (GIO) wargame; leveraging already planned Service and Combatant Command events with extensive use of modeling and simulation. Experimentation via research and development, science and technology, and Defense Advanced Research Projects Agency (DARPA) will be leveraged.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> FY 2020 increase is due to a new program element start to expand joint experimentation activities.</p>			
Accomplishments/Planned Programs Subtotals	0.000	0.000	13.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

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, and fidelity defined as follows:

Time – Will the effort enable the warfighter faster access to future capabilities at the speed of relevance than current capabilities/processes allow?

Money – Will the effort enable the DOD to reduce duplication of effort and to prepare and execute events at a more effective and efficient cost than current capabilities allow?

Realism – Will the effort enable the warfighter to create an environment that is closer to what he/she will operate in during real world operations than current capabilities allow?

Fidelity – Will the effort ensure unity of effort throughout the Force Development and Design Community?

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605126J <i>I Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	342.874	36.581	52.565	70.038	-	70.038	65.946	69.770	75.036	73.721	Continuing	Continuing
P001: <i>Core</i>	143.254	9.343	9.967	11.657	-	11.657	11.601	10.860	10.860	10.860	Continuing	Continuing
P003: <i>Black Dart</i>	28.483	3.000	3.000	5.500	-	5.500	5.634	5.370	6.424	6.231	Continuing	Continuing
P004: <i>Joint Distributed Engineering Plant</i>	19.748	2.738	1.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.486
P005: <i>Nimble Fire</i>	81.769	16.000	14.000	28.226	-	28.226	21.036	21.065	20.277	19.155	Continuing	Continuing
P006: <i>Cruise Missile Combat Identification (CID)</i>	69.620	5.500	4.998	4.655	-	4.655	4.675	4.475	4.475	4.475	Continuing	Continuing
P007: <i>Homeland Defense Capability</i>	0.000	0.000	15.000	20.000	-	20.000	23.000	28.000	33.000	33.000	Continuing	Continuing
P008: <i>Joint Regional Integrated Air and Missile Defense Capability</i>	0.000	0.000	4.600	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is the organization within the Department of Defense chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, joint operational concepts, and operational architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the operational community's proponent for requirements and capabilities in IAMD, and is the joint IAMD proponent within the DoD's resource allocation structures. JIAMDO also leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, conducts evaluations, demonstrations of joint IAMD architectures, and provides advocacy for innovative, technically mature, and affordable solutions.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains liaison offices at major CCMD locations to facilitate coordination of integration issues and requirements. In particular, JIAMDO maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs, and assesses the validity of those criteria in relation to national and military requirements. At the request of USSTRATCOM and direction of the CJCS, JIAMDO supports USSTRATCOM in the development of the IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and technical oversight of homeland capability solutions.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605126J <i>I Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	36.581	52.565	56.162	-	56.162
Current President's Budget	36.581	52.565	70.038	-	70.038
Total Adjustments	0.000	0.000	13.876	-	13.876
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program adjustments	-	-	13.876	-	13.876

Change Summary Explanation

JIAMDO program changes from FY 2019 to FY 2020 is a combination of:
 \$15,000K added to Project NIMBLE FIRE for modeling and simulation capability enhancements to improve fidelity of EW and IR capability models.
 \$1,124K in FY 2020 reductions to meet MHA goals prescribed by 2016 NDAA.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>				Project (Number/Name) P001 / <i>Core</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
P001: <i>Core</i>	143.254	9.343	9.967	11.657	-	11.657	11.601	10.860	10.860	10.860	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains liaison offices at major CCMD locations to coordinate integration issues and requirements. In particular, JIAMDO maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Core	9.343	9.967	11.657
<p>Description: Provides staff support for JIAMDO operations in the area of ballistic missile defense, air and cruise missile defense, homeland defense, requirements management, combat identification, modeling and simulation, analytical functions and products, senior level briefings, and all travel costs for government and contractor support personnel. Routine functions include performing analyses, demonstrations, and programmatic assessments of technology, operations, requirements, and weapons systems. In coordination with Services and CCMDs, JIAMDO Core funds the definition, assessment, development, and approval of Joint IAMD operational concepts, operational architectures, and capability requirements. These assessments guide the Department's joint, interagency, integrated and net-centric IAMD. JIAMDO Core provides funding to:</p> <ol style="list-style-type: none"> 1. Conduct and integrate joint studies, simulations, war games, force resource allocation, and interoperability initiatives. 2. Manage relevant Congressional interaction and CCMD interface through a cadre of liaisons collocated with major headquarters. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff	Date: March 2019
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Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>	Project (Number/Name) P001 / <i>Core</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>3. Directly support and sponsor homeland air surveillance-related demonstration and analysis activities.</p> <p>4. Manage the IAMD Working Group and co-chair the Protection Functional Capabilities Board focusing CCMD, Joint Staff, and Service collaboration efforts to generate joint concepts and develop the IAMD architecture and roadmap.</p> <p>JIAMDO Core enables strategic planning development, security, travel, and other support activities. Funding pays for: contracted Systems Engineering and Technical Assistance (SETA) support for Air & Cruise Missile Defense (ACMD), Ballistic Missile Defense (BMD), Homeland Air Security (HAS) strategic planning, studies & analysis, combat ID, modeling & simulation. Additionally, the JIAMDO Core budget funds daily on-site security management personnel to meet DoD, National Industrial Security Program Operating Manual (NISPOM), and other security regulations, for all administrative and support functions related to higher security classifications, as well as basic office supplies and furniture, and classified/unclassified data connections.</p> <p><i>FY 2019 Plans:</i> Perform Ballistic Missile Defense studies as directed by higher authority and provide contracted expertise in support of all JIAMDO analytical and requirements management activities. Execute DepSecDef directed tasking for non-kinetic and kinetic layered defense modeling. Continue support to Chairman’s Net Assessment, Joint Military Net Assessment and OSD Policy using analysis and study findings.</p> <p><i>FY 2020 Plans:</i> Perform Ballistic Missile Defense studies as directed by higher authority and provide contracted expertise in support of all JIAMDO analytical and requirements management activities. Continue DepSecDef directed tasking for non-kinetic and kinetic layered defense modeling. Continue support to Chairman’s Net Assessment, Joint Military Net Assessment and OSD Policy using analysis and study findings.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The FY 2020 requested amount, as well as the future years request, reflects un-executed resources from prior year and an associated re-phasing of resources into FY 2021 and FY 2022.</p>			
Accomplishments/Planned Programs Subtotals	9.343	9.967	11.657

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>	Project (Number/Name) P001 / <i>Core</i>

E. Performance Metrics

- (1) Support two major Nimble Fire exercises during FY 2020.
- (2) Conduct two IAMD Working Groups and at least one Functional Capabilities Board per month.
- (3) Conduct the annual Black Dart Counter-Unmanned Aerial System technology demonstration.
- (4) Support U.S. Representative to NATO Air Defense Council and Missile Defense Committee including two overseas meetings per year and numerous lower-level supporting functions.
- (5) Develop and maintain operational architecture compliance with DoD Architectural Framework (DODAF) standards.
- (6) Ensure 100% of all government employee travel is in accordance with the Joint Federal Travel Regulation/Joint Travel Regulation and all contractor travel is in accordance with applicable regulations.
- (7) Maintain all unclassified/classified LANs on a daily basis in accordance with the Joint Staff's Office of the Chief Information Officer guidance/policy.
- (8) Ensure all computers, NIPRNET/SIPRNET, are refreshed according to applicable policy/guidance.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P003 / Black Dart			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
P003: <i>Black Dart</i>	28.483	3.000	3.000	5.500	-	5.500	5.634	5.370	6.424	6.231	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Black Dart Counter Unmanned Aircraft Systems Technology Demonstration	3.000	3.000	5.500
<p>Description: Provides funding to support administration and execution of Black Dart demonstrations. Black Dart is a unique joint, interagency demonstration focusing on rapid development and implementation of Counter - Unmanned Aircraft Systems (C-UAS) technology from readily-available commercial and governmental products. Objectives include:</p> <ol style="list-style-type: none"> 1. Execute live-fly, live-fire C-UAS technology demonstration to assess and validate existing and emerging Integrated Air and Missile Defense (IAMD) capabilities. 2. Present emerging solutions to inform requirements decision-making. 3. Identify and develop IAMD operational concepts, system interoperability, and operational architectures for the C-UAS mission set. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019		
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>	Project (Number/Name) P003 / <i>Black Dart</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
4. Advocate for C-UAS capabilities and affordable, integrated solutions.				
<p><i>FY 2019 Plans:</i> Perform Ballistic Missile Defense studies as directed by higher authority and provide contracted expertise in support of all JIAMDO analytical and requirements management activities. Execute DepSecDef directed tasking for non-kinetic and kinetic layered defense modeling. Continue support to Chairman’s Net Assessment, Joint Military Net Assessment and OSD Policy using analysis and study findings.</p> <p><i>FY 2020 Plans:</i> Performing Ballistic Missile Defense studies as directed by higher authority and provide contracted expertise in support of all JIAMDO analytical and requirements management activities. Execute DepSecDef and JROC directed tasking for non-kinetic and kinetic layered defense modeling. Continue support to Chairman’s Net Assessment, Joint Military Net Assessment, Comparative Area Study and OSD Policy using analysis and study findings.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Net increase of \$2.3M from FY 2019 to FY 2020 is due to realignment of remaining JDEP resources into Black Dart. Additional funds are needed since Black Dart operations are being moved to the Eglin range, which is more expensive to utilize. Although the Eglin range costs more, it can incorporate maritime C-UAS systems along with land based systems for multi-domain testing.</p>				
Accomplishments/Planned Programs Subtotals		3.000	3.000	5.500
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
N/A				
E. Performance Metrics				
1. Document gaps, develop and substantiate hardware, software, and employment concepts.				
2. Field C-UAS capability.				

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P004 / Joint Distributed Engineering Plant			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
P004: Joint Distributed Engineering Plant	19.748	2.738	1.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.486
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains liaison offices at major CCMD locations to coordinate integration issues and requirements. In particular, JIAMDO maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Joint Distributed Engineering Plant (JDEP)	2.738	1.000	0.000
Description: The JDEP is a tool for evaluating interoperability of emerging or newly fielded systems; identifying interoperability deficiencies in existing systems; and verifying corrective actions in a controlled, repeatable environment through the use of hardware in the loop.			
FY 2019 Plans: Fund multiple, distributed test events to assess the interoperability of joint IAMD weapons systems with a focus on C-UAS capabilities to counter the emerging threat of Group 1 and 2 UAS. Continue to leverage live-fly data of the Black Dart technology demonstrations to develop scenarios that replicate the future operational environments.			
FY 2020 Plans: In FY20, JDEP will be absorbed under the Black Dart program and will no longer execute as a stand-alone program.			
FY 2019 to FY 2020 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>	Project (Number/Name) P004 / <i>Joint Distributed Engineering Plant</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
JDEP functions will be absorbed under the Black Dart program in FY 2020.			
Accomplishments/Planned Programs Subtotals	2.738	1.000	0.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

1. Each JDEP event develops measures of effectiveness (MOE) & measures of performance (MOP) based on an eighteen month test planning and event process.
2. Complete events within schedule and budget.
3. Events provide useful data to improve air missile defense interoperability, with implemented and recommended corrective changes.
4. Events must be linked to the current approved IAMD architecture, provide joint benefit, contribute to joint interoperability, and address IAMD capability gaps.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)	Project (Number/Name) P005 / Nimble Fire
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
	P005: <i>Nimble Fire</i>	81.769	16.000	14.000	28.226	-	28.226	21.036	21.065	20.277	19.155	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains liaison offices at major CCMD locations to coordinate integration issues and requirements. In particular, JIAMDO maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: JIAMDO Nimble Fire	16.000	14.000	28.226
<p>Description: Nimble Fire is the Department's only IAMD operator-in-the-loop modeling and simulation capability supporting the Chairman's top five critical joint IAMD capabilities: wide-area surveillance and engagement quality tracking, pre-launch interdiction, non-kinetic post-launch capabilities, ballistic missile discrimination, and increased weapons ranges and lethality. Nimble Fire events generally explore joint IAMD capabilities and concepts in the FYDP plus two timeframe. The events combine experienced operators from the tactical communities, virtual simulations accredited by the program offices, current and future advanced capabilities, an integrated air, ballistic and cruise missile threat, and informed scenarios based on the Department's analytical agenda and CCMD operational plans. JIAMDO brings together stakeholders across the engineering, analytical, and tactical communities to assess Joint interoperability of Service and MDA programs of record, explore concepts of employment, inform tactics, techniques and procedures and concepts of operation, provide insights that help shape CCMD integrated priorities and future operational plans, and inform senior leader acquisition and requirements decisions.</p>			
FY 2019 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>	Project (Number/Name) P005 / <i>Nimble Fire</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>Execute two Nimble Fire events in support of PACOM, USFK, STRATCOM, and MDA. Nimble Fire 19A will introduce limited offensive capabilities, defense of hypersonic missile threats, offensive & defensive long-range fires, and continue Patriot & THAAD integration in support of USFK JEONS. Nimble Fire 19B will provide direct support to USAF Air Combat Command (ACC) exploring several potential tactical command & control alternatives within the USAF's 2030 air superiority concepts.</p> <p>Modeling and simulation upgrades:</p> <ol style="list-style-type: none"> 1. Include weather effects (e.g., rain and clouds) on Infrared (IR) based kill chains 2. Higher-fidelity IR signatures 3. Surface Electronic Warfare Improvement Program (SEWIP) Block 3 capability within the Aegis simulation 4. SPY-6 radar model integration into Aegis 5. Increase numbers of F-35 simulations (8 to 12+) 6. F-16 simulation with APG-83 advanced electronically scanned array (AESA) radar 7. USA and USMC long-range precision fires and kill chains 8. AARGM-ER and other long-range weapons for fighters 9. Unmanned aerial systems and unmanned surface systems teaming concepts, kill chains, and capabilities 10. Additional classified capabilities <p>FY 2020 Plans: Execute two Nimble Fire events in support of the Combatant Commands, the Services, and MDA. Implement upgrades at the Virtual Warfare Center to enable robust integration of EW, space and cyber capabilities and effects.</p> <p>Modeling and simulation upgrades:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019		
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>	Project (Number/Name) P005 / <i>Nimble Fire</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
<p>1. Develop infrastructure to support modeling of EW techniques to allow Virtual Warfare Center to quickly adapt to a large spectrum of threat capabilities – to include receiver sensitivities, more accurate antenna patterns, power-based radar models, and additional jamming techniques.</p> <p>2. Build from FY19 upgrades adding fidelity to Infrared Search and Track (IRST) kill chains; include electro-optical (EO) sensors; and directed energy weapons.</p> <p>3. Develop real-time visualization of clouds and rain within fighter out-the-window displays</p> <p>4. Integrate a Multi-platform IR sensor</p> <p>5. Secure necessary facility space, hardware, and software to capture additional data, achieve simulation capability enhancements to better visualize impacts of EW or IR capabilities</p> <p>6. Integrate higher-fidelity space representations and feasibility of using multi-level security toolsets to integrate into the facility</p> <p>7. Introduce limited cyber effects to explore integration of non-kinetic and kinetic fires</p> <p>8. Update Link-16 network modeling</p> <p>9. Dedicated Unmanned Aerial Systems (UAS) cell</p> <p>10. Additional classified capabilities</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Additional FY 2020 funds were added to NIMBLE FIRE to enhance modeling and simulation capability of EW and IR capability models.</p>				
Accomplishments/Planned Programs Subtotals		16.000	14.000	28.226
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>	Project (Number/Name) P005 / <i>Nimble Fire</i>
D. Acquisition Strategy N/A		
E. Performance Metrics <ol style="list-style-type: none">1. Perform at least two Nimble Fire events per year.2. Document capability gaps and shortfalls.3. Report Nimble Fire results and finding to the Joint Capabilities Board (JCB) to refine investment strategy.4. Other metrics are classified.		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P006 / Cruise Missile Combat Identification (CID)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
P006: Cruise Missile Combat Identification (CID)	69.620	5.500	4.998	4.655	-	4.655	4.675	4.475	4.475	4.475	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains liaison offices at major CCMD locations to coordinate integration issues and requirements. In particular, JIAMDO maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Cruise Missile Combat Identification (CID)	5.500	4.998	4.655
Description: Establishes joint requirements for emerging national and tactical combat identification technology and advocates for fielding CID technology to frontline weapon systems. Monitors, assesses, and enhances current joint air and cruise missile defense combat ID programs.			
FY 2019 Plans: Details of this program are classified and will be provided under a separate cover.			
FY 2020 Plans: Details of this program are classified and will be provided under a separate cover.			
FY 2019 to FY 2020 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>	Project (Number/Name) P006 / <i>Cruise Missile Combat Identification (CID)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
The FY 2020 requested amount, as well as the future years request, reflects un-expended resources from prior year and an associated re-phasing of resources into FY 2021 - FY 2022.			
Accomplishments/Planned Programs Subtotals	5.500	4.998	4.655

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Details of this program are classified.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)	Project (Number/Name) P007 / Homeland Defense Capability
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
P007: <i>Homeland Defense Capability</i>	0.000	0.000	15.000	20.000	-	20.000	23.000	28.000	33.000	33.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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.

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Homeland Defense Capability	-	15.000	20.000
Description: Develop Homeland Defense Capability			
FY 2019 Plans: Perform technology development efforts. Further details are reported in accordance with with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.			
FY 2020 Plans: Perform technology development efforts. Further details are reported in accordance with with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.			
FY 2019 to FY 2020 Increase/Decrease Statement: Funding increase from FY 2019 to FY 2020 reflects planned ramp-up of effort in this project. No additional funds have been added. Further details are reported in accordance with with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.			
Accomplishments/Planned Programs Subtotals	-	15.000	20.000

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>	Project (Number/Name) P007 / <i>Homeland Defense Capability</i>

D. Acquisition Strategy

N/A

E. Performance Metrics

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P008 / Joint Regional Integrated Air and Missile Defense Capability			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
P008: Joint Regional Integrated Air and Missile Defense Capability	0.000	0.000	4.600	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 Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains liaison offices at major CCMD locations to coordinate integration issues and requirements. In particular, JIAMDO maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Joint Regional Integrated Air and Defense Capability Mix (JRICM)	-	4.600	0.000
Description: Joint Regional Integrated Air and Defense Capability Mix (JRICM) will use analysis of adversary ballistic and cruise missile capabilities to determine if a layered missile defense can successfully degrade or defeat adversary missile attacks to extend base defense duration and maintain aircraft sortie generations rates. Funding will enable the study to proceed with support from the various government organizations and FFRDCs. Organizations will be funded to develop detailed analysis using modeling and simulation to study and evaluate attack operations, as well as defense capabilities in the 2023 timeframe.			
FY 2019 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019		
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / <i>Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>	Project (Number/Name) P008 / <i>Joint Regional Integrated Air and Missile Defense Capability</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
<p>Conduct studies and analysis on air and missile defense capability mix. Deliveries will include briefings summarizing the impact that layered defense capabilities have on extending defense durations and aircraft sortie generation rate. Specific details are classified and can be provided upon request.</p> <p>FY 2020 Plans: Study ends in FY 2019.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Study ends in FY 2019.</p>				
Accomplishments/Planned Programs Subtotals		-	4.600	0.000
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
N/A				
E. Performance Metrics				
Specific details are classified and can be provided upon request.				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6:</i> <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0204571J <i>I Joint Staff Analytical Support</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	15.855	22.712	16.658	9.216	-	9.216	4.216	4.216	4.214	4.214	Continuing	Continuing
P001: <i>Future Joint Force Development</i>	13.955	5.712	5.301	4.216	-	4.216	4.216	4.216	4.214	4.214	Continuing	Continuing
P003: <i>GFM DI Enterprise Force Structure (EFS) Integration</i>	1.900	17.000	11.357	5.000	-	5.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Staff Analytical Support (JSAS) family of programs provide defense analytical support capabilities for the Joint Staff and Combatant Commands (CCMDs). JSAS encompasses the developmental tools and infrastructure required to conduct analyses and formulate results to assist the Chairman in fulfilling his statutory responsibilities. Key deliverables provided by JSAS include development and implementation of Joint Concepts, wide-ranging force structure assessments, course of action development for the joint force environment, analyses and studies to aid in decision-making, and other analysis efforts to implement timely, low-cost joint force development initiatives.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	22.712	6.658	4.959	-	4.959
Current President's Budget	22.712	16.658	9.216	-	9.216
Total Adjustments	0.000	10.000	4.257	-	4.257
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program adjustment	-	-	4.257	-	4.257

Change Summary Explanation

FY 2019 Congressional add of \$10,000K to Global Force Management (GFM) for advanced wargaming.
 FY 2020 is a combination of an increase of \$5,000K to GFM DI to reflect CJCS requirement to execute global force management, and a decrease of \$743K from Joint Force Development to maintain balance at the program level.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0204571J / <i>Joint Staff Analytical Support</i>				Project (Number/Name) P001 / <i>Future Joint Force Development</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
P001: <i>Future Joint Force Development</i>	13.955	5.712	5.301	4.216	-	4.216	4.216	4.216	4.214	4.214	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Staff Analytical Support (JSAS) program supports the Chairman of the Joint Chiefs of Staff Title 10, Section 153 statutory responsibilities for the analytical support, management, development, evaluation, and implementation of joint concepts in order to advance the operational effectiveness of the future Joint Force and enable the introduction of new capabilities. The Joint Concepts program supports the Chairman's statutory responsibility to provide "best military advice" to the SECDEF and POTUS by expressing his vision for the future joint force; addressing operational problems on a 20 year horizon; identifying joint force development implications; and identifying capabilities required to mitigate and solve future joint warfighting gaps. The overarching goal is to enable investment decisions between near and far term. Concepts drive horizontal integration for force development across the Services, Combatant Commands, Defense agencies, OSD and Joint Staff. An intent of the Joint Concepts program is to support senior leader decisions in balancing today's requirements and future force requirements. Key deliverables include:

Capstone Concept for Joint Operations (CCJO) that provides the Chairman's vision for the future joint operations and establishes aim points for the development of the future Joint Force. The key theme is globally integrated operations.

Family of Joint Concepts, based on National Military Strategy (NMS), provides operational approaches to future challenges or opportunities with respect to Russia, China, Iran, North Korea, and Countering Violent Extremist Organizations in order to guide current and future Joint Force development.

Joint Concept Transition Plans, developed for each joint concept, document approaches for Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF) changes in the future Joint Force and identifies conceptual ideas that may require further exploration.

Joint Operating Environment (JOE) describes the future security environment and projects the implications of change for the Joint Force so it can anticipate and prepare for potential conflicts. The JOE articulates the circumstances that are likely to alter the security environment and explores how the intersection and interaction of these changes might impact the character of war in the future. Finally, the JOE provides a framework to think about the full range of Joint Force missions and how they may evolve over time.

The International Force Development Division's (IFDD) mission is to ensure collaboration and integration throughout the spectrum of joint force development. This ensures both the Joint Staff, its allies, and partners can invest in initiatives and conduct interoperable and seamless operations to meet the objectives in the NMS. The Multinational Capability Development Campaign (MCDC) is an initiative led by the United States Joint Staff, J-7, and partners with 22 countries and international organizations. It is designed to develop and assess non-materiel force development solutions and close capability gaps within multi-national operations.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Future Joint Force Development	5.712	5.301	4.216

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0204571J / <i>Joint Staff Analytical Support</i>	Project (Number/Name) P001 / <i>Future Joint Force Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)

Description: Current efforts focus is on updating the Capstone Concept for Joint Operations (CCJO) so it extends the strategic approach developed in the 2016 NMS out to 2035. The CCJO revision will provide a common view of the future operating environment and a vision for how the future joint force will conduct globally integrated operations. Also, the revised CCJO will identify force development implications and required capabilities to maintain U.S. competitive advantage against emerging threats out to 2035. In partnership with selected Combatant Commands and the Services, development of the Joint Operating Concepts to address strategic challenges has begun. Prospectuses were developed to initiate Supporting Joint Concepts in the areas of space, intelligence, deterrence, and operating in a CBRN environment. Study of the 2035 operating environment continues and informs understanding of military challenges associated with the common view of the future operating environment. Work with Five Eyes (FVEY) countries is focused on developing a FVEY common view of the future operating environment culminating in a report due by the end of 2018. Joint Concept for Integrated Campaigning and the Joint Concept for Operating in the Information Environment completed development and were approved by the VCJCS. Concept implementation is underway for both concepts as well as the Joint Concepts for Rapid Aggregation, Robotic and Autonomous Systems, Human Aspects of Military Operations, Access and Maneuver in the Global Commons, Preventing the Transfer and Use of Weapons of Mass Destruction, and Operational Contract Support.

FY 2019 Plans:

Execute the Chairman's Joint Concept program. Complete the Capstone Concept for Joint Operations: Joint Force 2030 approved by the CJCS. Support development of the Joint Military Net Assessment in terms of how the joint force is achieving Joint Force 2030 as input to the Chairman's Program Recommendation to the Secretary of Defense. In partnership with CCMDs, the Services and other Joint Staff directorates, complete development and obtain Vice CJCS approval of the Joint Operating Concepts for China and Iran. Provide support to U.S. Special Operations Command to develop JOC – Counter Violent Extremist Organizations and the associated transition plan. Provide support for concept sponsors developing Supporting Joint Concepts in the areas of space, intelligence, deterrence, and operating in a CBRN environment. Continue futures study to inform our understanding of the challenges of the future operating environment. Continue implementing approved Joint Concepts as described in CJCS Instruction 3010. Maintain and enhance multinational partnerships in concept development. Integrate Joint Concepts across the Joint Staff to inform DOTMLPF capability development decisions and explore new joint force adaptations and innovations posited by Joint Concepts in exercises, wargames, and experimentation.

Major events and projects in 2019 will include the International Concept Development and Experimentation Conference, a U.S. / NATO co-led event that is the annual forum of Supreme Allied Command Transformation and Joint Staff to provide a unique opportunity for the international concept development and experimentation community and stakeholders to discuss the most current issues of concept development and experimentation in the capability development process. Additional projects and events include travel to the MCDC Executive Steering Group (ESG) and National Directors' meetings to provide governance for the

FY 2018	FY 2019	FY 2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019		
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0204571J / <i>Joint Staff Analytical Support</i>	Project (Number/Name) P001 / <i>Future Joint Force Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
<p>MCDC program as well as travel in support of U.S. led projects in the areas of logistics, personnel recovery, cyber, command and control and information sharing.</p> <p>FY 2020 Plans: Execute the Chairman's Joint Concept program. Publish an update of the Joint Operating Environment 2035. Support development of the Joint Military Net Assessment in terms of how the joint force is achieving the CJCS's Capstone Concept for Joint Operations. Joint Force 2030 as input to the chairman's program recommendation to the Secretary of Defense. In partnership with the concept sponsors, CCMDs, the services and other Joint Staff directorates, complete development and obtain Vice CJCS approval of supporting Joint Concepts in the areas of space, intelligence, deterrence, and operating in a CBRN environment. Continue futures study to inform our understanding of the challenges of the future operating environment. Continue implementing approved Joint Concepts as described in CJCS Instruction 3010. Maintain and enhance multi-national partnerships in concept development. Integrate Joint Concepts across the Joint Staff to inform DOTMLPF capability development decisions and explore new joint force adaptations and innovations posited by Joint Concepts in exercises, war games, and experimentation.</p> <p>MCDC major events and projects in 2020 will include travel associated with: Identification of multi-national force development capability gaps; developing and evaluating corresponding non-material solutions; managing plans for the transition, implementation and integration of the resulting multi-national and international force development capabilities to meet present and future operational needs of the warfighter; conducting stakeholder analysis and engagements with senior civilian and military officers within the Joint Staff, Combatant Commands, Services, NATO Allied Command Transformation (ACT), other DoD activities, and multi-national partners. Additional travel to the MCDC Executive Steering Group (ESG) and National Directors' meetings is required to provide governance for the MCDC program to include: Cyber/cyber defense, mil/civ info sharing, logistics, joint personnel recovery, combined operational fires, and lethal/non-lethal actions.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease in funding for FY 2019 thru FY 2022 is a result of mandated 25% Management Headquarters Activities (MHA) reductions prescribed by the 2016 NDAA.</p>				
Accomplishments/Planned Programs Subtotals		5.712	5.301	4.216
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
N/A				

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff Date: March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0204571J / <i>Joint Staff Analytical Support</i>	Project (Number/Name) P001 / <i>Future Joint Force Development</i>
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E. Performance Metrics

Concept development performance metrics are derived from the Chairman’s Title 10 responsibilities and guidance for developing and implementing Joint Concepts. These measures and metrics inform the Department’s senior leadership by providing an azimuth for future joint force development.

Performance measure 1 – Joint Concepts were developed to examine military challenges and propose innovative joint solutions and associated capabilities in support of defense needs and priorities.

Metric: Joint Concepts align and inform the National Military Strategy, informed by rigorous futures analysis. The Joint Concepts Program resulted in relevant and timely advocacy among operations, plans, and force development communities.

Performance measure 2 – Joint Staff provided leadership for the development of Joint Concepts in collaboration with joint and multi-national partners.

Metric: Joint Concepts governance system supports joint force development recommendations to the CJCS to support his provision of “best military advice” to the President and other national leaders. Ideas and solutions are rigorously and objectively evaluated within a joint and multinational context. Joint Concepts are continually monitored to ensure consistency, relevancy, and utility throughout their life cycle.

Performance measure 3 – Implement Joint Concepts.

Metric: Transition plans promote informed decisions for joint force development that leverage, integrate or inform related net assessments, DOTMLPF capability development programs, and innovative ideas for exploration for maximum efficiency and effectiveness.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0204571J / Joint Staff Analytical Support				Project (Number/Name) P003 / GFM DI Enterprise Force Structure (EFS) Integration			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
P003: GFM DI Enterprise Force Structure (EFS) Integration	1.900	17.000	11.357	5.000	-	5.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Global Force Management (GFM) data initiative Enterprise Force Structure (EFS) effort provides the next steps for GFM mission application enhancements required to balance global force demand against available military force. This complex task requires technologies that provide integrated information obtained by linking force structure quantitative data (derived from the GFM organizational servers) to qualitative data of Capability, Readiness, Availability and Employment/Location data (C.R.A.E.) resident in GFM mission applications and associated data bases. The Joint Staff is responsible for GFM allocation and will employ a strategy for efficiently providing Enterprise Force Structure (EFS) data utility.

DoD must meet national military objectives that range from large force scenarios to small-scale activities. Our adversaries demonstrate the ability to readily transition from non-kinetic to kinetic effects. Consequently, Information Technology (IT) superiority, capabilities, and recognition of associated vulnerabilities are an operational imperative. Yet, warfighters, strategic planners and GFM decision makers are unable to exchange information in a manner that rapidly and accurately enables force sourcing activities to support SecDef decisions. The Joint Staff is mandated to utilize the Service's organizational server EFS data to enhance managing, assessing, and displaying the health and worldwide disposition of U.S. Forces. Key deliverables include incrementally developed, operationally realistic capability enhancements focused on resource-informed planning and GFM sourcing functionality required by numerous Joint Staff requirements documents.

The Joint Staff Analytical Support (JSAS) enterprise force structure data integration efforts enables Project ORION: a Global Laydown Server and a Joint Force Capabilities Catalog along with functional applications that support a global visibility capability. This capability enhances resource-informed planning, global force management and joint deployment. Global visibility capability also supports future force integration and concept implementation needed to support timely and dynamic response to Combatant Commanders' contingency requirements. Project ORION creates a technical environment that enables rapid integration of the JOPES replacement with remaining GFM data that supports planning and execution of U.S. Military Operations. Project Orion provides operational force structure and the means to allocate and attach units. This capability is the cornerstone for fulfilling the CJCS-directed requirement to integrate force planning, support planning, and deployment planning and execution of military operations. The ORION environment supports all variants of planning and execution processes by providing portal access to authoritative data aggregated in the Global Laydown Servers and associated display of force capabilities, readiness, employment, and availability of the force. This is a cost-effective yet full spectrum approach to support and assist the Chairman in fulfilling his statutory responsibilities while improving current and future joint force management.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: GFM Data Initiative (GFM DI) Enterprise Force Structure Integration (EFS)	17.000	11.357	5.000

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0204571J / <i>Joint Staff Analytical Support</i>	Project (Number/Name) P003 / <i>GFM DI Enterprise Force Structure (EFS) Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Description: The GFM DI EFS integration effort requires RDT&E funds to operationalize force structure data from the service's Organizational Servers to actual forces for employment within the purview of allocation and Joint command and control. This GFM DI effort within the Joint Staff Analytical Support (JSAS) family of programs will immediately streamline the SECDEFs "Forces for Unified Commands" memorandum Assignment Tables. RDT&E efforts for assignment and apportionment functions ended in FY 2015 with the declaration of Full Operation Capability (FOC) for the Automated Global Force Management Tool. GFM DI planned milestones must be met to enable a global visibility capability. GFM applications managed by the Joint Staff are used by the JSAS family of programs.</p> <p>FY 2019 Plans: Specific RDT&E work will focus on efforts to implement timely, low-cost initiatives and Global Force Management (GFM) focused tools delivering a global visibility of the disposition of DoD forces on an operational enterprise. This supports the preferred munitions and engineering and cross-servicing arrangements.</p> <p>FY 2020 Plans: Specific RDT&E work will focus on the development and fielding of specific functional capability applications resident in the ORION environment, and riding on the Global Laydown Server, to meet the CJCS decision support requirements for full operating capability. These include: Force Element Inventory – Predictive Analysis Tool, Preferred Munitions Synchronization Tool, Readiness Synchronization Tool, Constellation Tool, and the TPFDD Visualization Tool.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Net funding decrease from FY19 to FY20 reflects project nearing full operational capability.</p>			
Accomplishments/Planned Programs Subtotals	17.000	11.357	5.000

<p>C. Other Program Funding Summary (\$ in Millions) N/A</p> <p>Remarks</p> <p>D. Acquisition Strategy N/A</p> <p>E. Performance Metrics Success of the JSAS enterprise force integration and ultimate global visibility capability provided by Project ORION and are measured by the following: (1) Meet initial operational capability providing decision-making information for policy-makers and Combatant Commanders.</p>

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0204571J / <i>Joint Staff Analytical Support</i>	Project (Number/Name) P003 / <i>GFM DI Enterprise Force Structure (EFS) Integration</i>

- (2) Reduce the manual process of assembling Capability, Readiness, Availability, Employment (CRAE) data.
- (3) Services, CCMDs, Joint Staff and OSD are be able to efficiently manage (collect and analyze) force generation data supporting joint planning and GFM in far less time than the current process, and with an authoritative common view of the sourcing-to-employment tracking of forces.
- (4) Enables rapid information generation when making time-sensitive decisions and allows Joint Planners to inculcate force structure data into the GFM sourcing solution generation and deployment planning, execution, and distribution processes.
- (5) Meet full operating capability by the end of FY 2020 for GFM Allocation and senior-level decision support functionality.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0303166J <i>I Support to Information Operations (IO) Capabilities</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	35.136	0.673	0.652	0.553	-	0.553	0.641	0.641	0.641	0.641	Continuing	Continuing
001: <i>Joint Information Operations Range</i>	35.136	0.673	0.652	0.553	-	0.553	0.641	0.641	0.641	0.641	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Information Operations Range (JIOR) provides DoD with a closed-loop network that forms a global live-fire information operations range complex. JIOR uses encrypted tunneling over existing transport networks to conduct mission rehearsal, training, testing, concept development and experimentation in support of Information Operations (IO), Electronic Warfare (EW), Offensive Cyber Operations (OCO), Defensive Cyber Operations (DCO), Spectrum Warfare, Space Operations, and Special Operations Forces mission areas in a realistic threat representative environment. JIOR provides the capability to train and certify Cyber Mission Forces on the full spectrum of cyber weapons/capabilities without risk of observation or fratricide. JIOR is unique within the Department of Defense and is accredited by DIA for operations at Unclassified through Top Secret-Special Compartment Information (TS-SCI) in a Multiple Independent Levels of Security (MILS) environment. JIOR is approved for use by Special Access Programs (SAP), Special Access Required Programs (SAR), and for Special Technical Operations (STO). JIOR provides Combatant Commands, Services and Agencies (C/S/A's) and key allied partners the ability to test deployment and collaboratively gain insights into advanced cyberspace and Electronic Warfare (EW) capabilities under current and future operational environments. JIOR integrates available cyberspace ranges with the training/test audience providing access to low density/high demand test and training resources including critical infrastructure, cyber targets, internet traffic, and opposing forces. JIOR supports Presidential policy and CJCS mandates for training, certification, and recertification of 6000+ cyber mission forces and DoD/Interagency cyber vulnerability assessments. C/S/A's conduct hundreds of mission rehearsal, training, testing, and experimentation events on the JIOR annually.

B. Program Change Summary (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.673	0.652	0.650	-	0.650
Current President's Budget	0.673	0.652	0.553	-	0.553
Total Adjustments	0.000	0.000	-0.097	-	-0.097
• 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	0.000	0.000			
• Program adjustment	-	-	-0.097	-	-0.097

Change Summary Explanation

Project level funding reflects minor program adjustment to maintain balance at the program level.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0303166J / Support to Information Operations (IO) Capabilities				Project (Number/Name) 001 / Joint Information Operations Range			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
001: Joint Information Operations Range	35.136	0.673	0.652	0.553	-	0.553	0.641	0.641	0.641	0.641	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Information Operations Range (JIOR) provides DoD with a closed-loop network that forms a global live-fire information operations range complex. JIOR uses encrypted tunneling over existing transport networks to conduct mission rehearsal, training, testing, concept development and experimentation in support of Information Operations (IO), Electronic Warfare (EW), Offensive Cyber Operations (OCO), Defensive Cyber Operations (DCO), Spectrum Warfare, Space Operations, and Special Operations Forces mission areas in a realistic threat representative environment. JIOR provides the capability to train and certify Cyber Mission Forces on the full spectrum of cyber weapons/capabilities without risk of observation or fratricide. JIOR is unique within the Department of Defense and is accredited by DIA for operations at Unclassified through Top Secret-Special Compartment Information (TS-SCI) in a Multiple Independent Levels of Security (MILS) environment. JIOR is approved for use by Special Access Programs (SAP), Special Access Required Programs (SAR), and for Special Technical Operations (STO). JIOR provides C/S/A's and key allied partners the ability to test deployment and collaboratively gain insights into advanced cyberspace and Electronic Warfare (EW) capabilities under current and future operational environments. JIOR integrates available cyberspace ranges with the training/test audience providing access to low density/high demand test and training resources including critical infrastructure, cyber targets, internet traffic, and opposing forces. JIOR supports Presidential policy and CJCS mandates for training, certification, and recertification of 6000+ cyber mission forces and DoD/Interagency cyber vulnerability assessments. C/S/A's conduct hundreds of mission rehearsal, training, testing, and experimentation events on the JIOR annually.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Joint Information Operations Range	0.673	0.652	0.553
Description: The Joint Information Operations Range (JIOR) is a closed-loop network that forms a live-fire, distributed range utilizing encrypted tunneling to conduct training, testing, and experimentation in a threat representative environment to support Cyberspace and Electronic Warfare mission areas. This project is 100 percent cyber.			
FY 2019 Plans: Operate and sustain JIOR developmental baseline network (the TICnet) and Joint Test & Integration Lab (JTIL). These assets are used to test & integrate new networking technologies/hardware/software that will be used on the JIOR. The assets are also used for off-net troubleshooting and test of new JIOR network configurations in support of configuration control and cybersecurity prior to being deployed on the operational JIOR.			
FY 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0303166J / <i>Support to Information Operations (IO) Capabilities</i>	Project (Number/Name) 001 / <i>Joint Information Operations Range</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Continue testing and evaluating new, cutting edge technologies and refining networking configurations for optimization of the JIOR. Refine network automation strategy.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> FY 2020 project level funding decrease reflects minor program adjustment to maintain balance at the program level.			
Accomplishments/Planned Programs Subtotals	0.673	0.652	0.553

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The metrics below reflect JIOR research and development goals to test newly available hardware and software (including automation software) that supports selection of a modernized network architecture for the future JIOR.

1. Reduction in network configuration/reconfiguration time for use/reuse of DoD designated cyber ranges and available capability providers due to JIOR modernization and technology insertion.
2. Estimated man-hours saved due to transforming manual integration of ranges, capability providers and users to automated integration.
3. Sufficient capacity & agility to support Cyber Mission Forces force development and systems cybersecurity assessments & testing (outcomes).
4. Improved rapid response for short-notice mission rehearsal requirements from days to on-demand (outcomes).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	44.500	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
758: Joint National Training Capability (JNTC)	0.000	32.550	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
761: Joint Simulations Systems (JSS)	0.000	1.103	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
769: Joint Knowledge Development & Distribution Capability (JKDDC)	0.000	4.168	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
701: Air Force Joint National Training Capability (JNTC)	0.000	2.964	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
772: Navy Joint National Training Capability (JNTC)	0.000	3.715	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

For FY 2019 and beyond data, please see PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.

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. 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)
- Air Force JNTC
- Navy JNTC

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0804767J I <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA</i>	
<p>JNTC: The mission of the Joint National Training Capability program is to advance joint capabilities and interoperability by concentrating on emerging joint training requirements through training experiences using a managed set of globally distributed capabilities and activities. The program resources Service and Special Operations Forces joint training that improves interoperability and realism of tactical and operational joint training between the Services and USSOCOM. JNTC enables joint training for Combatant Commands and Services by developing relevant joint training content and ensuring global distributed access. JNTC 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 focuses efforts on improving, rather than consuming readiness and creating a ready surge force consistent with Chairman's guidance.</p> <p>JSS: The Joint Simulation System, consisting of the Joint Theater Level Simulation and the Joint Conflict and Tactical Simulation, provides a low cost, distributed or deployable, web-based joint training capability with a small technical and operator footprint. 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 intent is to maintain a capability to share simulation environments with coalition partners by continuing limited investments ensuring Joint Theater Level Simulation and Joint Conflict and Tactical Simulation remain relevant providing reliable, low-cost, small footprint, distributed, and deployable joint training solutions.</p> <p>JKDDC: Joint Knowledge Development & Distribution Capability (JKDDC) Joint Knowledge Online (JKO) is the program of record for online joint training that implements and operationalizes the OSD training transformation JKDDC. JKO directly supports the CE2T2 program by developing, delivering, tracking, reporting, and supporting online training for Combatant Command exercises; Combatant Command required training; doctrinally based joint operations core curriculum; multinational, coalition, interagency training; OSD required training (externally funded); and administration of the Senior Enlisted Joint Professional Military Education program. JKO expends RDT&E funding for leading edge technology review, market research, and integration to directly enhance various aspects of the training capability required to support Combatant Commanders, CE2T2 program goals and objectives, and the Chairman's training guidance. JKO satisfies all requirements necessary to provide CE2T2 stakeholders with a distributed learning capability and access to web-based training content, learning resources, and distributed online training tools.</p> <p>Air Force JNTC: Air Force JNTC funding provides a focused upgrade to develop models for space-based and cyber capabilities for integration into the Joint Live, Virtual, and Constructive (JLVC) environment. Air Force supports development of cross-domain solutions that enable the integration of systems with disparate security requirements which significantly increases the training audience to additional joint and coalition participants. Additionally, the Air Force supports the integration of tactical models into the virtual environment.</p> <p>Navy JNTC: These funds enable Navy to develop unique maritime capabilities that integrate JLVC elements into a seamless joint training environment. 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.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0804767J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	44.500	0.000	0.000	-	0.000
Current President's Budget	44.500	0.000	0.000	-	0.000
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

COCOM Exercise Engagement and Training Transformation (CE2T2) transferred to The Joint Staff in FY 2018 in PE 0804767J from 0804767D8Z. Prior year FY 2017 data will be reported by OSD P&R.

Funding transferred from PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA to PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA beginning FY 2019 and out to properly align CE2T2 RDT&E funding to a Non-MHA PE similar to the O&M appropriation. For FY 2019 and beyond data, please see R-2 for PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6				R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA				Project (Number/Name) 758 / Joint National Training Capability (JNTC)				
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
758: Joint National Training Capability (JNTC)	0.000	32.550	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

COCOM Exercise Engagement and Training Transformation (CE2T2) transferred to the Joint Staff in FY 2018 in PE 0804767J from 0804767D8Z.

For FY 2019 and beyond data, please see PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.

A. Mission Description and Budget Item Justification

Investment in the Joint National Training Capability (JNTC) program enables Service and Combatant Commands to train as they operate. The funding requested continues to modernize joint training capabilities into a single integrating architecture aligned to DoD Chief Information Officer IT mandates. 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. Momentum must be maintained to deliver operationally relevant training environments and respond to changes in global security landscape and the warfighters' operational environment. JNTC enables the Department of Defense to be responsive to the warfighters' changing operational concepts, threat environments, and best practices. In FY 2018, this investment continues expanding capabilities and 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 2018	FY 2019	FY 2020
Title: Joint National Training Capability (JNTC)	32.550	0.000	0.000
Description: JNTC provides the technical standards, architecture (blueprint), and development processes required to integrate joint training programs. The Joint Training Environment (JTE) is envisioned as an integrated network of training sites and nodes with accessible joint training and force development services. By leveraging existing training programs and initiating programmatic actions, JNTC develops credible opposing force capabilities and expanded access to assets typically unavailable to the training audience. These capabilities enhance the integration of joint training objectives into Service training events. RDT&E funding supports the technical integration of Joint and Service modeling and simulation training capabilities. The resulting capabilities enable selective aggregation of training audiences at the Combatant Command, Joint Task Force, and Component Command headquarter levels. The funding increases warfighter access to semi-automated training enablers within the Joint Training Synthetic Environment through web-based, modular cloud capabilities.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	Project (Number/Name) 758 / Joint National Training Capability (JNTC)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>The Adaptive Training Capability Program (ATCP) is a subordinate component of JNTC that enables the joint force to be responsive to the warfighters' changing operational concepts, threat environments, and best practices. ATCP funding advances joint capabilities and interoperability by addressing emerging joint training requirements through a managed set of globally distributed joint live, virtual, and constructive enablers. ATCP funding promotes joint context to Service training programs and joint enablers supporting Combatant Command training requirements and high interest training issues identified in the Chairman's annual training guidance.</p> <p>FY 2019 Plans: Transition to PE 0804768J</p> <p>FY 2020 Plans: Transition to PE 0804768J</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Funding transferred from PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA to PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA beginning FY 2019 and out to properly align CE2T2 RDT&E funding to a Non-MHA PE similar to the O&M appropriation. For FY 2019 and beyond data, please see R-2 for PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.</p>			
Accomplishments/Planned Programs Subtotals	32.550	0.000	0.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

RDT&E development efforts are evaluated based on the performance metrics. This ensures the joint force trainer capability development effort synchronizes with warfighter requirements. Performance metrics include, but are not limited to: access, cost, realism, relevance, and technology and are 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA</i>	Project (Number/Name) 758 / <i>Joint National Training Capability (JNTC)</i>
<p>Cost – Enable the Joint Force Trainer to prepare and execute training more efficiently than current capabilities allow.</p> <p>Realism – Enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow.</p> <p>Relevance – Maintain operational relevance through adaptation to the changing operational environment.</p> <p>Technology – Sustain the training environment network through developments for distributed home station training that include modular cloud-enabled training services.</p> <p>Measures:</p> <p>Cost - Vendors provide ordered hours and projected costs remain within 10 percent of government estimates.</p> <p>Schedule - Task completions (software enhancements, bug fixes, and cyber security requirements) delivered within six months of government estimate.</p> <p>Performance - Product results, outcomes or milestones meet specified requirements and successfully pass more than 80 percent of operational assessment test cases.</p> <p>DoD Demand - Number of Commands, Services, and Agencies using Joint Staff developed training products.</p> <p>Partner Nation Demand - Number of partner nations using Joint Staff developed training products.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA					Project (Number/Name) 761 / Joint Simulations Systems (JSS)		
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
761: Joint Simulations Systems (JSS)	0.000	1.103	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

COCOM Exercise Engagement and Training Transformation (CE2T2) transferred to the Joint Staff in FY2018 in PE 0804767J from 0804767D8Z.

In FY 2019, this project is merged with 758: Joint National Training Capability (JNTC)

For FY 2019 and beyond data, please see PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.

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 develop the existing Joint Conflict and Tactical Simulation (JCATS) and Joint Theater Level Simulation (JTLS) to remain relevant and responsive to 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 the cloud-enabled modular environment.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Joint Simulation System (JSS)	1.103	0.000	0.000
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 joint live, virtual, and constructive baseline of training capabilities. They represent a set of training enablers, and “certified systems” that are interoperable and acceptable for use 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.			
FY 2019 Plans: Transition to PE 0804768J			
FY 2020 Plans: Transition to PE 0804768J			
FY 2019 to FY 2020 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	Project (Number/Name) 761 / Joint Simulations Systems (JSS)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Funding transferred from PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA to PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA beginning FY 2019 and out to properly align CE2T2 RDT&E funding to a Non-MHA PE similar to the O&M appropriation. For FY 2019 and beyond data, please see R-2 for PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.			
Accomplishments/Planned Programs Subtotals	1.103	0.000	0.000

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

N/A

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 synchronize with warfighter requirements. Performance metrics include, but are not limited to: time, cost, realism, and fidelity and are defined below.

Time – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training more timely than current capabilities allow?

Cost – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training more efficiently than current capabilities allow?

Realism – Will the effort enable the Joint Force Trainer (subject matter expert) 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 (subject matter expert) to create more detailed capabilities in the training environment than current capabilities allow?

Measures:

Cost - Vendors provide ordered hours and projected costs remain within ten percent of government estimates.

Schedule - Task completions (software enhancements, bug fixes, and cyber security requirements) delivered within six months of government estimate.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA</i>	Project (Number/Name) 761 / <i>Joint Simulations Systems (JSS)</i>
<p>Performance - Product results, outcomes or milestones meet specified requirements and successfully pass more than 80 percent of operational assessment test cases. Joint Theater Level Simulation (JTLS) and Joint Conflict and Tactical Simulation (JCATS) availability of use in support of all training activities remains above 95 percent.</p> <p>DoD Demand - Number of exercises/events supported by JTLS and JCATS.</p> <p>Partner Nation Demand - Number of partner nations using Joint Staff developed training products (active foreign military sales cases).</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA				Project (Number/Name) 769 / Joint Knowledge Development & Distribution Capability (JKDDC)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
769: Joint Knowledge Development & Distribution Capability (JKDDC)	0.000	4.168	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

COCOM Exercise Engagement and Training Transformation (CE2T2) transferred to the Joint Staff in FY2018 in PE 0804767J from 0804767D8Z.

For FY 2019 and beyond data, please see PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.

A. Mission Description and Budget Item Justification

Joint Knowledge Online (JKO) is DoD's authoritative source for online joint training. JKO is 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 program goals, CJCS high interest training issues, Joint Staff training priorities, and JKO stakeholders (Combatant Commands, Services, and Combat Support Agencies, interagency, and multinational) 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:

1. 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, track and 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.
2. 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 as collective staffs, based on SGST development and implementation throughout the joint training enterprise. JKO integration of SGST simulation exercise scenarios and prerequisite JKO courses enable blended learning training support to large-scale, collective training exercises that augment the joint event learning cycle and support meeting Combatant Commander exercise objectives.
3. 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 phones and tablets). JKO mobile application extends access to training courses and learning resources to personal use of mobile phones and tablets.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	Project (Number/Name) 769 / Joint Knowledge Development & Distribution Capability (JKDDC)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Title: Joint Knowledge Development & Distribution Capability (JKDDC)</p> <p>Description: Joint Knowledge Online (JKO) advance technology initiatives primarily include the JKO Learning Content Management System (LCMS) application, Small Group Scenario Trainer (SGST) desktop modeling, simulation-based training capability, and mobile courseware training applications. These capabilities increase access to, and facilitate the training and preparation of, hundreds 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. JKO LCMS development and enhancements are required to develop, host, deliver, track, report and support students' completions, progress and survey results more effectively and efficiently. C/JTF "battle staffs" will be better trained, as individuals and as staffs, 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 for DoD personnel.</p> <p>FY 2019 Plans: Transition to PE 0804768J</p> <p>FY 2020 Plans: Transition to PE 0804768J</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Funding transferred from PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA to PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA beginning FY 2019 and out to properly align CE2T2 RDT&E funding to a Non-MHA PE similar to the O&M appropriation. For FY 2019 and beyond data, please see R-2 for PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.</p>	4.168	0.000	0.000
Accomplishments/Planned Programs Subtotals	4.168	0.000	0.000

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

N/A

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 and are defined below:

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA</i>	Project (Number/Name) 769 / <i>Joint Knowledge Development & Distribution Capability (JKDDC)</i>

Time – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training more timely than current capabilities allow?

Cost – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training more efficiently than current capabilities allow?

Realism – Will the effort enable the Joint Force Trainer (subject matter expert) 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 (subject matter expert) to create more detailed capabilities in the training environment than current capabilities allow?

Measures:

Identify, develop, test and implement 15 or more cyber-security, operational, and functional JKO LCMS requirements.

Identify, develop, test and implement 12 or more cyber-security, operational, and functional JKO SGST requirements.

Identify, develop, test and implement six or more cyber-security, operational, and functional JKO mobile App requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA					Project (Number/Name) 701 / Air Force Joint National Training Capability (JNTC)		
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
701: Air Force Joint National Training Capability (JNTC)	0.000	2.964	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

COCOM Exercise Engagement and Training Transformation (CE2T2) transferred to the Joint Staff in FY2018 in PE 0804767J from 0804767D8Z.

For FY 2019 and beyond data, please see PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.

A. Mission Description and Budget Item Justification

The Air Force JNTC funding provides a focused upgrade to develop models of space-based capabilities for integration into the joint live, virtual, and constructive environment. The Air Force supports development of cross-domain solutions that enable the integration of systems with disparate security requirements which significantly increases the training audience to joint and coalition participants.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Air Force Joint National Training Capability (JNTC)	2.964	0.000	0.000
Description: Air Force continues to develop joint enablers that drive realistic/effective training by producing a deployable Electronic Warfare training capability for Europe which replicates highly advanced surface-to-air missiles and advanced anti-aircraft artillery threats for U.S. and coalition forces. Additionally, Air Force assists in the engineering, development, and deployment of joint cross-domain information sharing enterprise network architecture which enables 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 JLVC federation of models.			
FY 2019 Plans: Transition to PE 0804768J			
FY 2020 Plans: Transition to PE 0804768J			
FY 2019 to FY 2020 Increase/Decrease Statement: Funding transferred from PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA to PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA beginning FY 2019 and out to			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	Project (Number/Name) 701 / Air Force Joint National Training Capability (JNTC)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
properly align CE2T2 RDT&E funding to a Non-MHA PE similar to the O&M appropriation. For FY 2019 and beyond data, please see R-2 for PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.			
Accomplishments/Planned Programs Subtotals	2.964	0.000	0.000

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

N/A

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 (subject matter expert) capabilities synchronized with warfighter requirements. Performance metrics include, but are not limited to: time, cost, realism, and fidelity and are defined below.

Time – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training more timely than current capabilities allow?

Cost – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training more efficiently than current capabilities allow?

Realism – Will the effort enable the Joint Force Trainer (subject matter expert) 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 (subject matter expert) 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA</i>	Project (Number/Name) 701 / <i>Air Force Joint National Training Capability (JNTC)</i>

Space: A fully operational GPS environment which allows space operators to actively participate in distributed mission operations-Space, live, virtual and constructive missile warning, GPS disruption and infrared special events. Also develop models that 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 threats fielded with potential adversary maneuver elements. A plan for integrating Army ground instrumentation within the Air Force run Polygon Range complex.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA					Project (Number/Name) 772 / Navy Joint National Training Capability (JNTC)		
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
772: Navy Joint National Training Capability (JNTC)	0.000	3.715	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

COCOM Exercise Engagement and Training Transformation (CE2T2) transferred to the Joint Staff in FY2018 in PE 0804767J from 0804767D8Z.

For FY 2019 and beyond data, please see PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.

A. Mission Description and Budget Item Justification

These funds enable the Navy to develop unique maritime capabilities that integrate joint live, virtual and constructive 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 2018	FY 2019	FY 2020
Title: Navy Joint National Training Capability (JNTC)	3.715	0.000	0.000
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 technologies and methods that provide a crucial technology-based foundation to all JNTC Training Transformation (T2), JLVC Federation, and Combatant Commanders exercise and engagement operations.			
FY 2019 Plans: Transition to PE 0804768J			
FY 2020 Plans: Transition to PE 0804768J			
FY 2019 to FY 2020 Increase/Decrease Statement: Funding transferred from PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA to PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA beginning FY 2019 and out to			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	Project (Number/Name) 772 / Navy Joint National Training Capability (JNTC)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
properly align CE2T2 RDT&E funding to a Non-MHA PE similar to the O&M appropriation. For FY 2019 and beyond data, please see R-2 for PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) – Non MHA.			
Accomplishments/Planned Programs Subtotals	3.715	0.000	0.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

RDT&E development efforts are evaluated based on performance metrics. This ensures the Joint Force Trainer (subject matter expert) capabilities developed synchronizes with warfighter requirements. Performance metrics include, but are not limited to: time, money, realism, and fidelity and are defined below.

Time – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training more timely than current capabilities allow?

Cost – Will the effort enable the Joint Force Trainer (subject matter expert) 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 (subject matter expert) 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 (subject matter expert) to create more detailed capabilities in the training environment than current capabilities allow?

Measures:

Produce one Navy Training Baseline (NTB) software release to include documentation.

Design and implement upgrades to Joint Semi-Automated Forces (JSAF) consistent with approved requirements and contractual requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA</i>	Project (Number/Name) 772 / <i>Navy Joint National Training Capability (JNTC)</i>
<p>Document the effects of JSAF capabilities (robustness) and stability.</p> <p>Design, implement, test, and integrate NTB enhancements in accordance with requirements.</p> <p>Continuously update the common operational picture during large scale JLVC exercises.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0804768J I COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	42.653	40.073	-	40.073	39.209	41.042	41.044	41.041	Continuing	Continuing
758: Joint National Training Capability (JNTC)	0.000	0.000	29.584	27.201	0.000	27.201	27.775	30.703	30.705	30.702	Continuing	Continuing
769: Joint Knowledge Development & Distribution Capability (JKDDC)	0.000	0.000	1.126	1.608	0.000	1.608	1.108	1.108	1.108	1.108	Continuing	Continuing
701: Air Force Joint National Training Capability (JNTC)	0.000	0.000	2.917	2.869	0.000	2.869	2.869	2.869	2.869	2.869	Continuing	Continuing
772: Navy Joint National Training Capability (JNTC)	0.000	0.000	3.260	3.041	0.000	3.041	3.042	3.042	3.042	3.042	Continuing	Continuing
773: Joint Interoperability Division (JID)	0.000	0.000	1.845	1.419	0.000	1.419	1.095	0.000	0.000	0.000	Continuing	Continuing
774: USMC Joint National Training Capability (JNTC)	0.000	0.000	0.921	0.935	0.000	0.935	0.320	0.320	0.320	0.320	Continuing	Continuing
775: Advanced Distributed Learning (ADL)	0.000	0.000	3.000	3.000	0.000	3.000	3.000	3.000	3.000	3.000	Continuing	Continuing

Note

For FY 2018 and prior year data, please see PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA.

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. 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 Knowledge Development & Distribution Capability (JKDDC)
- Air Force Joint National Training Capability (JNTC)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0804768J I <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	
<ul style="list-style-type: none"> - Navy Joint National Training Capability (JNTC) - Joint Interoperability Division (JID) - Marine Corps Joint National Training Capability (JNTC) - Advanced Distributed Learning (ADL) <p>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 using a managed set of globally distributed capabilities and activities. The program resources Service and Special Operations Forces joint training to improve interoperability and create realistic tactical and operational joint training. JNTC enables joint training for Combatant Commands and Services by developing joint training content and ensuring global distributed access. JNTC enabling capabilities support Services and USSOCOM requirements to provide trained and ready forces in support of Combatant Command operational requirements. This program focuses efforts on improving readiness and create a ready surge force consistent with Chairman's guidance.</p> <p>JKDDC: Joint Knowledge Development & Distribution Capability (JKDDC) Joint Knowledge Online (JKO) is the program of record for online joint training that implements and operationalizes the OSD training transformation JKDDC. JKO directly supports the CE2T2 program by developing, delivering, tracking, reporting, and supporting online training for Combatant Command exercises; Combatant Command required training; doctrinally based Joint Operations Core Curriculum; multinational, coalition, interagency training; OSD required training; and administration of the Senior Enlisted Joint Professional Military Education program. JKO expends RDT&E funding for leading edge technology review, market research, and integration to directly enhance various aspects of the training capability required to support Combatant Commanders, CE2T2 Program Goals and Objectives, and the Chairman's training guidance. JKO satisfies all requirements necessary to provide CE2T2 stakeholders with a distributed learning capability and access to web-based training content, learning resources, and distributed online training tools.</p> <p>Air Force JNTC: 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, and Constructive (JLVC) environment. Air Force supports development of cross-domain solutions that enable the integration of systems with disparate security requirements which significantly increases the training audience to additional joint and coalition participants. Additionally, the Air Force supports the integration of tactical models into the virtual environment.</p> <p>Navy JNTC: These funds enable 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 program develops cross-domain architectures for U.S. and coalition forces and ensures sister service modeling/simulation and instrumentation efforts follow a unified standard.</p> <p>JID: Joint Interoperability Division (JID) supports 35 annual schoolhouse interoperability courses and up to six CAPSTONE Joint Interface Control Officer (JICO) courses tied to various Combatant Command (CCMD) joint exercises. JID trains CCMD, Services and partner nations' operations center personnel on interoperability planning</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>
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tasks required during contingencies and exercises in emerging mission areas such as joint fires, net enabled weapons, remotely piloted aircraft, integrated air and missile defense, and contested operations including secure internet with Link-16/TDL equipped major weapon systems and smart bombs.

Marine Corps JNTC: These funds provide USMC stability and risk reduction to a variety of ongoing joint efforts focused on improving the fidelity and realism of training simulation systems that prepare Marine Air Ground Task Force (MAGTF) units for deployment in support of CCMD operations. In support of the Commandant's planning guidance, the Marine Corps will continue to improve performance and support of the MAGTF Tactical Warfare Simulation in the areas of the JLVC-Multi-Resolution Federation (MRF) Bridge, common database terrain data ingestion, and JLVC interoperability. It also provides a single source training environment capability enabling users to select single or multiple play boxes (terrain data sets) for training simulation systems. In addition to developing an exercise planning, design, implementation, execution, and control tool, it also enhances pattern of life and indigenous population modular service enabling exercise designers' ability to rapidly build new scenarios and incorporate human geography elements into training scenarios.

ADL: The Advanced Distributed Learning (ADL) initiative supports innovation and provides policy oversight to help the Services, Joint Staff, and partner agencies deliver training and education more efficiently and cost effectively. ADL provides policy oversight and coordination across DoD, coalition partners, and other Federal agencies for distributed learning. This oversight supports interagency interoperability and promotes personnel readiness, ensuring the right people receive the right training at the right time.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	42.940	40.073	-	40.073
Current President's Budget	0.000	42.653	40.073	-	40.073
Total Adjustments	0.000	-0.287	0.000	-	0.000
• Congressional General Reductions	-	-0.287			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

Funding transferred from PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA to PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA beginning FY 2019 and beyond to properly align CE2T2 RDT&E funding to a Non-MHA PE. For FY 2018 and prior year data, please see R-2 for PE 0804767J / COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA.

FY 2019 Congressional reduction of \$287K taken for FFRDC reductions (Section 8024).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 758 / Joint National Training Capability (JNTC)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
758: Joint National Training Capability (JNTC)	0.000	0.000	29.584	27.201	0.000	27.201	27.775	30.703	30.705	30.702	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Investment in the Joint National Training Capability (JNTC) program enables Service and Combatant Commands to train as they operate. The requested funding continues to modernize joint training capabilities into a single integrating architecture aligned to DoD Chief Information Officer IT mandates. Funding supports development of cloud-enabled modular training application services within an Open Systems Architecture (OSA). JNTC focuses on delivering operationally relevant training environments and respond to changes in the global security landscape and the warfighter's operational environment. JNTC enables the Department of Defense to be responsive to the warfighters' changing operational concepts, threat environments, and best practices. 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 2018	FY 2019	FY 2020
Title: Joint National Training Capability (JNTC)	-	29.584	27.201
<p>Description: JNTC provides the technical standards, architecture, and development processes required to integrate/link joint training programs. Funding supports the technical integration of Joint and Service models and simulations with the Joint, Live, Virtual, Constructive (JLVC) training capabilities. The capabilities enable aggregation of training audiences at the Combatant Command, Joint Task Force, and Component Command headquarter levels. The funding also supports modernization of the Joint Training Environment (JTE) through a Modular Open Systems Architecture (MOSA) approach to include a cloud enabled web accessible Joint Training Tool (JTT) that supports all phases of an exercise (planning, execution, and AAR). JTT will increase warfighter access to semi-automated training enablers within the Joint Training Synthetic Environment (JTSE).</p> <p>FY 2019 Plans: FY 2019 Plans:</p> <ol style="list-style-type: none"> 1. Continue to modernize the information technology architecture supporting the delivery of joint training capabilities and services. 2. Continue to develop the joint simulation service. Coordinate a "proof of concept" first use of the simulation service, and execute "proof of concept" use of JTT design and planning services supporting an exercise Joint Exercise Life Cycle (JELC). Exercise planning begins in FY2019 and continues through the exercise, which occurs in FY2020. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	Project (Number/Name) 758 / <i>Joint National Training Capability (JNTC)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
3. Design, develop, and integrate tailored architectures, adaptive technology, and plans for Joint Staff, Combatant Commander, and Service training events/exercises.			
4. Add capability to the Joint Training Synthetic Environment (JTSE) aligned to supporting Global Integrated Exercises (GIE) and the ability to validate concepts while exercising operational and global campaign plans.			
5. Develop functional capabilities aligned with the Joint Training Synthetic Environment (JTSE) modeling and simulation roadmap (2019), available at: https://jsportal.sp.pentagon.mil/sites/J7/JT/EA/MS%20Roadmap/Forms/AllItems.aspx .			
6. Enhance current joint simulation (within JLVC) to keep pace with operational environment changes.			
7. Manage the enhancements to Service-owned JLVC federates and technically integrate the broader JLVC federation following these enhancements.			
8. Oversee implementation of Director of Joint Force Development's Joint Training Technical Interoperability (JTTI) Strategy.			
FY 2020 Plans:			
1. Use JTT design and planning services as the primary tool in support of an exercise JELC.			
2. Conduct a "proof of concept" use of JTT simulation service. Continue planning transition of the JTT as the primary tool supporting all aspects of exercises.			
3. Integrate, test, and validate Service and Agency JLVC capabilities.			
4. Enhance joint simulation (within JLVC) to keep pace with operational environment changes (annual requirement).			
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease is FY 2020 funding is a result of a CE2T2 programming decision in the FY 2019 POM to accept more risk in adaptive enablers and innovation.			
Accomplishments/Planned Programs Subtotals	-	29.584	27.201

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

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
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C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy
N/A

E. Performance Metrics
RDT&E development efforts are evaluated based on the performance metrics below. This ensures the JNTC capability development effort synchronizes with warfighter requirements. Performance metrics include, but are not limited to: access, cost, realism, relevance, and technology and are 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 more efficiently 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 projected costs remain within 10 percent of government estimates.

Schedule - Task completions (software enhancements, bug fixes, and cyber security requirements) delivered within six months of government estimate.

Task Performance - Product results, outcomes or milestones meet specified requirements and successfully pass more than 80 percent of operational assessment test cases.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>				Project (Number/Name) 769 / <i>Joint Knowledge Development & Distribution Capability (JKDDC)</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
769: <i>Joint Knowledge Development & Distribution Capability (JKDDC)</i>	0.000	0.000	1.126	1.608	0.000	1.608	1.108	1.108	1.108	1.108	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 program goals, CJCS high interest training issues, Joint Staff training priorities, and JKO stakeholders (Combatant Commands, Services, Combat Support Agencies, Interagency, and multinational partners) prioritized training requirements. JKO supports a career-long joint learning continuum, joint professional military education, and tailored common training standards to Service members on tasks that are jointly executed. JKO research and development will improve all components of the Joint Content Management Architecture (JCMA) including:

1. 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. There are currently over 3.6 million registered users of the JKO LCMS.
2. 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. JKO integration of SGST simulation exercise scenarios and prerequisite JKO courses significantly enhance blended learning training support to large-scale, collective training exercises.
3. JKO mobile application training development: Development and enhancements will significantly increase availability and access of web-based joint training content on portable, hand-held platforms (e.g. cell phones and tablets).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Joint Knowledge Development & Distribution Capability (JKDDC)	-	1.126	1.608
Description: Joint Knowledge Online (JKO) advance 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 applications. These capabilities increase access to, and facilitate the training and preparation of, hundreds 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. JKO LCMS development			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	Project (Number/Name) 769 / <i>Joint Knowledge Development & Distribution Capability (JKDDC)</i>

B. Accomplishments/Planned Programs (\$ in Millions)

and enhancements are required to develop, host, deliver, track, report and support students' completions, progress and survey results more effectively and efficiently. C/JTF "battle staffs" will be better trained, as individuals and as staffs, based on SGST development and implementation throughout the joint training enterprise. JKO mobile courseware training development facilitates the global distribution of web-based joint training content on portable, hand-held platforms for DoD personnel.

FY 2019 Plans:

1. Develop, test, and deliver two JKO Learning Content Management System (LCMS) releases resulting in improved cybersecurity, and a more effective and efficient online training management application that is interoperable with DoD personnel management systems. JKO anticipates these enhancements will improve access and ease of use for the projected ~50,000 daily log-ins and ~560,000 monthly course completions by DoD personnel.

2. Develop, test, and deliver four JKO Small Group Scenario Trainer (SGST) desktop modeling and simulation application releases resulting in a more effective and efficient training capability integrated within the JKO LCMS. JKO anticipates these enhancements will improve the quality of the training experience for Combatant Command and Service exercise participants resulting in heightened preparedness for real world operations. Individual training proficiency improvement will be measured and quantified as part of the exercise design.

3. JKO will assess, refine, and continue executing a comprehensive plan to enhance the JKO mobile capability and mobile training products via Responsive Design. JKO's planned components include courseware and video conversions to portable hand-held devices while leveraging other DoD agencies, interagency, and multinational training courseware ported to the JKO. JKO anticipates the development and conversion of ~200 training courses, eBooks, Podcasts, job aids, and videos resulting in reduced cost for classroom training and thousands of hours delivered onsite and on demand to DoD personnel mobile platforms worldwide.

FY 2020 Plans:

1. Continue development of the LCMS, SGST, and JKO mobile initiatives in the FY2019 plans.

2. JKO will research, develop, test, and evaluate a virtual classroom (VClass) open source capability (Sakai) to be integrated into the JKO LCMS suite of tools for synchronous (live) and non-synchronous (video-taped) instructor led training as well as a micro learning technology (Pervasive Learning System (PERLS)), in conjunction with ADL, for content development and delivery on both the mobile and LCMS platforms. JKO's new VClass capability will provide required enhanced distributed learning (DL) much like today's universities with an expectation of student-to-instructor collaboration; student-to-student collaboration; written assignment evaluation; live instructor response and teaching; and critical thinking exercises and assignments. PERLS delivers self-regulated micro-learning training that is designed to be engaging, usable and practical, allowing individuals to quickly access

FY 2018	FY 2019	FY 2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>desired learning content whenever an opportunity arises. As DoD organizations increase training via DL opportunities to mitigate expenses due to decreased funding and personnel, the methodologies of developing and delivering DL must be cutting edge, timely and optimize the learning experience of the joint warfighter. PERLS and micro-learning provide that edge and optimization.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> FY 2020 increase was a CE2T2 programming decision in the FY 2020 POM to fund open source virtual classroom (Sakai) and micro learning technology (PERLS) research, test, development, and evaluation to keep pace with current state-of-the-art on-line collaborative training.</p>			
Accomplishments/Planned Programs Subtotals	-	1.126	1.608

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

N/A

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 and are defined below.

Time – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training more timely than current capabilities allow?

Cost – Will the effort enable the Joint Force Trainer (subject matter expert) 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 (subject matter expert) 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 (subject matter expert) 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 Learning Content Management System (LCMS) requirements.

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Identify, develop, test and implement 12 or more cybersecurity, operational, and functional JKO Small Group Scenario Trainer (SGST) requirements.

Identify, develop, test and implement 6 or more cybersecurity, operational, and functional JKO mobile application requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 701 / Air Force Joint National Training Capability (JNTC)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
701: Air Force Joint National Training Capability (JNTC)	0.000	0.000	2.917	2.869	0.000	2.869	2.869	2.869	2.869	2.869	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force JNTC funding provides a focused upgrade to develop models for space-based capabilities for integration into the joint live, virtual, and constructive environment. The Air Force supports development of cross-domain solutions that enable the integration of systems with disparate security requirements which significantly increases the training audience to additional joint and coalition participants.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Air Force Joint National Training Capability (JNTC)	-	2.917	2.869
<p>Description: Air Force continues to develop joint enablers that drive realistic/effective training in contested and degraded environments across the CE2T2 enterprise. It supports development of a capability that replicates highly advanced surface-to-air missile and anti-aircraft artillery threats to U.S. and coalition forces. Additionally, Air Force continues to build upon prior investments in the cyber and space domains by improving fidelity of synthetic environments, ability to portray and control blue, red, and neutral entities and effects, interoperability with other Service, joint, and JLVC federation models and simulations, and support of CE2T2 mission partners.</p> <p>FY 2019 Plans:</p> <ol style="list-style-type: none"> 1. Replication of advanced adversary surface-to-air missile and anti-aircraft artillery capabilities. 2. Development of new capabilities for integration of the cyber simulator environment generator and "blue" cyber effects simulation. Continue to add functionality to the ACE-IOS M&S suite. Further development to allow live space aggressor forces to interact with a virtual constructive environment replicating threats to the space environment. 3. Space simulation improvements to model improved fidelity of space entities and adversary effects, enhance exercise control and OPFOR capabilities, and improve space simulation interoperability with CE2T2 mission partners. 4. Capability to integrate live systems with constructive inputs and virtual environments. <p>FY 2020 Plans:</p> <ol style="list-style-type: none"> 1. Replication of advanced adversary surface-to-air missile and anti-aircraft artillery capabilities. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	Project (Number/Name) 701 / <i>Air Force Joint National Training Capability (JNTC)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
2. Development of new capabilities for integration of the cyber simulator environment generator and "blue" cyber effects simulation. Continue to add functionality to the ACE-IOS M&S suite. Further development to allow live space aggressor forces to interact with a virtual constructive environment replicating threats to the space environment.			
3. Space simulation improvements to model improved fidelity of space entities and adversary effects, enhance exercise control and OPFOR capabilities, and improve space simulation interoperability with CE2T2 mission partners.			
4. Capability to integrate live systems with constructive inputs and virtual environments.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Decrease is based on CE2T2 FY20 POM Panel decision.			
Accomplishments/Planned Programs Subtotals	-	2.917	2.869

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

RDT&E development efforts are evaluated based on performance metrics. This ensures the development of Air Force JNTC capabilities synchronize with warfighter requirements. Performance metrics include, but are not limited to: time, cost, realism, and fidelity and are defined below.

Time – Will the effort enable the Air Force JNTC to prepare and execute training more timely than current capabilities allow.

Cost – Will the effort enable the Air Force JNTC to prepare and execute training at a more effective and efficient cost than current capabilities allow.

Realism – Will the effort enable the Air Force JNTC to create a training environment that is closer to the real world environment than current capabilities allow.

Fidelity – Will the effort enable the Air Force JNTC to create more detailed capabilities in the training environment than current capabilities allow.

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Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	Project (Number/Name) 701 / <i>Air Force Joint National Training Capability (JNTC)</i>
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 live, virtual, constructive 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. Also enhance exercise control and OPFOR capabilities and improve space simulation interoperability with CE2T2 mission partners. Operational Forces: a prototype for a next generation tactical surface to air threat simulator emulating modern threats fielded with potential adversary maneuver elements. Also develop a capability to integrate live systems with constructive inputs and virtual environments.		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 772 / Navy Joint National Training Capability (JNTC)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
772: Navy Joint National Training Capability (JNTC)	0.000	0.000	3.260	3.041	0.000	3.041	3.042	3.042	3.042	3.042	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

These funds enable the Navy to develop unique maritime capabilities that integrate joint live, virtual, and constructive 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 2018	FY 2019	FY 2020
Title: Navy Joint National Training Capability (JNTC)	-	3.260	3.041
<p>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 technologies and methods that provide a crucial technology-based foundation that supports all JNTC training transformation, JLVC federation, and Combatant Commanders exercise and engagement operations.</p> <p>FY 2019 Plans:</p> <ol style="list-style-type: none"> 1. Research and development for current and emerging Ballistic Missile Defense (BMD) threat representation. 2. Development of new capabilities for integration with the annual Navy training baseline software release enabling the development of tactics, techniques and procedures for contested battlespace environments and ballistic missile defense. 3. Integration of air and missile defense, electronic warfare, information operations, strike warfare, ballistic missile defense, "blue" force and opposition force capabilities. 4. Deliver Navy Continuous Training Environment (NCTE) simulation for combat system and C4I stimulation training. 5. Update emerging high-end threat capabilities into JSAF. 			

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>6. Integrate virtual and blended reality into the JLVC environment.</p> <p>FY 2020 Plans:</p> <p>1. Continue FY2019 efforts.</p> <p>2. Develop improvements to architecture and representations to support the effects of GPS jamming on sensors and weapons systems in partnership with the USAF Distributed Mission Operations Center – Space (DMOC-S).</p> <p>3. Develop and engineer web based graphical user interfaces to replace all existing desktop-based applications. Migrate existing desktop environment to virtualized solution. Implement failover and load balancing for simulation FY 2020 Plans:</p> <p>1. Continue FY2019 efforts.</p> <p>2. Develop improvements to architecture and representations to support the effects of GPS jamming on sensors and weapons systems in partnership with the USAF Distributed Mission Operations Center – Space (DMOC-S).</p> <p>3. Develop and engineer web based graphical user interfaces to replace all existing desktop-based applications. Migrate existing desktop environment to virtualized solution. Implement failover and load balancing for simulation components. Implement Software as a Service to align with the future joint training environment architecture.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Minor funding reduction to balance RDT&E program.</p>			
Accomplishments/Planned Programs Subtotals	-	3.260	3.041

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

RDT&E development efforts are evaluated based on performance metrics. This ensures the Joint Force Trainer (subject matter expert) capabilities development effort synchronizes with warfighter requirements. Performance metrics include, but are not limited to: time, money, realism, and fidelity and are defined below.

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Time – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training more timely than current capabilities allow?

Cost – Will the effort enable the Joint Force Trainer (subject matter expert) 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 (subject matter expert) 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 (subject matter expert) to create more detailed capabilities in the training environment than current capabilities allow?

The Navy will produce one Navy training baseline software release to include documentation; will design and implement upgrades to Joint Semi-Automated Forces (JSAF) consistent with approved requirements and contractual requirements and document the effects of JSAF capabilities and stability. Will design, implement, test, and integrate 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 during large scale JLVC exercises.

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Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 773 / Joint Interoperability Division (JID)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
773: Joint Interoperability Division (JID)	0.000	0.000	1.845	1.419	0.000	1.419	1.095	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

JID is the sole Department of Defense provider of joint interoperability training and Joint Interface Control Officer (JICO) production. JID trains CCMD, Services and partner nations' operations center personnel in mission areas such as joint fires, net enabled weapons, remotely piloted aircraft, integrated air and missile defense, and contested operations including secure internet with Link-16/TDL equipped major weapon systems and smart bombs. FY19 was the first year the JID received RDT&E funding in order to support the development of the JICO Simulator. The JICO Simulator will allow the JID to train students across the Services on the proper planning, management and execution of tactical data links (TDL) to fill the gaps for non-participating weapon systems missing in live exercises.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Joint Interoperability Division (JID)	-	1.845	1.419
Description: JICO Simulator will allow the JID to train students across the Services on the proper planning, management and execution of tactical data links (TDL). The simulator will allow the JID to build robust practice scenarios that students can execute fixing TDL architecture plans as necessary. This capability will not only create realistic training scenarios with the ability to inject multi-tactical data link network anomalies for training, but can also be used to support Combatant Command (CCMD) operations centers during planned exercises.			
FY 2019 Plans: Build robust practice scenarios for JICO/TDL students. Automate OPTASK LINK planning message construction. Emulate Joint Tactical Information Distribution System (JTIDS), Multifunctional Information Distribution System (MIDS), Satellite Transportable Terminal (STT) radio operations between weapon systems. Produce track files with all fields, words and message sets. Populate TDL tabular displays for all weapon systems.			
FY 2020 Plans:			

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Show data link operations effects with degraded satellites and SIPR connectivity.			
Provide multi-level security to Partner Nations' picture.			
Inject TDL information (including NATO Link-22) into CCMD, Component and Partner Nation operations centers.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Minor funding reduction to balance RDT&E program.			
Accomplishments/Planned Programs Subtotals	-	1.845	1.419

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Measures:

Cost - Vendor provides software enhancement costs within 10% of government estimate.

Schedule - Vendor provides software releases delivered within one month of government estimate.

Performance - Vendor provides software that passes 80% of the Operations Assessment Cases.

DoD Demand - Number of JICO courses, joint exercises, and JICO support team requests supported by the JICO simulator software.

Partner Nation - Number of Five Eyes partner nations using the JICO Simulator software (active foreign military sales cases).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 774 / USMC Joint National Training Capability (JNTC)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
774: USMC Joint National Training Capability (JNTC)	0.000	0.000	0.921	0.935	0.000	0.935	0.320	0.320	0.320	0.320	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

These funds advance USMC training capabilities by providing stability and risk reduction to a variety of efforts focused on improving the fidelity and realism of training simulation systems. These systems are tailored to prepare operational Marine Air Ground Task Force (MAGTF) units for worldwide deployment in support of CCMD operations and engagements and are available to any organization or entity training via the JLVC federation of training tools. Based on the Commandant's planning guidance, the Marine Corps will continue to improve performance of the MAGTF Tactical Warfare Simulation in the areas of the JLVC-multi-resolution federation bridge, common database terrain data ingestion, and JLVC interoperability. The MAGTF Tactical Warfare Simulation also provides a single source training environment capability that enables users to select single or multiple play boxes (terrain data sets) for training simulation systems easing the burden of requesting terrain, 3D models, and other geographic layers into a single source. In addition to developing an exercise planning, design, implementation, execution, and control tool, the MAGTF Tactical Warfare Simulation also enhances pattern of life (PoL) / indigenous population modular service enabling exercise designers the ability to rapidly build new scenarios and incorporate human geography elements into the training scenarios.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Marine Corps Joint National Training Capability (JNTC)	-	0.921	0.935
<p>Description: Provides pattern of life (POL) / indigenous population (IP) concept development and integration, supporting both constructive and virtual training simulation systems by injecting "people packs" with realistic attributes and behaviors associated with specified regions. Full integration of terrain generation 3D models and objects into joint federation synthetic training environment eliminates the burden of requesting terrain data by the Services and CCMDs creates a single, shareable, repository across the federation. Addresses crucial integration of MTWS into the Korean side of multi-resolution federation bridge supporting Ulchi Focus Guardian covering training shortfalls in engineering obstacle simulations (minefields, chemical, anti-tank ditches, bridges, etc.). Initiates design and development of a joint exercise design and control tool enhancing connectivity across multiple platforms providing exercise planning, design and control within various joint simulation constructs.</p> <p>FY 2019 Plans: Continue development of pattern-of-life (POL) models that can insert synthetic opposing forces and civilian population into scenarios that will autonomously respond with native behaviors of that region providing synthetic adversaries that adapt to various training scenarios in multi-domain joint training.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	Project (Number/Name) 774 / <i>USMC Joint National Training Capability (JNTC)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Provide a capability for all simulation systems to use the same standardized terrain datasets across training domains. Sustain pre-deployment training for operations while supporting the readiness of deployed forces, particularly those primarily focused on global response force readiness.</p> <p>Address crucial integration of MTWS into Korean side of multi-resolution federation bridge supporting Ulchi Focus Guardian covering shortfalls identified in addressing engineering obstacle simulations (minefields, chemical, anti-tank ditches, bridges, etc.).</p> <p>Continue design and development of a joint exercise design and control tool enhancing interoperability and connectivity across multiple platforms. Deliver sharper training environment definitions, assist with defining friendly, FY 2019 Plans: Continue development of pattern-of-life (POL) models that can insert synthetic opposing forces and civilian population into scenarios that will autonomously respond with native behaviors of that region providing synthetic adversaries that adapt to various training scenarios in multi-domain joint training.</p> <p>Provide a capability for all simulation systems to use the same standardized terrain datasets across training domains. Sustain pre-deployment training for operations while supporting the readiness of deployed forces, particularly those primarily focused on global response force readiness.</p> <p>Address crucial integration of MTWS into Korean side of multi-resolution federation bridge supporting Ulchi Focus Guardian covering shortfalls identified in addressing engineering obstacle simulations (minefields, chemical, anti-tank ditches, bridges, etc.).</p> <p>Continue design and development of a joint exercise design and control tool enhancing interoperability and connectivity across multiple platforms. Deliver sharper training environment definitions, assist with defining friendly, enemy, neutrals (including joint multinational and synthetic forces), and support to concurrent planning tools.</p> <p>Explore innovative ways to train for operations in strategically challenging transregional, multi-domain and multi-functional (TMM) environments. Use web-based cloud technologies to accelerate exercise development and execution.</p> <p>FY 2020 Plans: Continue development of pattern-of-life (POL) models that can insert synthetic opposing forces and civilian population into scenarios that will autonomously respond with native behaviors of that region providing synthetic adversaries that adapt to various training scenarios in multi-domain joint training.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	Project (Number/Name) 774 / <i>USMC Joint National Training Capability (JNTC)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Provide a capability for all simulation systems to use the same standardized terrain datasets across training domains. Sustain pre-deployment training for operations while supporting the readiness of deployed forces, particularly those primarily focused on global response force readiness.			
Address crucial integration of MTWS into Korean side of multi-resolution federation bridge supporting Ulchi Focus Guardian covering shortfalls identified in addressing engineering obstacle simulations (minefields, chemical, anti-tank ditches, bridges, etc.).			
Continue design and development of a joint exercise design and control tool enhancing interoperability and connectivity across multiple platforms. Deliver sharper training environment definitions, assist with defining friendly, enemy, neutrals (including joint multinational and synthetic forces), and support to concurrent planning tools.			
Explore innovative ways to train for operations in strategically challenging transregional, multi-domain and multi-functional (TMM) environments. Use web-based cloud technologies to accelerate exercise development and execution.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Minor funding increase to balance RDT&E program.			
Accomplishments/Planned Programs Subtotals	-	0.921	0.935

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

RDT&E development efforts are evaluated based on performance metrics. This ensures Marine Corps planners and the Joint Force Trainer (subject matter expert) capabilities involved in these development effort synchronize outcomes with warfighter requirements. Performance metrics include, but are not limited to: time, money, realism, and fidelity and are defined below.

Time – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training more timely than current capabilities allow.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	Project (Number/Name) 774 / <i>USMC Joint National Training Capability (JNTC)</i>
<p>Cost – Will the effort enable the Joint Force Trainer (subject matter expert) to prepare and execute training at a more effective and efficient cost than current capabilities allow.</p> <p>Realism – Will the effort enable the Joint Force Trainer (subject matter expert) to create a training environment that is closer to the real world environment than current capabilities allow.</p> <p>Fidelity – Will the effort enable the Joint Force Trainer (subject matter expert) to create more detailed capabilities in the training environment than current capabilities allow.</p> <p>The Marine Corps will provide key elements of the proposed change that will allow the USMC to structure a variety of LVC enhancements in a more cost-effective manner to support training efforts within the GRF, NATO, CCMDs, SP-MAGTF and other deploying forces. By expanding the capabilities of existing capabilities through partnerships and cost-sharing efforts that focus on emerging theater training requirements, the changes proposed herein leverage cloud and other technologies to provide the training necessary to address several DoD goals and objectives listed in Commandant's planning guidance and Chairman's joint training guidance.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 775 / Advanced Distributed Learning (ADL)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
775: Advanced Distributed Learning (ADL)	0.000	0.000	3.000	3.000	0.000	3.000	3.000	3.000	3.000	3.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The ADL Initiative supports innovation and provides policy oversight to help the Services, Joint Staff, and partner agencies deliver their training and education more efficiently and cost effectively—anytime, anywhere. ADL provides policy oversight and coordination across DoD, Coalition partners, and other Federal agencies for distributed learning. This work supports interoperability (i.e., ensuring interagency technical and organizational systems function together). Ultimately, this promotes personnel readiness, ensuring the right people receive the right training and education, at the right time, and at the right cost.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Advanced Distributed Learning (ADL)	-	3.000	3.000
<p>Description: The ADL Initiative supports innovation and provides policy oversight to help the Services, Joint Staff, and partner agencies deliver their training and education more efficiently and cost effectively—anytime, anywhere. ADL provides policy oversight and coordination across DoD, Coalition partners, and other Federal agencies for distributed learning. This work supports interoperability (i.e., ensuring interagency technical and organizational systems function together). Ultimately, this promotes personnel readiness, ensuring the right people receive the right training and education, at the right time, and at the right cost.</p> <p>FY 2019 Plans:</p> <ol style="list-style-type: none"> 1. Continue implementation of revised DoDI 1322.26 requirements, while also providing coordination with Joint Services, and guidance on the incorporation of xAPI into distributed learning software systems. 2. Provide support to joint services on transitioning emerging learning systems to include digital tutors, personal learning assistants, and the like which will further personalize training. 3. Further develop research to provide learning science, specifications, guidance and best practices, and technology applications to the joint services in order to further enable their capabilities to deliver next generation learning across a distributed operations environment. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	Project (Number/Name) 775 / <i>Advanced Distributed Learning (ADL)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>4. Support enhancements to multinational training by continuing collaboration with coalition partners and gaining support to integrate e-learning.</p> <p>FY 2020 Plans:</p> <p>1. Continue implementation of revised DoDI 1322.26 requirements, while also providing coordination with Joint Services, and guidance on the incorporation of xAPI into distributed learning software systems. Planned pilot test with JKO-based blended learning package (in conjunction with a Combatant Command exercise).</p> <p>2. Mobile Training Capability Enhancement for “informal micro-learning” via a smartphone system called the “PERvasive Learning System” (PERLS). Capability capitalizes on personnel learning experience outside of formal training/education settings. Support software development integration of PERLS in JKO LCMS and Mobile tools.</p> <p>3. Learner-Centric, Total Learning Architecture (TLA). Develop next-generation interoperability specifications that will form the backbone for the “learner-centric, next-generation, technology-enabled” future joint learning environment, in direct support of Joint Force Development goals. FY20 TRL = 6</p> <p>4. Support enhancements to multinational training by continuing collaboration with coalition partners and gaining support to integrate e-learning into multination exercises.</p>			
Accomplishments/Planned Programs Subtotals	-	3.000	3.000

<p>C. Other Program Funding Summary (\$ in Millions) N/A</p> <p>Remarks</p> <p>D. Acquisition Strategy N/A</p> <p>E. Performance Metrics RDT&E development efforts are evaluated based on performance metrics. This ensures the development of Joint Force Trainer (subject matter expert) capabilities synchronize with warfighter requirements. Performance metrics include, but are not limited to: time, cost, realism, and fidelity.</p> <p>Measures: 1. Number of collaborative advanced technology demonstrations (i.e., projects supporting transition of new technology into joint training).</p>
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Exhibit R-2A, RDT&E Project Justification: PB 2020 The Joint Staff		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	Project (Number/Name) 775 / <i>Advanced Distributed Learning (ADL)</i>

- 2. Number of improvement plans defined (i.e., articulation of plans for future enhancements to joint training).
- 3. Influence on key Service and international ADL meetings and conferences that advance the discovery, sharing and delivery of interoperable training content.
- 4. Increase sharing of data among DoD, other federal agencies, and state and local education departments throughout the U.S. by making educational resources discoverable and retrievable.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 The Joint Staff										Date: March 2019		
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0208043J I <i>Planning and Decision Aid System (PDAS)</i>							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	17.797	3.037	3.037	4.537	-	4.537	3.104	3.043	3.434	3.363	Continuing	Continuing
P001: <i>Planning and Decision Aid System OPS</i>	17.797	3.037	3.037	4.537	-	4.537	3.104	3.043	3.434	3.363	Continuing	Continuing

A. Mission Description and Budget Item Justification

Provides engineering and testing support to the Planning and Decision Aid System, a classified Joint Staff automated information system supporting the Combatant Commanders, Services, and Department of Defense agencies.

Classified details provided in a separate CLASSIFIED budget exhibit.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	3.037	3.037	3.037	-	3.037
Current President's Budget	3.037	3.037	4.537	-	4.537
Total Adjustments	0.000	0.000	1.500	-	1.500
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program adjustment	-	-	1.500	-	1.500

Change Summary Explanation

\$1,500K increase in FY 2020 to improve data security. See CLASSIFIED submission for additional details.

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



United States Special Operations Command

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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United States Special Operations Command • Budget Estimates FY 2020 • RDT&E Program

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
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Research, Development, Test & Eval, DW	716,362	585,623	27,097	612,720
Total Research, Development, Test & Evaluation	716,362	585,623	27,097	612,720

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	808,595		11,726	11,726	820,321
Total Research, Development, Test & Evaluation	808,595		11,726	11,726	820,321

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Department of Defense
 FY 2020 President's Budget
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 (Dollars in Thousands)

25 Feb 2019

Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Applied Research	33,375	35,921		35,921
Advanced Technology Development	92,311	79,380		79,380
Operational System Development	590,676	470,322	27,097	497,419
Total Research, Development, Test & Evaluation	716,362	585,623	27,097	612,720
Summary Recap of FYDP Programs				
Intelligence and Communications	5,488	6,286		6,286
Special Operations Forces	710,874	579,337	27,097	606,434
Total Research, Development, Test & Evaluation	716,362	585,623	27,097	612,720

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Department of Defense
 FY 2020 President's Budget
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 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Applied Research	40,569				40,569
Advanced Technology Development	89,154				89,154
Operational System Development	678,872		11,726	11,726	690,598
Total Research, Development, Test & Evaluation	808,595		11,726	11,726	820,321
Summary Recap of FYDP Programs -----					
Intelligence and Communications	6,359				6,359
Special Operations Forces	802,236		11,726	11,726	813,962
Total Research, Development, Test & Evaluation	808,595		11,726	11,726	820,321

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Defense-Wide
 FY 2020 President's Budget
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 (Dollars in Thousands)

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Summary Recap of Budget Activities -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
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Summary Recap of Budget Activities -----	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Applied Research	40,569				40,569
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(Dollars in Thousands)

25 Feb 2019

Appropriation -----	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
U.S., Special Operations Command	716,362	585,623	27,097	612,720
Total Research, Development, Test & Evaluation	716,362	585,623	27,097	612,720

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Defense-Wide
FY 2020 President's Budget
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Total Research, Development, Test & Evaluation	808,595		11,726	11,726	820,321

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 FY 2020 President's Budget
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 (Dollars in Thousands)

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
22	1160401BB	SOF Technology Development	02	33,375	35,921		35,921	U
		Applied Research		33,375	35,921		35,921	
68	1160402BB	SOF Advanced Technology Development	03	92,311	79,380		79,380	U
		Advanced Technology Development		92,311	79,380		79,380	
235	0305208BB	Distributed Common Ground/Surface Systems	07	5,488	6,286		6,286	U
254	1105219BB	MQ-9 UAV	07	33,106	18,403		18,403	U
255	1160279BB	Small Business Innovative Research/ Small Bus Tech Transfer Pilot Prog	07	23,371				U
256	1160403BB	Aviation Systems	07	250,604	175,862		175,862	U
257	1160405BB	Intelligence Systems Development	07	8,837	10,625		10,625	U
258	1160408BB	Operational Enhancements	07	73,734	99,307	3,632	102,939	U
259	1160431BB	Warrior Systems	07	74,169	63,542	11,040	74,582	U
260	1160432BB	Special Programs	07	2,300	2,479		2,479	U
261	1160434BB	Unmanned ISR	07	33,576	33,270	11,700	44,970	U
262	1160480BB	SOF Tactical Vehicles	07	2,483	1,121	725	1,846	U
263	1160483BB	Maritime Systems	07	66,280	42,471		42,471	U
264	1160489BB	Global Video Surveillance Activities	07	4,661	4,780		4,780	U
265	1160490BB	Operational Enhancements Intelligence	07	12,067	12,176		12,176	U
		Operational System Development		590,676	470,322	27,097	497,419	

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
22	1160401BB	SOF Technology Development	02	40,569				40,569	U
		Applied Research		40,569				40,569	
68	1160402BB	SOF Advanced Technology Development	03	89,154				89,154	U
		Advanced Technology Development		89,154				89,154	
235	0305208BB	Distributed Common Ground/Surface Systems	07	6,359				6,359	U
254	1105219BB	MQ-9 UAV	07	20,697				20,697	U
255	1160279BB	Small Business Innovative Research/ Small Bus Tech Transfer Pilot Prog	07						U
256	1160403BB	Aviation Systems	07	245,795				245,795	U
257	1160405BB	Intelligence Systems Development	07	15,484				15,484	U
258	1160408BB	Operational Enhancements	07	166,922		726	726	167,648	U
259	1160431BB	Warrior Systems	07	62,332		6,000	6,000	68,332	U
260	1160432BB	Special Programs	07	21,805				21,805	U
261	1160434BB	Unmanned ISR	07	37,377		5,000	5,000	42,377	U
262	1160480BB	SOF Tactical Vehicles	07	11,150				11,150	U
263	1160483BB	Maritime Systems	07	72,626				72,626	U
264	1160489BB	Global Video Surveillance Activities	07	5,363				5,363	U
265	1160490BB	Operational Enhancements Intelligence	07	12,962				12,962	U
		Operational System Development		678,872		11,726	11,726	690,598	

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Line No	Program Element Number	Item	FY 2018 Act (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	See c
			716,362	585,623	27,097	612,720	
Total Research, Development, Test & Eval, DW							

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	Total Research, Development, Test & Eval, DW								
				808,595		11,726	11,726	820,321	

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U.S., Special Operations Command
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22	1160401BB	SOF Technology Development	02	33,375	35,921		35,921	U
	Applied Research			33,375	35,921		35,921	
68	1160402BB	SOF Advanced Technology Development	03	92,311	79,380		79,380	U
	Advanced Technology Development			92,311	79,380		79,380	
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25 Feb 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	See c
22	1160401BB	SOF Technology Development	02	40,569				40,569	U
		Applied Research		40,569				40,569	
68	1160402BB	SOF Advanced Technology Development	03	89,154				89,154	U
		Advanced Technology Development		89,154				89,154	
235	0305208BB	Distributed Common Ground/Surface Systems	07	6,359				6,359	U
254	1105219BB	MQ-9 UAV	07	20,697				20,697	U
255	1160279BB	Small Business Innovative Research/ Small Bus Tech Transfer Pilot Prog	07						U
256	1160403BB	Aviation Systems	07	245,795				245,795	U
257	1160405BB	Intelligence Systems Development	07	15,484				15,484	U
258	1160408BB	Operational Enhancements	07	166,922		726	726	167,648	U
259	1160431BB	Warrior Systems	07	62,332		6,000	6,000	68,332	U
260	1160432BB	Special Programs	07	21,805				21,805	U
261	1160434BB	Unmanned ISR	07	37,377		5,000	5,000	42,377	U
262	1160480BB	SOF Tactical Vehicles	07	11,150				11,150	U
263	1160483BB	Maritime Systems	07	72,626				72,626	U
264	1160489BB	Global Video Surveillance Activities	07	5,363				5,363	U
265	1160490BB	Operational Enhancements Intelligence	07	12,962				12,962	U
		Operational System Development		678,872		11,726	11,726	690,598	

R-120PB: FY 2020 President's Budget (Published Version), as of February 25, 2019 at 09:37:37

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U.S., Special Operations Command
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Program Element Number	Item	FY 2018 Act	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	See Page
	Total U.S., Special Operations Command		716,362	585,623	27,097	612,720	

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U.S., Special Operations Command
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

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

Line No	Element Number	Program Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Section
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Total	U.S.,	Special Operations Command		808,595		11,726	11,726	820,321	

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United States Special Operations Command • Budget Estimates FY 2020 • RDT&E Program

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

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
22	02	1160401BB	SOF Technology Development.....	Volume 5 - 987

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
68	03	1160402BB	SOF Advanced Technology Development.....	Volume 5 - 993

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
235	07	0305208BB	Distributed Common Ground/Surface Systems.....	Volume 5 - 1005
254	07	1105219BB	MQ-9 Unmanned Aerial Vehicle (UAV).....	Volume 5 - 1015
255	07	1160279BB	Small Business Innovation Research/Small Bus Tech Transfer.....	Volume 5 - 1023

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United States Special Operations Command • Budget Estimates FY 2020 • RDT&E Program

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
256	07	1160403BB	Aviation Systems.....	Volume 5 - 1033
257	07	1160405BB	Intelligence Systems Development.....	Volume 5 - 1095
258	07	1160408BB	Operational Enhancements.....	Volume 5 - 1115
259	07	1160431BB	Warrior Systems.....	Volume 5 - 1117
260	07	1160432BB	Special Programs.....	Volume 5 - 1195
261	07	1160434BB	Unmanned ISR.....	Volume 5 - 1197
262	07	1160480BB	SOF Tactical Vehicles.....	Volume 5 - 1213
263	07	1160483BB	Maritime Systems.....	Volume 5 - 1221
264	07	1160489BB	Global Video Surveillance Activities.....	Volume 5 - 1253
265	07	1160490BB	Operational Enhancements Intelligence.....	Volume 5 - 1255

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United States Special Operations Command • Budget Estimates FY 2020 • RDT&E Program

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

Program Element Title	Program Element Number	Line #	BA	Page
Aviation Systems	1160403BB	256	07.....	Volume 5 - 1033
Distributed Common Ground/Surface Systems	0305208BB	235	07.....	Volume 5 - 1005
Global Video Surveillance Activities	1160489BB	264	07.....	Volume 5 - 1253
Intelligence Systems Development	1160405BB	257	07.....	Volume 5 - 1095
MQ-9 Unmanned Aerial Vehicle (UAV)	1105219BB	254	07.....	Volume 5 - 1015
Maritime Systems	1160483BB	263	07.....	Volume 5 - 1221
Operational Enhancements	1160408BB	258	07.....	Volume 5 - 1115
Operational Enhancements Intelligence	1160490BB	265	07.....	Volume 5 - 1255
SOF Advanced Technology Development	1160402BB	68	03.....	Volume 5 - 993
SOF Tactical Vehicles	1160480BB	262	07.....	Volume 5 - 1213
SOF Technology Development	1160401BB	22	02.....	Volume 5 - 987
Small Business Innovation Research/Small Bus Tech Transfer	1160279BB	255	07.....	Volume 5 - 1023
Special Programs	1160432BB	260	07.....	Volume 5 - 1195
Unmanned ISR	1160434BB	261	07.....	Volume 5 - 1197
Warrior Systems	1160431BB	259	07.....	Volume 5 - 1117

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 2: Applied Research</i>	R-1 Program Element (Number/Name) PE 1160401BB / <i>SOF Technology Development</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	519.229	33.375	35.921	40.569	-	40.569	46.674	49.695	50.725	51.907	Continuing	Continuing
S100: <i>SOF Technology Development</i>	519.229	33.375	35.921	40.569	-	40.569	46.674	49.695	50.725	51.907	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element enables USSOCOM to conduct studies and develop laboratory prototypes for applied research and advanced technology development, as well as leverage other organizations' technology projects that may not otherwise be affordable within MFP-11. Applying small incremental amounts of investments to Department of Defense (DOD), other government agencies, and commercial organizations allows USSOCOM to influence the direction of technology development or the schedule against which it is being pursued, and to acquire emerging technologies for Special Operations Forces. This project provides an investment strategy for USSOCOM to link technology opportunities with capability deficiencies, capability objectives, technology thrust areas, human endurance and sensory performance, and technology development objectives.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	34.493	35.921	40.757	-	40.757
Current President's Budget	33.375	35.921	40.569	-	40.569
Total Adjustments	-1.118	0.000	-0.188	-	-0.188
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.118	-			
• Other Adjustments	-	-	-0.188	-	-0.188

Change Summary Explanation

Funding:

FY 2018: Decrease of \$1.118 million is due to a transfer to Small Business Innovative Research/Small Business Technology Transfer programs.

FY 2019: None.

FY 2020: Decrease of \$0.188 million due to minor adjustments.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 2: Applied Research</i>	PE 1160401BB / <i>SOF Technology Development</i>

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 2					R-1 Program Element (Number/Name) PE 1160401BB / <i>SOF Technology Development</i>				Project (Number/Name) S100 / <i>SOF Technology Development</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S100: <i>SOF Technology Development</i>	519.229	33.375	35.921	40.569	-	40.569	46.674	49.695	50.725	51.907	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project conducts studies and develops laboratory prototypes for applied research and advanced technology developments, and leverages other organizations' technology projects that may not otherwise be affordable within MFP-11. Small incremental co-investments with DOD, other government agencies, and commercial organizations allow USSOCOM to influence the schedule and direction of technology developments, emerging technologies, and capabilities for Special Operations Forces (SOF), with significant economies of investment. This USSOCOM investment strategy is used to link technology opportunities with USSOCOM capability deficiencies, capability objectives; technology thrust areas, and technology objectives. Technology development needs in these areas may be advertised to industry and government research and development agencies via agency announcements and calls for white papers.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: SOF Technology Development	14.603	16.421	20.967
Description: This project conducts studies and develops laboratory prototypes for applied research and advanced technology developments, and leverages other organizations' technology projects that may not otherwise be affordable within MFP-11.			
FY 2019 Plans: Continue ongoing technology development sub-projects in areas such as, but not limited to: long duration small form factor power supplies, alternative fuel power systems, reduced signature technologies, high data-rate throughput, and advance lightweight armor and materials. Advance technologies for combat medical equipment, tactics, human performance, sensor and processing improvements, improve interfaces and displays, machine learning/artificial intelligence, and secure communications. Continue pursuit of methods to reduce operator load and provide advanced protection. Develop technologies for improved and widened window of target engagement (escalation of force), pursue enhancements to technologies that can aid in detection of enemy intentions and movement, and continue development and exploration across the electromagnetic spectrum. Based upon agreed technology maturity metrics, transfer successful projects into programs of record. Continue the integration of critical technologies focused on providing the dismounted special operator leap-ahead capabilities via innovative collaborative processes. Focus is on delivering prototype system for soldier protection and augmentation and continuing development of situational awareness and command/control systems.			
FY 2020 Plans: Continues ongoing technology development sub-projects in areas such as, but not limited to: enabling power technologies, signature reduction technologies, high data-rate throughput, and advances in lightweight armor and materials. Advances technologies for combat medical equipment, tactics, human performance, optics, sensor and processing improvements,			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 1160401BB / <i>SOF Technology Development</i>	Project (Number/Name) S100 / <i>SOF Technology Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>improves human-machine interfaces and displays, identifies SOF specific machine learning/artificial intelligence, and secure communications. Continues pursuit of methods to reduce operator load and provides advanced protection. Develops technologies for improved and widened window of target engagement (escalation of force), pursues enhancements to technologies that can aid in detection of enemy intentions and status, and continues development and exploration of novel technologies across the electromagnetic spectrum. Based upon agreed technology maturity metrics, transfers successful projects into programs of record. Continues the integration of critical technologies focused on providing the dismounted special operator leap-ahead capabilities via innovative collaborative processes.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$4.546 million due to increased focus on identifying disruptive technology development efforts to support SOF needs.</p>			
<p>Title: Tagging, Tracking, and Locating Technologies (TTL)</p> <p>Description: TTL funds Applied Research projects identified in the USSOCOM Quick Look Capabilities Based Assessments (QL-CBA). TTL applies Intelligence, Surveillance, and Reconnaissance (ISR) focused leading edge technology, biometric and biotechnology, which is directed towards the development of revolutionary tags, taggants, sensors, communications, and data processing in support of the TTL mission.</p> <p>FY 2019 Plans: Continue projects to exploit technology, biotechnology and chemistry for application to TTL and TTL-enabling systems. Initiate projects linked to the USSOCOM/DOD TTL and ISR Roadmaps, which are updated via the JCS/J8-approved annual TTL QL-CBA.</p> <p>FY 2020 Plans: Continues projects to exploit technology, biotechnology and chemistry for application to TTL and TTL-enabling systems. Continues projects linked to the USSOCOM/DOD TTL and ISR Roadmaps, which are updated via the JCS/J8-approved annual TTL QL-CBA.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.391 million due to inflation and other minor adjustments.</p>	14.877	15.565	15.956
<p>Title: Classified Sub-Project</p> <p>Description: Classified Sub-Project (provided under separate cover).</p> <p>FY 2019 Plans: Details provided under separate cover.</p> <p>FY 2020 Plans:</p>	3.895	3.935	3.646

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 1160401BB / <i>SOF Technology Development</i>	Project (Number/Name) S100 / <i>SOF Technology Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Details provided under separate cover.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Details provided under separate cover.			
Accomplishments/Planned Programs Subtotals	33.375	35.921	40.569

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 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 1160402BB / <i>SOF Advanced Technology Development</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1,284.836	92.311	79.380	89.154	-	89.154	100.729	107.219	109.410	111.962	Continuing	Continuing
S200: <i>Advanced Technology Development</i>	1,241.979	73.772	57.648	66.960	-	66.960	78.150	84.159	85.874	87.877	Continuing	Continuing
SF101: <i>Engineering Analysis</i>	23.099	14.285	17.140	17.595	-	17.595	17.870	18.236	18.612	19.046	Continuing	Continuing
S225: <i>Information and Broadcast Systems Adv Tech</i>	19.758	4.254	4.592	4.599	-	4.599	4.709	4.824	4.924	5.039	Continuing	Continuing

A. Mission Description and Budget Item Justification

Advanced Technology Development (project S200) conducts rapid prototyping and Advanced Technology Demonstrations (ATDs). ATDs provide a means for demonstrating and evaluating the utility of emerging/advanced technologies in as realistic an operational environment as possible by Special Operations Forces (SOF) users. Evaluation results are included in a transition package, which assists in the initiation of or insertion into an acquisition program. ATDs also address projects that are a result of unique joint special mission or area-specific needs for which a few-of-a-kind prototypes must be developed on a rapid response basis, or are of sufficient time sensitivity to accelerate the prototyping effort of a normal acquisition program in any phase.

Engineering Analysis (project SF101) provides rapid response capability for the investigation, evaluation, and demonstration of technologies for SOF platform (ground, air, and maritime) and soldier system-unique requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: sensor integration; enhanced situational awareness; near-real-time intelligence to include data fusion, threat detection and avoidance; electronic support measures for threat geo-location and specific emitter identification; navigation; target detection; weapon performance integration; and future SOF platform and soldier system requirements. Provides additional engineering analysis and testing required to transition items from national forces to theater forces.

Information and Broadcast Systems Advanced Technology (project S225) conducts rapid prototyping, advanced technology demonstrations, and advanced concept technology demonstrations of information and broadcast systems technology. Includes planning, analyzing, evaluating, and production information systems capabilities and distribution/dissemination broadcast systems capabilities. It provides a means for demonstrating and evaluating the utility of emerging/advanced technologies in as realistic an operational environment as possible by SOF users. This project also integrates efforts with each other and conducts technology demonstrations in conjunction with joint experiments and other assessment events. Evaluation results are included in a transition package, which assists in the initiation of or insertion into an acquisition program. The project also addresses unique, joint special mission or area-specific needs for which prototypes must be developed on a rapid response basis, or are of sufficient time sensitivity to accelerate the prototyping effort of a normal acquisition program in any phase.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 1160402BB / <i>SOF Advanced Technology Development</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	72.605	79.380	89.565	-	89.565
Current President's Budget	92.311	79.380	89.154	-	89.154
Total Adjustments	19.706	0.000	-0.411	-	-0.411
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	23.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.009	-			
• SBIR/STTR Transfer	-3.285	-			
• Other Adjustments	-	-	-0.411	-	-0.411

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: S200: *Advanced Technology Development*

Congressional Add: S200: *SOST Identity Threat Mitigation Research*

Congressional Add: S200: *SOST Tactical Assault Lightweight Operator Suit (TALOS)*

Congressional Add Subtotals for Project: S200

Congressional Add Totals for all Projects

	FY 2018	FY 2019
	17.339	-
	4.817	-
	22.156	-
	22.156	-

Change Summary Explanation

Funding:

FY 2018: Net increase of \$19.706 million is due to a decrease for transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs (-\$3.285 million), Congressional adds of \$18.000 million for Identity Threat Mitigation Research, \$5.000 million for TALOS and a minor reprogramming (-\$0.009 million).

FY 2019: None.

FY 2020: Decrease of \$0.411 million due to minor adjustments.

Schedule: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i>	PE 1160402BB / <i>SOF Advanced Technology Development</i>

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1160402BB / SOF Advanced Technology Development	Project (Number/Name) S200 / Advanced Technology Development
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S200: <i>Advanced Technology Development</i>	1,241.979	73.772	57.648	66.960	-	66.960	78.150	84.159	85.874	87.877	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project provides for rapid prototyping, Advanced Technology Demonstrations (ATDs) and Joint Capability Technology Demonstrations. It is a means for demonstrating and evaluating the utility of emerging/advanced technologies in operationally relevant environments with Special Operations Forces (SOF) users. This project integrates emerging technologies and presents them in technology demonstrations, in conjunction with joint experiments and other assessment events. Evaluation results often facilitate the initiation of new programs and the insertion of appropriate technologies to acquisition programs. The element also addresses unique, joint special mission or area-specific needs for which a few rapid prototypes must be developed on a responsive basis, or are of sufficient time sensitivity to accelerate prototyping efforts of a normal acquisition program in any phase.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: SOF Special Technology Sub-Project	28.899	33.046	41.118
Description: This sub-project integrates emerging technologies and presents them in technology demonstrations, in conjunction with joint experiments and other assessment events. This project received two congressional adds in FY 2018.			
FY 2019 Plans: Continue the development and insertion of technology into existing programs. Technologies include, but are not limited to: reduced signature profiles, improved weapons, communications, command, and control systems, machine learning/artificial intelligence, sensors, and situational awareness tools; lightweight armor and materials, alternative power systems, eco-friendly sustainable energy devices, long duration, reduced size, high output power supplies, and technologies that reduce the load of the operator. Continue development of technologies supporting undersea, air and ground mobility. Evaluate and develop sensors across the electromagnetic spectrum to meet operational requirements. Continue the integration of critical technologies focused on providing the dismounted special operator leap-ahead capabilities via innovative collaborative processes. Continue developing unique robotic systems to reduce the load of the operator and augment human performance. Continue to develop Command, Control, Communications, Computers, and Intelligence (C4I) Technology to implement a robust, ultra-wideband communication capability. Continue effort for field prototype system incorporating technologies likely to transition to fielded systems. Based upon agreed technology maturity metrics, transfers successful projects into programs of record, and conduct field experimentations at various venues to facilitate technology insertion.			
FY 2020 Plans: Continues the development and insertion of technology into existing programs. Technologies include, but are not limited to: reduced signature profiles, improved tailorable lethality weapons, assured communications, command and control systems,			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1160402BB / <i>SOF Advanced Technology Development</i>	Project (Number/Name) S200 / <i>Advanced Technology Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
<p>machine learning/artificial intelligence, optics, sensors, and situational awareness tools; lightweight armor and materials, power and energy enablers, and technologies that reduce the load of the operator. Continues development of technologies supporting undersea, ground and air mobility. Evaluates and develops sensors across the electromagnetic spectrum to meet operational requirements. Continues the integration of critical technologies focused on providing the dismounted special operator leap-ahead capabilities via innovative collaborative processes. Continues to develop C4I technology to provide tactically relevant situational awareness and point of need. Continues effort for field prototype system incorporating technologies likely to transition to fielded systems. Based upon agreed technology maturity metrics, transfers successful projects into programs of record, and conducts field experimentations at various venues to facilitate technology insertion.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$8.072 million due to a focus on tactically relevant situational awareness, communication and navigation in all environments, tailored lethality and biotechnologies to support SOF needs.</p>				
<p>Title: Tagging, Tracking, and Locating Technologies (TTL) Sub-Project</p> <p>Description: TTL funds SOF unique ATDs identified in the USSOCOM Quick Look Capabilities Based Assessments (QL-CBA). TTL rapidly prototypes and expeditiously transitions projects from laboratory to acquisition Programs of Record/operational use to address SOF capability deficiencies.</p> <p>FY 2019 Plans: Continue to exploit and integrate recently-proven and emerging technologies for TTL and TTL-enabling systems. Continue to mature technologies that are linked to the USSOCOM/DOD TTL Roadmap, which is updated via the JCS/J8-approved annual TTL QL-CBA. Continue to increase focus on tactical sensors and enabling technologies in support of the special reconnaissance mission set.</p> <p>FY 2020 Plans: Continues to exploit and integrate recently-proven and emerging technologies for TTL and TTL-enabling systems. Continues to mature technologies that are linked to the USSOCOM/DOD TTL Roadmap, which is updated via the JCS/J8-approved annual TTL QL-CBA. Continues to increase focus on tactical sensors and enabling technologies in support of the special reconnaissance mission set.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$1.165 million to address TTL shortfalls in the maritime and Global Positioning System denied environment.</p>		16.930	18.750	19.915
<p>Title: Classified Sub-Project</p> <p>Description: Classified Sub-Project (provided under separate cover).</p>		5.787	5.852	5.927

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1160402BB / SOF Advanced Technology Development	Project (Number/Name) S200 / Advanced Technology Development
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
FY 2019 Plans: Details provided under separate cover.			
FY 2020 Plans: Details provided under separate cover.			
FY 2019 to FY 2020 Increase/Decrease Statement: Details provided under separate cover.			
Accomplishments/Planned Programs Subtotals	51.616	57.648	66.960

	FY 2018	FY 2019
Congressional Add: S200: SOST Identity Threat Mitigation Research	17.339	-
FY 2018 Accomplishments: Continue to exploit and integrate recently-proven and emerging technologies for signature identification and enabling systems. Continue projects towards maturity that are linked to the USSOCOM Directive 530-2. Continue to increase focus on proactive measures to understand, assess, and, when necessary, actively manage signatures to minimize risks to the safety and security of special operations missions and contribute to the operations security of special operations missions.		
Congressional Add: S200: SOST Tactical Assault Lightweight Operator Suit (TALOS)	4.817	-
FY 2018 Accomplishments: TALOS is evaluating commercially available exoskeleton technology to assess advancements in exoskeleton design, development and performance to inform requirements for Special Operation Forces (SOF).		
Congressional Adds Subtotals	22.156	-

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-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 1160402BB / <i>SOF Advanced Technology Development</i>				Project (Number/Name) SF101 / <i>Engineering Analysis</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
SF101: <i>Engineering Analysis</i>	23.099	14.285	17.140	17.595	-	17.595	17.870	18.236	18.612	19.046	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project provides a rapid response capability to support Special Operations Forces (SOF) platforms (ground, air and maritime), Unmanned Aerial Vehicle (UAV) payload sensors and soldier systems. The purpose is to correct system deficiencies, improve asset life, and enhance mission capability through the means of feasibility studies, analysis of alternatives, pre-developmental risk reduction studies, and engineering analyses. This project provides the engineering required to improve the design and performance integrity of the SOF platforms, UAV payload sensors and soldier support systems, sub-systems, equipment, and embedded computer software as they relate to the maintenance, overhaul, repair, quality assurance, modifications, materiel improvements, and service life extensions. This project also conducts risk reduction studies, analyses, and demonstrations to support emerging, time-critical weapons and sensor enhancements.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Platform Engineering Analysis	10.260	10.483	10.912
Description: Funding supports the development of rapid response capabilities to support SOF platform and soldier systems. Rapidly addresses technology needs for insertion into Programs of Record. Supports technology development to correct system deficiencies, improve platform asset life, and enhance mission capabilities.			
FY 2019 Plans: Continue to assess concepts and prototypes that provide increased ballistic protection of air, ground and undersea mobility platforms to include manned and unmanned UAVs, and mobility platform improvements to meet emerging threats. Assess and evaluate advanced precision guided munitions and scalable effects weapons. Identify, assess and evaluate improved Command, Control, Communication, Computer (C4) systems that incorporate significant improvements to operate in contested environments, systems that improve situational awareness on the battlefield, and next generation manned and unmanned Intelligence, Surveillance, and Reconnaissance (ISR) systems and common sensors and sensor suites.			
FY 2020 Plans: Continues to assess concepts and prototypes that provide increased capability of air, ground and undersea mobility platforms to include improvements to meet emerging threats. Assesses and evaluates advanced methods to deliver tailorable lethality. Identifies, assesses and evaluates improved C4 systems that incorporate significant improvements to operate in contested environments, systems that improve situational awareness on the battlefield, and disruptive technologies to enable ISR in future environments.			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.429 million due to minor adjustments in funding required for individual taskings.			
Title: Soldier System Engineering Analysis	0.478	0.489	0.500

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1160402BB / <i>SOF Advanced Technology Development</i>	Project (Number/Name) SF101 / <i>Engineering Analysis</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Description: Funding supports engineering assessments and evaluation of technology feasibility, producibility, and integration readiness in the following areas: 1) next generation lightweight low-cost body armor and ballistic helmets 2) ballistic and laser variable light transmission protective eyewear 3) soldier worn sensors to assess ballistic and blast events as well as soldier health 4) next generation soldier worn load carriage systems 5) soldier worn head borne communications that provide greater situational awareness and hearing protection.</p> <p>FY 2019 Plans: Continue to assess advanced body armor and ballistic helmet materials, concepts and prototypes to reduce soldier load and provide increased ballistic protection against the latest emerging threats. Reduce the number of eyewear lenses needed and to have one lens that provides ballistic and laser protection as well as automatically darkens/lightens based on combat conditions. Evaluate soldier worn sensors and heads up displays for operability within soldier worn components and subsystems. Assess technologies feasibility and integration readiness of next generation load carriage systems such as exoskeletons and load-assist devices. Assess proof of concepts and technologies for next generation head borne communications systems that provide reliable and secure wireless transmission in all combat conditions, as well as provide 360 degree situational awareness and noise attenuation while increasing hearing protection.</p> <p>FY 2020 Plans: Continues to assess materials, concepts and prototypes to reduce soldier load and provide increased protection against the latest emerging threats. Evaluates soldier worn sensors and heads up displays for operability within soldier worn components and subsystems. Assesses technologies feasibility and integration readiness of next generation load carriage systems such as exoskeletons and load-assist devices. Assesses proof of concepts and technologies for next generation communications systems that integrated situational awareness in all environments.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.011 million is due to minor adjustments.</p>			
<p>Title: National to Theater Engineering Analysis</p> <p>Description: Provides additional engineering analysis and testing required to transition items from national forces to theater forces.</p> <p>FY 2019 Plans: Conduct additional testing and evaluation required on various equipment items such as communications, intelligence, weapons, and operator protection planned for transition to SOF Theater Forces.</p> <p>FY 2020 Plans:</p>	2.102	2.202	2.236

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1160402BB / <i>SOF Advanced Technology Development</i>	Project (Number/Name) SF101 / <i>Engineering Analysis</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Conducts additional testing and evaluation required on various equipment items such as communications, intelligence, weapons, and operator protection planned for transition to SOF Theater Forces. FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.034 million is due to minor adjustments required for testing.				
Title: Aviation Mission Improved Survivability Description: Funding supports engineering analysis activities to address aviation survivability such as signature management, situational awareness, and versatile mission equipment (payloads, communications and weapons) to achieve SOF mission objectives. FY 2019 Plans: Continue engineering analysis activities to improve SOF aviation mission survivability. Activities include, but are not limited to, signature management (acoustic, infrared, radio frequency), situational awareness with full spectrum threat warning and countermeasures, and versatile mission equipment (payloads, communications and weapons) to improve SOF survivability in less than permissive operating environments. Proof of concepts with potential from prior year will be further matured. FY 2020 Plans: Continues engineering analysis activities to improve SOF aviation mission survivability. Activities include, but are not limited to, signature management (acoustic, infrared, radio frequency), situational awareness with full spectrum threat warning and countermeasures, and versatile mission equipment (payloads, communications and weapons) to improve SOF survivability in less than permissive operating environments. Proof of concepts with potential from prior year will be further matured. FY 2019 to FY 2020 Increase/Decrease Statement: Decrease of \$0.019 million is due to minor adjustments.		1.445	3.966	3.947
Accomplishments/Planned Programs Subtotals		14.285	17.140	17.595
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-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 1160402BB / SOF Advanced Technology Development				Project (Number/Name) S225 / Information and Broadcast Systems Adv Tech			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
<i>S225: Information and Broadcast Systems Adv Tech</i>	19.758	4.254	4.592	4.599	-	4.599	4.709	4.824	4.924	5.039	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project conducts development, rapid prototyping, demonstration/testing of information and broadcast system technology. Includes cyber capabilities that predict the best media channels to reach potential target audiences, data mining and information collections tools, propaganda and social behavior analytical tools, cultural analysis tool sets and emerging technologies that support the planning and analytical needs for the Military Information Support Operations (MISO) forces. It provides a means for demonstrating and evaluating the utility of emerging/advanced technologies in as realistic an operational environment as possible by SOF users. This project integrates efforts and conducts technology demonstrations in conjunction with joint experiments and other assessment events and performs market research on emerging technologies that support all phases of MISO. Evaluation results are included in a transition package, which assists in the initiation of or insertion into an acquisition program. The project also addresses unique, joint special mission or area-specific needs. Seeks technologies that will transform current MISO capabilities through two major objectives: 1) Exploit technologies capable of disseminating products to reach target audiences across a variety of media to include audiences in denied areas. 2) Automate and improve MISO planning and analytical capability through technologies that are integrated into SOF planning systems (Cultural Analysis, Targeting, Theme Development, Media & Product Selection, Distribution & Dissemination, and Measures of Effectiveness). Develops software applications that increases the efficiency and shortens the timeline to get MISO dissemination packages approved. Develops hardware/software tools that facilitate the collaboration and sharing of information and other critical data.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Broadcast and Dissemination Modernization	4.254	4.592	4.599
Description: Develops emerging technologies available in the marketplace to transform and modernize planning, analysis, development, broadcast, distribution, dissemination, and feedback capabilities for MISO forces. This initiative will also continue development of appropriate emerging technologies initially identified by Advance Technology Demonstrations and Joint Capability Technology Demonstrations to transition to acquisition programs. Technologies include: multi-frequency broadcast systems; digital broadcast capabilities; remote controlled electronic paper; near-real-time command and control of unattended systems, especially in denied areas; focused/beam speaker sound technologies; visual projection technologies; advanced commercial broadcast technologies including amplitude modulation and frequency modulation radio transmitters and antenna; television transmitter and antenna systems; internet and telephony dissemination and broadcast systems; technologies capable of long-loiter broadcast and delivery in denied and permissive environment; and technologies that automate and improve planning and analytical capability through integrated capabilities.			
FY 2019 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1160402BB / <i>SOF Advanced Technology Development</i>	Project (Number/Name) <i>S225 / Information and Broadcast Systems Adv Tech</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Continue performance of engineering studies, development, and demonstrations of planning, analysis, distribution, and broadcast capabilities in the digital domain. <i>FY 2020 Plans:</i> Continues performance of engineering studies, development, and demonstrations of planning, analysis, distribution, and broadcast capabilities in the digital domain. <i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Increase of \$0.007 million is due to minor adjustments.			
Accomplishments/Planned Programs Subtotals	4.254	4.592	4.599

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 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	43.226	5.488	6.286	6.359	-	6.359	6.487	6.621	6.757	6.915	Continuing	Continuing
S400A: <i>Distributed Common Ground/Surface Systems</i>	43.226	5.488	6.286	6.359	-	6.359	6.487	6.621	6.757	6.915	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element is part of the Military Intelligence Program (MIP). The Distributed Common Ground/Surface System Special Operations Forces (DCGS-SOF) is part of a family of systems providing Intelligence, Surveillance, and Reconnaissance Processing, Exploitation, Dissemination (PED), and analytical capabilities at the Component/TSOC level and below through a combination of reach back, forward support, and collaboration. The mission tailored infrastructure interconnects the warfighters, analysts, and sensors to find and fix High Value Targets and provides a network-enabled, interoperable construct allowing continual, unimpeded sharing of intelligence data, information and services with SOF and between the Services, other national intelligence agencies, combatant commands and multi-national partners. It connects the SOF warfighters and support analysts with essential intelligence information and provides situational awareness information to SOF leadership at all echelons. The three components of DCGS-SOF include the following: The Enterprise All Source Information Fusion (ENT/ASIF) provides infrastructure, processing and intelligence analytical tools capabilities to allow for worldwide SOF intelligence information sharing via a globally connected cloud based architecture as well as a forward disconnected capability. SOF Geospatial Intelligence Processing Exploitation, and Dissemination (SGIP) provides capabilities in garrison and deployed environments of manned and unmanned sensors. SOF Signals Intelligence (SIGINT) Processing, Exploitation, Dissemination (PED) provides SIGINT exploitation capability in both garrison and deployed environments. Middle-Tier Acquisition (2016 NDAA Section 804) to accommodate rapid prototyping, may be utilized.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	5.496	6.286	6.388	-	6.388
Current President's Budget	5.488	6.286	6.359	-	6.359
Total Adjustments	-0.008	0.000	-0.029	-	-0.029
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.008	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.029	-	-0.029

Change Summary Explanation

Funding:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>

FY 2018: Decrease of -\$0.008 is due to a minor reprogramming.

FY 2019: None.

FY 2020: Decrease of -\$0.029 is due to minor adjustments.

Schedule: Market research results and the pivot to the National Reconnaissance Office (NRO) Fusion Analysis and Development Effort (FADE) platform modifies technology development objectives and timelines.

Technical: Usability testing and requirements refinement led to market research and technology shift to partner with NRO to utilize their fielded Government/Commercial off the Shelf FADE system after making SOF enhancements.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>				Project (Number/Name) S400A / <i>Distributed Common Ground/Surface Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S400A: <i>Distributed Common Ground/Surface Systems</i>	43.226	5.488	6.286	6.359	-	6.359	6.487	6.621	6.757	6.915	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program element is part of the Military Intelligence Program (MIP). The Distributed Common Ground/Surface System Special Operations Forces (DCGS-SOF) is part of a family of systems providing Intelligence, Surveillance and Reconnaissance (ISR) Processing, Exploitation, Dissemination (PED), and analytical capabilities at the Component/TSOC level and below through a combination of reach back, forward support, and collaboration. The mission tailored infrastructure interconnects the warfighters, analysts, and sensors to find and fix High Value Targets and provides a network-enabled, interoperable construct allowing continual, unimpeded sharing of intelligence data, information and services with SOF and between the Services, other national intelligence agencies, combatant commands and multi-national partners. It connects the SOF warfighters and support analysts with essential intelligence information and provides situation awareness information to SOF leadership at all echelons. The three components of DCGS-SOF include the following: The Enterprise All Source Information Fusion (ENT/ASIF) provides infrastructure, processing and intelligence analytical tools capabilities to allow for worldwide SOF intelligence information sharing via a globally connected cloud based architecture as well as a forward disconnected capability. SOF Geospatial Intelligence Processing Exploitation, and Dissemination (SGIP) provides capabilities in garrison and deployed environments of manned and unmanned sensors. SOF Signals Intelligence (SIGINT) Processing, Exploitation, Dissemination (PED) provides SIGINT exploitation capability in both garrison and deployed environments.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: DCGS	5.488	6.286	6.359
FY 2019 Plans: Continue integration of emerging technologies and enhanced capabilities for ENT/ASIF in partnership with Fusion Analysis Development Effort (FADE) such as: Advanced analytics, user interface (UI), natural language processing (NLP), cloud, language translations and disconnected operations into the DCGS-SOF baseline. Continues refining and integration of SOF SIGINT PED/SGIP emerging technologies and capabilities such as: over-watch/compound monitoring, develop analyst trip wire tools, next generation analytics processing, upgrading imaging and video exploitation tools, patterns of movement characterization and detection for single mission, upgrade speech to text capabilities. Continues DCGS-SOF Limited Objective Events and exercise participation to test integration efforts. Continues development of the interoperability with Coalition partners, Defense Intelligence Information Environment (DI2E), and Joint Information Environment.			
FY 2020 Plans: Continues development of rapid prototyping and integration of emerging technologies and enhanced capabilities for DCGS-SOF requirements such as: Advanced analytics, UI, NLP, cloud, language translations and deliver disconnected operations capability into the DCGS-SOF baseline. Continues refining and integration of SOF SIGINT PED/SGIP emerging technologies			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) S400A / <i>Distributed Common Ground/Surface Systems</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
and capabilities such as: over-watch/compound monitoring, develop analyst trip wire tools, next generation analytics processing, upgrading imaging and video exploitation tools, patterns of movement characterization and detection for single mission, upgrade speech to text capabilities. Continues DCGS-SOF Limited Objective Events and exercise participation to test integration efforts. Continues development of the interoperability with Coalition partners, DI2E, and Joint Information Environment.			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.073 million due to inflation and other minor adjustments.			
Accomplishments/Planned Programs Subtotals	5.488	6.286	6.359

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/020401INTL: <i>Distributed Common Ground/Surface System</i>	15.685	17.863	12.522	-	12.522	11.645	13.677	14.690	15.117	Continuing	Continuing

Remarks

D. Acquisition Strategy

DCGS-SOF leverages SOF programs, DoD and Intelligence Community partners, National labs, and other Government Agencies to integrate Commercial Off The Shelf /Government Off The Shelf (COTS/GOTS), and other mature technologies into the Program of Record which will reside partially within the SOF Information Enterprise combined with Web-Client tools in a global cloud. These alliances enable more agile access to (searchable, discoverable) and sharing of larger data domains and services to meet SOF-peculiar documented requirements. The technology allows for seamless integration and federation with DoD, Interagency, and Coalition tactical Intelligence, Surveillance and Reconnaissance (ISR) PED systems. The DCGS-SOF program office employs an agile development process with capability insertions into the development baseline for assessment and future deployment into the operational baseline. All development requirements are prioritized through the DCGS Requirements Working Group (DRWG) chaired by J2. Once approved, the requirements are evaluated and scheduled by engineering development teams for SOF and National Reconnaissance Office (NRO) FADE. Using this methodology allows capabilities to be inserted in a fast and agile manner based on user requirements and priorities. All evolutionary technology insertions (ETIs) in the R-4 schedule are based on current program office projections. If requirements change based on the DRWG, the ETI and version capabilities identified may change.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) S400A / <i>Distributed Common Ground/Surface Systems</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Capabilities Modernization - SOF Geospatial Intelligence Processing Exploitation, and Dissemination (SGIP)	Various	Various : Various	15.847	0.734	Jan 2018	0.749	Jan 2019	2.500	Jan 2020	-		2.500	Continuing	Continuing	-
Development and Integration - Enterprise / All Source Information Fusion (ENT/ASIF)	Various	Various : Various	8.347	2.301	Jan 2018	2.347	Jan 2019	1.459	Jan 2020	-		1.459	Continuing	Continuing	-
Independent Verification and Validation - SOF Signals Intelligence Processing Exploitation, and Dissemination (SOF SIGINT PED)	MIPR	MITRE : Bedford, MA	1.725	0.295	Mar 2018	0.301	Mar 2019	0.615	Mar 2020	-		0.615	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	1.788	-		-		-		-		-	0.000	1.788	-
Subtotal			27.707	3.330		3.397		4.574		-		4.574	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Support	C/FFP	SITEC : Various	4.138	0.939	Mar 2018	1.646	Mar 2019	0.259	Mar 2020	-		0.259	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	0.576	-		-		-		-		-	0.000	0.576	-
Subtotal			4.714	0.939		1.646		0.259		-		0.259	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) S400A / <i>Distributed Common Ground/Surface Systems</i>
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	MIPR	SPAWAR : Charleston, SC	1.956	-		-		0.854	Oct 2019	-		0.854	Continuing	Continuing	-
Independent Verification and Validation	MIPR	MITRE : Bedford, MA	2.880	0.295	Oct 2017	0.295	Oct 2018	0.210	Oct 2019	-		0.210	Continuing	Continuing	-
Interoperability Support	MIPR	JITC : Ft Huachuca, AZ	1.639	0.221	Feb 2018	0.225	Feb 2019	0.232	Feb 2020	-		0.232	Continuing	Continuing	-
Interoperability Testing	C/FFP	SITEC : Various	4.330	0.703	Mar 2018	0.723	Mar 2019	0.230	Mar 2020	-		0.230	Continuing	Continuing	-
Subtotal			10.805	1.219		1.243		1.526		-		1.526	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.226	5.488	6.286	6.359	-	6.359	Continuing	Continuing	N/A

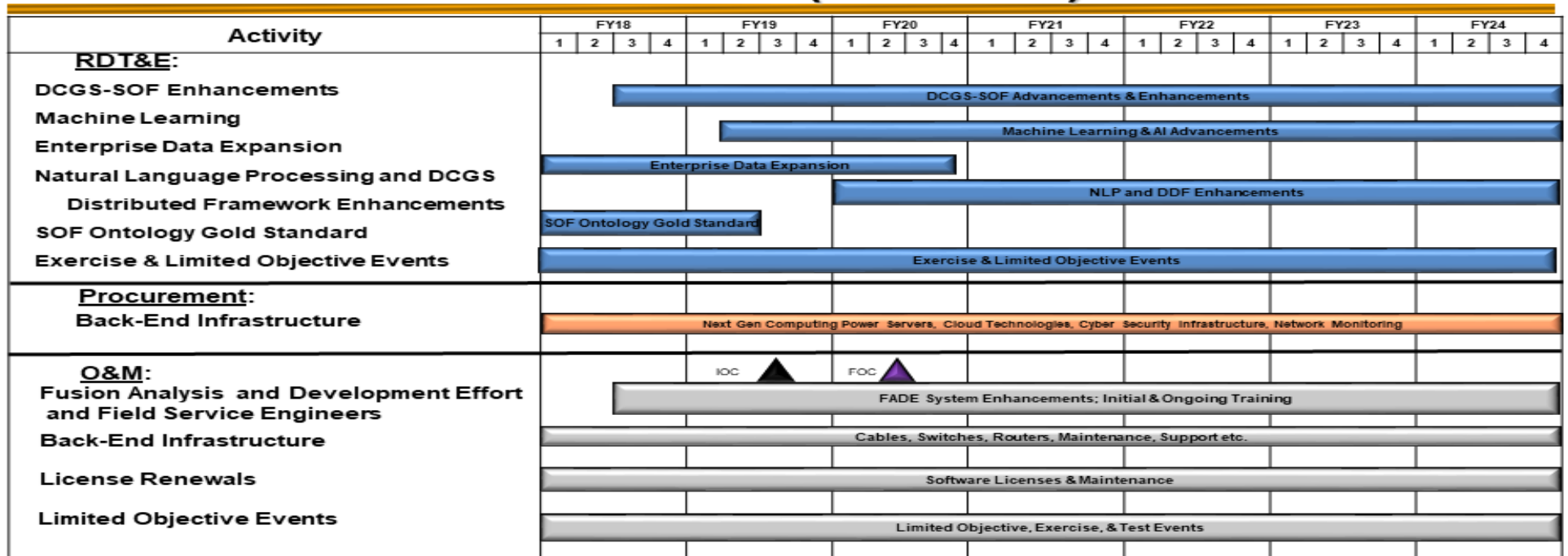
Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) S400A / <i>Distributed Common Ground/Surface Systems</i>
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DCGS-SOF ENTERPRISE/ ALL SOURCE INFORMATION FUSION (ENT/ASIF)



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) S400A / <i>Distributed Common Ground/Surface Systems</i>

DCGS-SOF SOF GEOSPATIAL INTELLIGENCE PROCESSING, EXPLOITATION, & DISSEMINATION (SGIP)

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	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
RDT&E:																												
Speech to Text (STEP) Upgrade																												
Procurement:																												
Garrison SGIP Infrastructure																												
Deployable SGIP Operation Cell HW																												
Tactical SGIP Operation Cell HW																												
O&M:																												
Garrison SGIP Infrastructure CERP (5 Years)																												
SW License Renewal & IT Support																												
DPOC/TPOC HW CERP (3-5 Years)																												
Limited Objective Events																												

FOC
 Milestone
 Contract Award
 Article Delivery
 RDT&E
 Procurement
 O&M
 Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) S400A / <i>Distributed Common Ground/Surface Systems</i>

DCGS-SOF

SOF SIGNALS INTELLIGENCE PROCESSING, EXPLOITATION, & DISSEMINATION (SOF SIGINT PED)

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	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
<u>RDT&E:</u>																												
Language Enhancements																												
<u>Procurement:</u>																												
Communication SDNs CERP (5 Years)																												
<u>O&M:</u>																												
Network Support Service																												
End User Support Service																												
Global Network Control Center																												
Garrison Partial CERP (5 Years)																												

▲ FOC
 ▲ Milestone
 ◆ Contract Award
 ▲ Article Delivery
■ RDT&E
■ Procurement
■ O&M
▲ Previously Reported

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) S400A / <i>Distributed Common Ground/Surface Systems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Distributed Common Ground/Surface Systems</i>				
DCGS-SOF enhancements in partnership with FADE develop, integrate, and test emerging technologies and capabilities to include: advanced analytics, user interface, disconnected operations into baseline	3	2018	4	2024
Develop, integrate, test next gen DCGS-SOF machine learning and artificial intelligence seeking to automatically identify and tag objects from ingested images and documents	2	2019	4	2024
Partner with FADE to integrate and test SOF and external aggregated Data Layers and Sources sharing DCGS-SOF FADE information with Coalition partners and refine back end design and infrastructure	1	2018	4	2020
Develop, integrate, test next gen DCGS-SOF tech, capabilities: Natural Language Processing (NLP), speech-to-text, language enhancements, upgrade imaging, human/object detection & characterization	1	2019	4	2024
DCGS Distributed Framework (DDF) improvements with FADE and DISR/ICSR/DI2E to develop, integrate, & test next gen DDF architecture to comply with content discovery, retrieval data & IdAM/PKI standards	1	2020	4	2024
Develop, integrate, and test next gen DCGS-SOF ontologies utilizing a Gold Standard Data Set to improve object identification and tagging across the advanced analytics enterprise	1	2018	2	2019
Participate in Exercise and Limited Objective events to include: Trident Spectre, Enterprise Challenge, Storm Force, and DI2E Plugfest (annually); United Vision (even fiscal years)	1	2018	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1105219BB / MQ-9 Unmanned Aerial Vehicle (UAV)
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	80.453	33.106	18.403	20.697	-	20.697	21.265	19.446	19.847	20.310	Continuing	Continuing
S851: <i>MQ-9 Unmanned Aerial Vehicle (UAV)</i>	80.453	33.106	18.403	20.697	-	20.697	21.265	19.446	19.847	20.310	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element identifies, develops, rapidly prototypes, integrates, and tests Special Operations Forces (SOF) - peculiar mission kits, mission payloads, weapons, and modifications on MQ-9 Unmanned Aerial Vehicles (UAVs), Ground Control Stations (GCSs), and training systems as a component of the Medium Altitude Long Endurance Tactical (MALET) program. USSOCOM is designated as the DOD lead for planning, synchronizing, and as directed, executing global operations against terrorist networks. USSOCOM requires the capability to find, fix, finish, exploit, and analyze time-sensitive high-value targets. These targets can often only be identified with patient collection of information and require rapid, decisive action during the short periods in which they present themselves. This program element addresses the primary areas of Intelligence, Surveillance, Reconnaissance, and Target (ISR&T) Acquisition, and Strike.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	37.863	18.403	20.793	-	20.793
Current President's Budget	33.106	18.403	20.697	-	20.697
Total Adjustments	-4.757	0.000	-0.096	-	-0.096
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-3.500	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.257	-			
• Other Adjustments	-	-	-0.096	-	-0.096

Change Summary Explanation

Funding:

FY 2018: Decrease of -\$4.757 million is due to a transfer of -\$1.257 million to Small Business Innovative Research/Small Business Technology Transfer programs and -\$3.500 million for congressional directed reduction.

FY 2019: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	PE 1105219BB / <i>MQ-9 Unmanned Aerial Vehicle (UAV)</i>

FY 2020: Decrease of -\$0.096 million for minor programmatic adjustments.

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1105219BB / MQ-9 Unmanned Aerial Vehicle (UAV)	Project (Number/Name) S851 / MQ-9 Unmanned Aerial Vehicle (UAV)
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S851: MQ-9 Unmanned Aerial Vehicle (UAV)	80.453	33.106	18.403	20.697	-	20.697	21.265	19.446	19.847	20.310	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

As the supported combatant command in global operations, USSOCOM requires the capability to find, fix, finish, exploit, and analyze time-sensitive high-value targets. These targets can often only be identified with patient collection of information and require rapid, decisive action during the short periods in which they present themselves. This project addresses the primary areas of Intelligence, Surveillance, Reconnaissance, and Target (ISR&T) Acquisition and Strike.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: MQ-9 UAV	33.106	18.403	20.697	-	20.697
Description: Identifies, develops, integrates, and tests Special Operations Forces (SOF)-peculiar mission kits, mission payloads, weapons, and modifications on MQ-9 UAVs, Ground Control Stations (GCSs), and training systems.					
FY 2019 Plans: Develop, test, and integrate SOF-peculiar emerging technology mission kits, mission payloads, weapons and modifications on MQ-9 UAVs, GCSs, and training systems.					
FY 2020 Base Plans: Develops, tests, and integrates SOF-peculiar emerging technology mission kits, mission payloads, weapons and modifications on MQ-9 UAVs, GCSs, and training systems.					
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$2.294 million due to accelerating aircraft software releases from every 10-12 months to every 6-8 months.					
Accomplishments/Planned Programs Subtotals	33.106	18.403	20.697	-	20.697

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1105219BB / MQ-9 Unmanned Aerial Vehicle (UAV)	Project (Number/Name) S851 / MQ-9 Unmanned Aerial Vehicle (UAV)

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

Line Item	FY 2018	FY 2019	FY 2020	FY 2020	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PROC/1108MQ9: MQ-9 Unmanned Aerial Vehicle	41.440	24.621	5.338	1.900	7.238	7.346	7.116	7.126	11.150	Continuing	Continuing

Remarks

D. Acquisition Strategy

MQ-9 UAV implements an agile acquisition approach for the MQ-9 aircraft, GCS and Electro-Optical/Infrared (EO/IR) turret sensor Operational Flight Program (OFP) software development. The MQ-9 UAV provides rapid prototyping activities and technology maturation events in order to increase first pass lethality. Contract types include a mix of cost type and fixed priced. Proprietary issues with the aircraft, GCS and sensor software as well as aircraft modification considerations dictate sole source contracts. MQ-9 UAV leverages service common Contractor Logistics Support (CLS) contracts for aircraft and ancillary equipment sustainment.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1105219BB / MQ-9 Unmanned Aerial Vehicle (UAV)	Project (Number/Name) S851 / MQ-9 Unmanned Aerial Vehicle (UAV)
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MQ-9 UAVs, Ground Control Stations, and Training Systems	SS/ Various	General Atomics Aeronautical Services : San Diego, CA	36.804	27.514	Jun 2018	14.698	Jun 2019	16.538	Apr 2020	-		16.538	Continuing	Continuing	-
MQ-9 UAVs, Ground Control Stations, and Training Systems	SS/ Various	Raytheon : McKinney, TX	7.445	2.500	Jul 2018	1.292	Jul 2019	1.456	Apr 2020	-		1.456	Continuing	Continuing	-
Prior Years Completed Projects	Various	Various : Various	15.900	-		-		-		-		-	0.000	15.900	-
Subtotal			60.149	30.014		15.990		17.994		-		17.994	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MQ-9 UAVs, Ground Control Stations, and Training Systems	SS/ Various	General Atomics Aeronautical Services : San Diego, CA	15.004	3.092	Jun 2018	2.413	Jun 2019	2.703	Apr 2020	-		2.703	Continuing	Continuing	-
Prior Years Completed Projects	Various	Various : Various	5.300	-		-		-		-		-	0.000	5.300	-
Subtotal			20.304	3.092		2.413		2.703		-		2.703	Continuing	Continuing	N/A

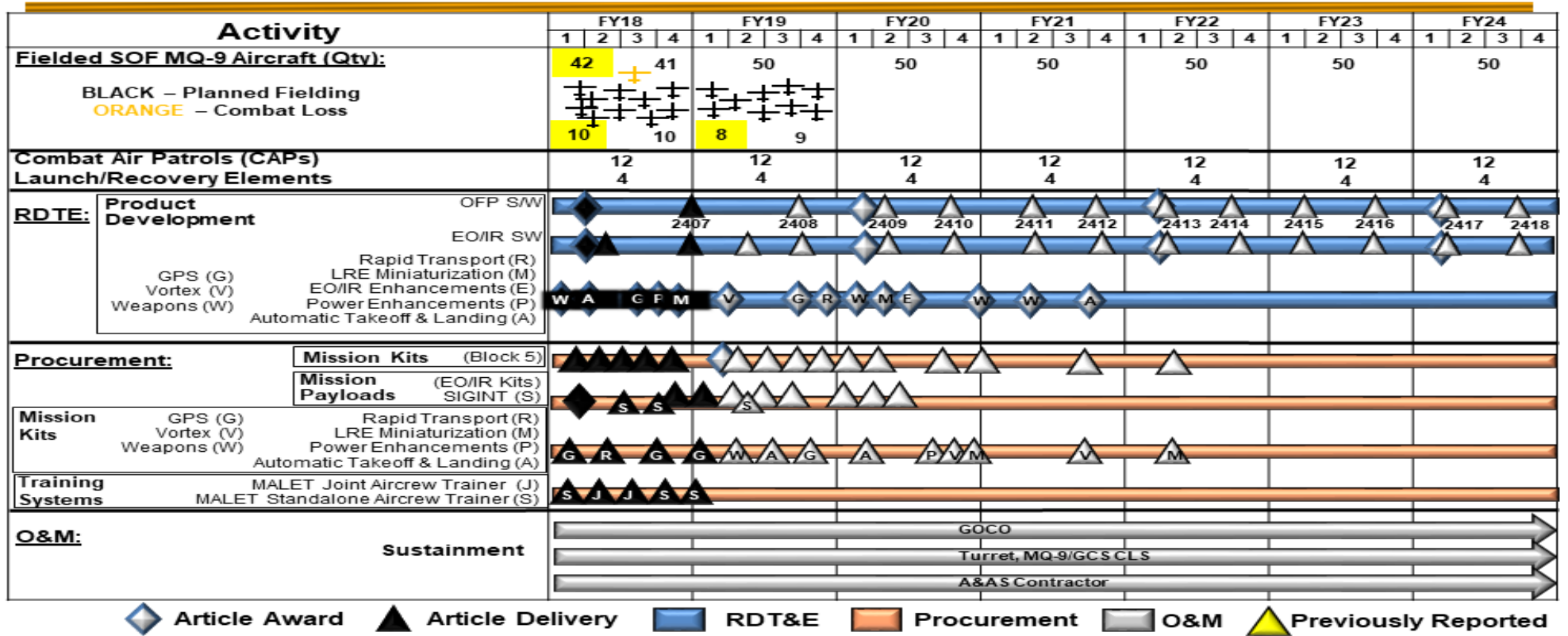
	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
	Project Cost Totals		80.453	33.106	18.403	20.697	-	20.697	Continuing	Continuing

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1105219BB / MQ-9 Unmanned Aerial Vehicle (UAV)	Project (Number/Name) S851 / MQ-9 Unmanned Aerial Vehicle (UAV)

MALET MQ-9 Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1105219BB / MQ-9 Unmanned Aerial Vehicle (UAV)	Project (Number/Name) S851 / MQ-9 Unmanned Aerial Vehicle (UAV)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MQ-9 UAVs, Ground Control Stations (GCSs), and Training Systems Product Development</i>				
Operational Flight Program Software (SW)	1	2018	4	2024
Electro-optical/Infrared (EO/IR) Software (SW)	1	2018	4	2024
Weapons (W)	1	2018	2	2022
Global Positioning System (G)	3	2018	4	2020
Automated Takeoff and Landing (A)	1	2018	4	2022
Vortex Integration (V)	2	2019	3	2020
Long Range Endurance Miniaturization (M)	4	2018	2	2021
Power Enhancements (P)	3	2018	3	2019
EO/IR Enhancements (E)	2	2020	2	2021
Rapid Transport (R)	4	2019	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160279BB I <i>Small Business Innovation Research/Small Bus Tech Transfer</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	220.901	23.371	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
S050: <i>Small Business Innovation Research</i>	213.604	20.490	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
S051: <i>Small Business Technology Transfer</i>	7.297	2.881	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element consists of a highly competitive three-phase award system that provides qualified small businesses with the opportunity to propose high quality innovative ideas that meet specific research and development needs of USSOCOM. Small Business Innovation Research (SBIR) is a result of the Small Business Development Act of 1992. It was enacted by Congress in Public Law 97-219, reenacted by Public Law 99-443, and reauthorized by the SBIR Program Reauthorization Act of 2012. Starting in FY 1994, the SBIR program was refocused toward dual use and defense reinvestment efforts. Phase I projects evaluate the scientific technical merit and feasibility of an idea. Phase II projects expand the results of, and further pursue, the developments of Phase I. Phase III is for commercialization of the results of Phase II and requires the use of private or non-SBIR federal funding. USSOCOM participates annually in the DOD Request for Proposal process. USSOCOM then awards its proposed SBIR projects. FY 2014 was the first year USSOCOM participated in the Small Business Technology Transfer (STTR) program. The STTR goal is similar to the SBIR program, but the STTR program has the additional goal to expand public/private sector partnerships between small business and nonprofit U.S. research institutions.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	23.371	0.000	0.000	-	0.000
Total Adjustments	23.371	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	23.371	-			

Change Summary Explanation

Funding:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	PE 1160279BB / <i>Small Business Innovation Research/Small Bus Tech Transfer</i>

FY 2018: Increase of \$23.371 million is due to reprogramming from various program elements for the congressionally mandated Small Business Innovation Research (\$20.490 million) and Small Business Technology Transfer (\$2.881 million) programs.

FY 2019: None.

FY 2020: None.

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160279BB / <i>Small Business Innovation Research/Small Bus Tech Transfer</i>	Project (Number/Name) S050 / <i>Small Business Innovation Research</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S050: <i>Small Business Innovation Research</i>	213.604	20.490	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 consists of a highly competitive three-phase award system that provides qualified small businesses with the opportunity to propose high quality innovative ideas that meet specific research and development needs of USSOCOM. Small Business Innovation Research (SBIR) is a result of the Small Business Development Act of 1992. It was enacted by Congress in Public Law 97-219, reenacted by Public Law 99-443, and reauthorized by the SBIR Program Reauthorization Act of 2012. Starting in FY 1994, the SBIR program was refocused toward dual use and defense reinvestment efforts. Phase I projects evaluate the scientific technical merit and feasibility of an idea. Phase II projects expand the results of, and further pursue, the developments of Phase I. Phase III is for commercialization of the results of Phase II and requires the use of private or non-SBIR federal funding. USSOCOM participates annually in the DOD Request for Proposal process. USSOCOM then awards its proposed SBIR projects.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: SBIR	20.490	-	-
Accomplishments/Planned Programs Subtotals	20.490	-	-

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

N/A

Remarks

D. Acquisition Strategy

SBIR is a three-phase program that provides early-stage Research and Development (R&D) to small companies. Eligible projects must fulfill an R&D need identified by DOD and have the potential to be developed into a product or service for commercial or defense markets. SBIR is designed to stimulate technological innovation, increase private sector commercialization of federal R&D, increase small business participation in federally funded R&D and foster participation by minority and disadvantaged firms in technological innovation.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160279BB / <i>Small Business Innovation Research/Small Bus Tech Transfer</i>	Project (Number/Name) S050 / <i>Small Business Innovation Research</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Phase I <\$150K	C/Various	Various : Various	8.078	11.573	Oct 2017	-		-		-		-	Continuing	Continuing	-
Phase II >\$750K	C/Various	Various : Various	7.015	8.917	May 2018	-		-		-		-	Continuing	Continuing	-
Prior Year Funding	C/Various	Various : Various	198.511	-		-		-		-		-	0.000	198.511	-
Subtotal			213.604	20.490		-		-		-		-	Continuing	Continuing	N/A

Remarks
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	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	213.604	20.490	0.000	-	-	-	Continuing	Continuing	N/A

Remarks
Due to multiple awards, the dates listed above reflect the last Phase I and II awarded.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command			Date: March 2019		
Appropriation/Budget Activity 0400 / 7		R-1 Program Element (Number/Name) PE 1160279BB / <i>Small Business Innovation Research/Small Bus Tech Transfer</i>		Project (Number/Name) S050 / <i>Small Business Innovation Research</i>	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Small Business Innovative Research</i>																												
Phase I Efforts																												
Phase II Efforts																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160279BB / <i>Small Business Innovation Research/Small Bus Tech Transfer</i>	Project (Number/Name) S050 / <i>Small Business Innovation Research</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Small Business Innovative Research</i>				
Phase I Efforts	1	2018	2	2019
Phase II Efforts	3	2018	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160279BB / <i>Small Business Innovation Research/Small Bus Tech Transfer</i>	Project (Number/Name) S051 / <i>Small Business Technology Transfer</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S051: <i>Small Business Technology Transfer</i>	7.297	2.881	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

Small Business Technology Transfer (STTR) goal is to expand public/private sector partnerships between small business and nonprofit U.S. research institutions.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: STTR	2.881	-	-
Accomplishments/Planned Programs Subtotals	2.881	-	-

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

N/A

Remarks

D. Acquisition Strategy

STTR provides early-stage R&D funding directly to small companies working cooperatively with researchers at universities and other research institutions. STTR program is also a three-phased program and designed to stimulate technological innovation, increase private sector commercialization of federal R&D, increase small business participation in federally funded R&D and foster participation by minority and disadvantaged firms in technological innovation.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160279BB / <i>Small Business Innovation Research/Small Bus Tech Transfer</i>	Project (Number/Name) S051 / <i>Small Business Technology Transfer</i>	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Small Business Technology Transfer</i>																												
Phase II Efforts																												
STTR <\$1M																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160279BB / <i>Small Business Innovation Research/Small Bus Tech Transfer</i>	Project (Number/Name) S051 / <i>Small Business Technology Transfer</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Small Business Technology Transfer</i>				
Phase II Efforts	3	2018	3	2019
STTR <\$1M	3	2018	1	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1,064.997	250.604	175.862	245.795	-	245.795	206.685	136.047	113.530	123.396	Continuing	Continuing
SF100: <i>Aviation Systems Advanced Development</i>	809.919	169.288	108.897	137.460	-	137.460	98.484	33.530	5.255	13.031	Continuing	Continuing
SF200: <i>CV-22</i>	3.644	12.292	22.344	28.081	-	28.081	10.093	9.634	17.942	18.360	Continuing	Continuing
S750: <i>Mission Training and Preparation Systems</i>	26.392	8.181	7.520	8.595	-	8.595	9.630	9.558	9.757	9.983	Continuing	Continuing
S875: <i>AC/MC-130J</i>	37.926	9.351	17.091	31.891	-	31.891	55.083	53.892	54.943	56.224	Continuing	Continuing
D615: <i>Rotary Wing Aviation</i>	187.116	51.492	20.010	39.768	-	39.768	33.395	29.433	25.633	25.798	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 212

A. Mission Description and Budget Item Justification

SF100 Aviation Systems Advanced Development:

This project provides for the development, rapid prototyping, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation and training requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: SOF common avionics; Terrain Following/Terrain Avoidance (TF/TA) radar, best known as Silent Knight radar or AN/APQ-187; Defensive Countermeasures; Electronic Warfare (EW) - Radio Frequency Countermeasures (RFCM); Precision Strike Package (PSP); PSP High Energy Laser; AC-130H/W/U and MC-130E/H/P Recapitalization, and other SOF airborne platforms; digital terrain elevation data and electronic order of battle; digital maps; Airborne Mission Networking (AbMN); near real-time Intelligence, Surveillance and Reconnaissance (ISR); data fusion; threat detection and avoidance; navigation, target detection, and identification technologies; weapons integration; digital broadcast capabilities; aerial refueling; survivability; and ISR payload technological improvements with size, weight, power and integration onto all SOF unmanned aircraft system (UAS) ISR platforms.

SF200 CV-22 Development/Test and Evaluation:

The CV-22 is a SOF variant of the V-22 vertical medium lift, multi-mission aircraft. The CV-22 project provides long range, high speed, infiltration, exfiltration, and resupply to Special Forces teams in hostile, denied, and politically sensitive areas. This is a capability not currently provided by other existing aircraft. The funding in this project supports integration, design, development, rapid prototyping, and test to provide improved capabilities to include, but not limited to, more robust performance in situational awareness, ISR, weapons, avionics, survivability, maneuverability, mission deployment and improved reliability and maintainability of the CV platform. CV-22 SOF Common TF/TA Silent Knight radar or AN/APQ-187, provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas to infill, exfill, and resupply SOF forces. Provides more sustainable/capable replacement to obsolescing and technology limited TF/TA radar. There is a plan to develop a Forward Defensive Weapon System (FDWS), which in combination with the ramp-mounted gun, provides a ~360 degree field of fire to suppress/eliminate enemy

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	
<p>targets. The FDWS integrates the fielded GAU-17 belly gun system currently employed on the USMC MV-22 aircraft with the SOF peculiar color helmet mounted display (CHMD) and cockpit firing controls for pilot operation.</p> <p>S750 Mission Training and Preparation Systems: The Special Operations Mission Planning and Execution (SOMPE) project funds the definition, design, development, rapid prototyping, integration, and testing of SOMPE systems to support mission planning, rehearsal, and execution requirements to meet SOF-unique mission requirements and correct deficiencies in current mission planning, rehearsal, and execution capabilities. The Mission Training and Preparation Systems project also includes program management, systems engineering, configuration management, architecture development, risk reduction, and trade study initiatives, as well as initiatives to assure interoperability and commonality between diverse mission planning, rehearsal, and execution systems.</p> <p>S875 AC/MC-130J: The AC/MC-130J project funds core SOF-unique modifications to replace aging/retired AC-130H Spectre, AC-130W Stinger II, AC-130U Spooky, MC-130E Combat Talon I, MC-130P Combat Shadow, MC-130H Combat Talon II aircraft. The 8 AC-130H Spectre, 12 AC-130W Stinger II and 17 AC-130U Spooky airframes will be replaced with MC-130J aircraft modified with the PSP to achieve the AC-130J configuration. The AC-130J aircraft will provide close air support, air interdiction, and armed reconnaissance capability. The 14 MC-130E Combat Talon I, 23 MC-130P Combat Shadow, and 20 MC-130H Combat Talon II airframes will be replaced by MC-130J Commando II aircraft with SOF mission modifications. The MC-130J Commando II aircraft perform clandestine or low visibility, single or multi-ship low-level missions intruding politically-sensitive or hostile territories; provide air refueling for special operations helicopters and CV-22 aircraft; and airdrop of leaflets, insert small special operations teams, resupply bundles and combat rubber raiding craft. The Air Force procures and fields the basic aircraft, common support equipment, and trainers for USSOCOM. An incremental upgrade approach will be used to rapidly prototype and integrate SOF capabilities onto the aircraft. SOF capabilities include, but are not limited to, Airborne Mission Networking, data fusion, threat detection and avoidance, integrated terrain following/terrain avoidance, electronic warfare, and embedded training. Integrating and automating SOF mission systems that deliver these capabilities is critical to fielding SOF-capable AC/MC-130J aircraft to recapitalize Air Force Special Operations Command's legacy C-130 fleet.</p> <p>D615 Rotary Wing Aviation: This project provides for the development, rapid prototyping, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique rotary wing aviation and training requirements. This project also includes modifications to Aircraft Survivability Equipment (ASE) avionics and weapons systems to counter rapidly emerging threats, address cyber security, improve lethality and enhance aircraft self-protection in contested environments. Rotary wing aircraft supported by this project include: MH-60M, MH-47G, and A/MH-6M. These aircraft provide aviation support to SOF in worldwide contingency operations and low-intensity conflicts. They must be capable of rapid deployment, undetected penetration of hostile areas, and operations at extended ranges under adverse weather conditions to infiltrate, provide logistics for, reinforce, and extract SOF. The anti-access/area denial (A2/AD) threat is characterized by an extensive and sophisticated ground based air defense system and an upgraded air-to-air capability targeted against helicopters. When possible, Middle-Tier Acquisition (2016 NDAA Section 804) may also be used to accommodate rapid prototyping in the above projects to develop, demonstrate and evaluate residual operational capabilities.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	259.886	184.993	137.242	-	137.242
Current President's Budget	250.604	175.862	245.795	-	245.795
Total Adjustments	-9.282	-9.131	108.553	-	108.553
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-13.000	-12.131			
• Congressional Rescissions	-	-			
• Congressional Adds	-	3.000			
• Congressional Directed Transfers	13.500	-			
• Reprogrammings	-0.257	-			
• SBIR/STTR Transfer	-9.525	-			
• Other Adjustments	-	-	108.553	-	108.553

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: SF100: *Aviation Systems Advanced Development*

Congressional Add: *Vertical Takeoff and Landing (VTOL) Unmanned Aircraft System (UAS) Research*

Congressional Add Subtotals for Project: SF100

Congressional Add Totals for all Projects

	FY 2018	FY 2019
	-	3.000
	-	3.000
	-	3.000

Change Summary Explanation

Funding:

FY 2018: Net decrease of -\$9.282 million is due to a transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs (-\$9.525 million), a congressional reduction for excess product development for EW-RFCM (-\$7.500 million), a congressional reduction for poor justification materials for CV-22 (-\$1.500 million), a congressional reduction for ASE (-\$4.000 million), a congressional transfer from Procurement for SOF Common TF/TA (Silent Knight) radar (\$7.500 million), a congressional transfer from Procurement for Degraded Visual Environment (\$6.000 million) and a decrease for higher command priorities (-\$0.257 million).

FY 2019: Net decrease of -9.131 million is due to a congressional reduction for insufficient budget justification for EC-130J risk reduction (-1.252 million), a congressional reduction for C-130 SOF Common TF/TA training system development early to need (-\$3.879 million), a congressional reduction for PSP High Energy Laser program (-\$7.000 million), and a congressional add for VTOL UAS research (\$3.000 million).

FY 2020: Net increase of \$108.553 million is for interoperability/compatibility, consolidated testing and airworthiness release for MC-130J AbMN (\$2.688 million), for interoperability/compatibility development testing for Integrated Tactical Mission System (\$5.438 million), for deficiency resolution and to begin spiral

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command Date: March 2019

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems
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1 development for EW-RFCM (\$30.253 million), for all weather on PSP and Infrared Suppression Systems for SOF C-130s (\$17.948 million), for continued development of PSP High Energy Laser (\$23.227 million), interoperability/compatibility, consolidated testing and airworthiness release for C-130 SOF Common TF/TA (Silent Knight) radar (\$11.363 million), Rotary Wing Aircraft Survivability increase (\$11.425 million) for upgrades to RFCM to address emerging Radio Frequency threats, MH-60 Modifications increase (\$4.351 million) for Upturned Exhaust System to reduce vulnerability to IR threats, MH-47 Modifications increase continue Active Parallel Actuator System development, including integration and testing with MH-47G subsystems (\$1.860 million).

Schedule: Silent Knight Radar: Raytheon Tiger Team investigation of Low Rate Initial Production (LRIP) II 2A failures concluded in April 2018; LRIP Radar production resumed in June 2018. Initial Operational Test and Evaluation (IOT&E) successfully completed in November 2018. Fielding decision projected in Q2 FY 2019. Initial Operational Capability (IOC) remains in late Q2 FY 2019. EC-130J SOF-Unique 7.0/8.1 development delay was due to a delay in the 7.0/8.1 Air Force modification contract.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems				Project (Number/Name) SF100 / Aviation Systems Advanced Development			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
SF100: Aviation Systems Advanced Development	809.919	169.288	108.897	137.460	-	137.460	98.484	33.530	5.255	13.031	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation and training requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: SOF common avionics; Terrain Following/Terrain Avoidance (TF/TA) radar, best known as Silent Knight radar or AN/APQ-187; Defensive Countermeasures; Electronic Warfare (EW) - Radio Frequency Countermeasures (RFCM); Precision Strike Package (PSP); PSP High Energy Laser; AC-130H/W/U and MC-130E/H/P Recapitalization, and other SOF airborne platforms; digital terrain elevation data and electronic order of battle; digital maps; Airborne Mission Networking; near real-time Intelligence, Surveillance and Reconnaissance (ISR); data fusion; threat detection and avoidance; navigation, target detection, and identification technologies; weapons integration; digital broadcast capabilities; aerial refueling; survivability; and ISR payload technological improvements with size, weight, power and integration onto all SOF unmanned aircraft system (UAS) ISR platforms.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: EC-130J Commando Solo	-	1.179	-	-	-
Description: EC-130J Commando Solo supported the development, integration and testing of digital broadcast capabilities on the EC-130J Commando Solo aircraft. This program is transitioning to the Multi Mission Payload - Heavy (MMP-H) program, PE 1160431BB.					
FY 2019 Plans: Develop and integrate emerging digital broadcast and antenna technologies into the Military Information Support Operations (MISO) System MMP-H Program.					
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease of \$1.179 million is due to completing the development and integration of emerging digital broadcast and antenna technologies into the MMP-H program.					
Title: EW – RFCM	49.748	9.432	44.739	-	44.739
Description: EW-RFCM supports development, integration and test activities to provide EW capability against RF threats for SOF AC/MC-130J aircraft. The Defensive Countermeasures (DCM) suite is an integrated package of existing and future aircraft defensive systems which provides situational awareness and threat					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>response processing that includes the RFCM system, and future defensive systems. The RFCM program provides SOF-unique aircraft defensive capabilities required for SOF missions.</p> <p>FY 2019 Plans: Continue integration and testing. Began government developmental flight test activities to provide EW capability against RF threats for SOF AC-130J and MC-130J platforms.</p> <p>FY 2020 Base Plans: Continues integration and testing. Completes government developmental and operational flight test activities on AC-130J and begins development and interoperability testing on MC-130J TF/TA radar, electronic warfare systems and airborne mission networking systems. Capabilities being developed include: High Band Transmission, Adaptive Radar Countermeasures, Very Low Band Receive, Low Band Transmit, and Increased Instantaneous Bandwidth, precision direction finding and advance techniques. Begin Spiral 1 development to address updated priority threats.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$35.307 million resolves deficiencies and begins development of Spiral 1 capabilities and adaptive countermeasures.</p>					
<p>Title: PSP for SOF</p> <p>Description: PSP for SOF supports systems engineering, analysis, development, and enhancement of the baseline PSP and integration, installation, and test on host MC-130J aircraft provided by the U.S. Air Force for the AC-130H, AC-130W and AC-130U recapitalization, as well as current SOF AC-130Js and AC-130Ws, and other SOF platforms. Missions for the AC-130 aircraft include, but are not limited to, Close Air Support, Air Interdiction, and Armed Reconnaissance. PSP is modular, scalable, and platform neutral.</p> <p>FY 2019 Plans: Continue development, integration, test, and system improvement of the PSP, to include defensive systems, Electro-Optical/Infrared (EO/IR) sensors, adverse weather and special mission processor capabilities on SOF C-130s and other SOF aircraft.</p> <p>FY 2020 Base Plans:</p>	13.018	18.354	28.528	-	28.528

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Continues development, integration, test, and system improvement of the PSP, to include defensive systems, EO/IR sensors, adverse weather and special mission processor capabilities on SOF C-130s and other SOF aircraft.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$10.174 million is for the development, integration, test, and system improvement of all-weather capabilities of the PSP and Infrared Suppression Systems (IRSS) on SOF C-130s.</p>					
<p>Title: PSP High Energy Laser (HEL)</p> <p>Description: The HEL effort leverages a rapid prototyping approach to demonstrate integration of a laser weapon system onto an AC-130J aircraft. Utilizing a best of breed approach, it integrates laser, beam control, power and thermal subsystems via a government lead system integrator. This provides additional flexibility for rapid prototyping and future modifications.</p> <p>FY 2019 Plans: Continue development of subsystems, complete purchase of beam control subsystem and laser subsystem, interface control documentation, and completes risk reduction for AC-130J aircraft.</p> <p>FY 2020 Base Plans: Take receipt of subsystems ordered, begin assembly of subsystems into weapon systems.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of 0.241 million continues deferred laser assembly and integration.</p>	15.077	26.986	27.227	-	27.227
<p>Title: C-130 SOF Common TF/TA (Silent Knight) Radar</p> <p>Description: C-130 SOF Common TF/TA (Silent Knight) radar supports integration and test of a TF/TA radar and on-board processor to provide a multi-mode terrain following capability on MC-130J aircraft. Crew systems integration efforts include modifications to aircraft controls and displays to automate TF/TA flight management and reduce pilot, copilot and Combat Systems Officer workload during missions previously performed by five aircrew members on legacy C-130 tankers and penetrators.</p> <p>FY 2019 Plans:</p>	81.830	47.476	32.524	-	32.524

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Continue SOF Common TF/TA (Silent Knight) radar and aircraft control and display integration efforts. Installs TF radar system kit on a third MC-130J and continues MC-130J TF/TA developmental flight test. Develop hardware and software for safety critical capabilities and integration issues on the Silent Knight radar.</p> <p>FY 2020 Base Plans: Completes MC-130J TF/TA developmental flight test on aircraft modified with TF/TA radar. Begins development and interoperability testing on MC-130J TF/TA radar, electronic warfare systems and airborne mission networking systems. Trains AFSOC aircrews on an MC-130J modified with a SOF Common TF/TA (Silent Knight) radar for operational testing.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease of \$14.952 million is due to completing SOF Common TF/TA (Silent Knight) radar and aircraft control and display integration efforts.</p>					
<p>Title: MH-60/MH-47 SOF Common TF/TA (Silent Knight) Radar</p> <p>Description: MH-60/MH-47 SOF Common TF/TA (Silent Knight) radar supports Engineering and Manufacturing Development (EMD), qualification, and operational flight testing of a SOF common TF/TA LPI/LPD radar to defeat advanced passive detection threats while maintaining ability to fly safe TF. Funding also supports design, development, integration, and testing on MH-47G and MH-60M aircraft for improved system capabilities to include, but not limited to, Aircraft Survivability Equipment (ASE) interoperability improvements and reduced TF signature management.</p> <p>FY 2019 Plans: Continue design, development, integration, and testing of SOF Common TF/TA (Silent Knight) radar ASE interoperability improvements and sensor fusion TF initiatives.</p> <p>FY 2020 Base Plans: Continues technology refresh efforts to include design, development, integration, and testing of SOF Common TF/TA (Silent Knight) radar to reduce Terrain Following signature, improve ASE interoperability, sensor fusion initiatives, and increase reliability.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$1.264 million for ASE interoperability and reduced Terrain Following signature management initiatives.</p>	8.070	1.212	2.476	-	2.476
<p>Title: ISR Payload</p>	1.545	1.258	1.966	-	1.966

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Description: ISR Payload Sensor Technology supports development, integration, and testing of sensor miniaturization efforts to adapt large unmanned system ISR capabilities on all SOF unmanned ISR platforms.</p> <p>FY 2019 Plans: Continue spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing.</p> <p>FY 2020 Base Plans: Continues spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.708 million will validate additional sensors.</p>					
Accomplishments/Planned Programs Subtotals	169.288	105.897	137.460	-	137.460
	FY 2018	FY 2019			
<p>Congressional Add: Vertical Takeoff and Landing (VTOL) Unmanned Aircraft System (UAS) Research</p> <p>FY 2019 Plans: Funds to be reprogrammed to the Army.</p>	-	3.000			
Congressional Adds Subtotals	-	3.000			

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PROC/5000C13000: C-130 Modifications	31.695	80.274	15.582	-	15.582	15.627	14.076	14.353	16.817	Continuing	Continuing
• PROC/2012C130J: AC/MC-130J	164.837	160.681	173.419	-	173.419	187.846	234.161	302.270	322.669	Continuing	Continuing
• PROC/1202PSP: Precision Strike Package	219.728	226.965	232.930	-	232.930	243.111	168.520	102.038	54.542	Continuing	Continuing
• PROC0201RWUPGR: Rotary Wing Upgrades and Sustainment	149.747	146.526	172.020	-	172.020	181.380	198.276	229.219	230.428	Continuing	Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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D. Acquisition Strategy

When possible, Middle-Tier Acquisition (2016 NDAA Section 804) may also be used to accommodate rapid prototyping in the above projects to develop, demonstrate and evaluate residual operational capabilities.

- EC-130J Upgrades: Operational Flight Program Block Cycle is being developed by the Air Force program office using existing development and production contracts.
- EC-130J Commando SOLO: This program is being transitioned into the Multi Mission Payload - Heavy (MMP-H) program, PE 1160431BB. MMP-H uses a traditional acquisition development and procurement strategy with accelerated development that includes increased flight test and multiple combat evaluations.
- EW – RFCM: Awarded delivery order on cost plus incentive fee contract to integrate and test an RFCM System on AC/MC-130J platform.
- PSP for SOF: Incremental acquisition strategy to integrate and test the PSP and capability enhancements on donor MC-130J aircraft provided by the U.S. Air Force and other SOF aircraft. Multiple contract awards.
- PSP HEL: AC-130 HEL program utilizes Naval Surface Warfare Center Dahlgren Division as the government Lead System Integrator of HEL components. HEL system components purchased under Defense Ordinance Technology Consortium Other Transactional Authority. Both of these approaches provide flexibility for rapid prototyping.
- C-130 SOF Common TF/TA (Silent Knight) Radar: Awarded delivery order on Cost Plus Incentive Fee contract to integrate and test the SOF Common TF/TA (Silent Knight) radar on MC-130J aircraft and develop modifications to aircraft displays and controls.
- SOF Common TF/TA (Silent Knight) Radar: Cost Plus Fixed Fee (CPFF) awarded to Raytheon in January 2017 for development of Software Version (SW ver) 7.14 (outcome of 2017 Limited Users Test). CPFF award for development of SW ver 7.15 awarded in July 2018, with Qualification Testing expected in 4Q FY19. Continued software development to improve critical interoperability with other on-aircraft systems in FY19/20 followed by operational capability additions and move to sensor fusion TF FY20-24.
- ISR Payload Sensor Technology: Effort is being executed via a spiral development, integration and testing acquisition strategy based on leveraging existing sensor technology. The focus will be on reducing the size, weight, power and cost of state of the art ISR sensors fielded on larger ISR platforms, in order to make them usable by smaller SOF ISR platforms. This development will include the integration of the ISR capability with the platform's C2 and Communications systems as appropriate.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Vertical Takeoff and Landing (VTOL) Unmanned Aircraft System (UAS) Research Congressional Add	C/TBD	TBD : TBD	-	-		3.000	Jan 2019	-		-		-	0.000	3.000	-
EC-130J Commando Solo Multi-Mission Payload – Heavy (MMP-H)	C/CPFF	Johns Hopkins University APL : Baltimore, MD	-	-		1.179	Mar 2019	-		-		-	0.000	1.179	-
Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)	C/CPFF	BAE Systems, Inc. : Totowa, NJ	97.843	42.218	Jan 2018	9.432	Nov 2018	33.469	Dec 2019	-		33.469	Continuing	Continuing	-
EW - RFCM Spiral 1 Adaptive Countermeasures	Option/ C/PIF	BAE Systems, Inc. : Totowa, NJ	-	-		-		3.000	Jul 2020	-		3.000	Continuing	Continuing	-
Precision Strike Package (PSP) for SOF - Defensive Systems	C/TBD	Various : Various	-	2.510	Jan 2018	6.001	Jan 2019	10.141	Jan 2020	-		10.141	Continuing	Continuing	-
PSP for SOF - Electro-Optical/Infrared (EO/IR) Sensor	C/TBD	Various : Various	-	0.600	Jan 2018	1.400	Jan 2019	1.521	Jan 2020	-		1.521	Continuing	Continuing	-
PSP for SOF - Adverse Weather	C/TBD	Various : Various	-	3.240	Jan 2018	4.587	Jan 2019	15.846	Jan 2020	-		15.846	Continuing	Continuing	-
PSP for SOF - Alternate Position, Navigation & Timing	C/TBD	Various : Various	-	3.708	Jun 2018	5.541	Dec 2019	-		-		-	0.000	9.249	-
PSP High Energy Laser (HEL) - High Power Beam Director	C/CPFF	MZA Associates Corporation : Albuquerque, NM	-	10.027	Jul 2018	-		-		-		-	0.000	10.027	-
PSP HEL - Risk Reduction	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	1.300	Mar 2018	3.400	Jan 2019	-		-		-	0.000	4.700	-
PSP HEL - High Power Laser	C/CPFF	Lockheed Martin Aculite : Bothell, WA	-	3.750	Aug 2018	13.250	Dec 2018	-		-		-	0.000	17.000	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
PSP HEL - Subsystem Assembly	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	-		6.622	Mar 2019	10.127	Jan 2020	-		10.127	Continuing	Continuing	-
PSP HEL - Battery Development	C/CPFF	TBD : TBD	-	-		1.914	Feb 2019	3.600	Jan 2020	-		3.600	0.000	5.514	-
PSP HEL - Thermal Development	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	-		1.800	Jan 2019	6.500	Jan 2020	-		6.500	Continuing	Continuing	-
PSP HEL - Initial Subsystem Ground Test	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	-		-		7.000	Jan 2020	-		7.000	Continuing	Continuing	-
C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) (Silent Knight) Radar	C/CPIF	Lockheed Martin Aero : Marietta, GA	100.795	65.131	Jan 2018	33.015	Jan 2019	19.407	Jan 2020	-		19.407	Continuing	Continuing	-
MH-60/MH-47 SOF Common TF/TA (Silent Knight) Radar	C/CPFF	Raytheon : McKinney, TX	3.898	5.655	Jun 2018	-		1.733	Apr 2020	-		1.733	Continuing	Continuing	-
Intelligence, Surveillance, and Reconnaissance Payload	TBD	Various : Various	2.783	1.545	Apr 2018	1.258	Apr 2019	1.966	Nov 2019	-		1.966	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	336.602	-		-		-		-		-	0.000	336.602	-
Subtotal			541.921	139.684		92.399		114.310		-		114.310	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
C-130 SOF Common TF/TA (Silent Knight) Radar	C/CPIF	Various : Various	10.307	3.923	Dec 2017	3.811	Jan 2019	3.887	Dec 2019	-		3.887	Continuing	Continuing	-
EW-RFCM	C/Various	Robins AFB : Warner Robins, GA	16.319	4.015	Jan 2018	0.000		2.470	Jan 2020	-		2.470	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PSP for SOF - Other Government Costs	C/TBD	Various : Various	-	2.960	Sep 2018	0.825	Sep 2019	1.020	Sep 2020	-		1.020	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	28.802	-		-		-		-		-	0.000	28.802	-
Subtotal			55.428	10.898		4.636		7.377		-		7.377	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
EW-RFCM	C/Various	Robins AFB : Warner Robins, GA	4.865	3.515	Jan 2018	-		5.800	Dec 2019	-		5.800	Continuing	Continuing	-
C-130 SOF Common TF/TA (Silent Knight) Radar	C/CPIF	Various : Various	16.886	10.813	Dec 2017	9.372	Jan 2019	9.230	Dec 2019	-		9.230	Continuing	Continuing	-
MH-60/MH-47 SOF Common TF/TA (Silent Knight) Radar	C/Various	Various : Various	121.744	2.415	Apr 2018	1.212	Jan 2019	0.743	Jan 2020	-		0.743	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	29.130	-		-		-		-		-	0.000	29.130	-
Subtotal			172.625	16.743		10.584		15.773		-		15.773	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
C-130 SOF Common TF/TA (Silent Knight) Radar	C/CPIF	Various : Various	8.779	1.963	Dec 2017	1.278	Jan 2019	-		-		-	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	31.166	-		-		-		-		-	0.000	31.166	-
Subtotal			39.945	1.963		1.278		-		-		-	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command								Date: March 2019			
Appropriation/Budget Activity 0400 / 7				R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems			Project (Number/Name) SF100 / Aviation Systems Advanced Development				
	Prior Years	FY 2018		FY 2019		FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	809.919	169.288		108.897		137.460	-	137.460	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

EC-130J CSOLO Multi-Mission Payload – Heavy (MMP-H) Schedule

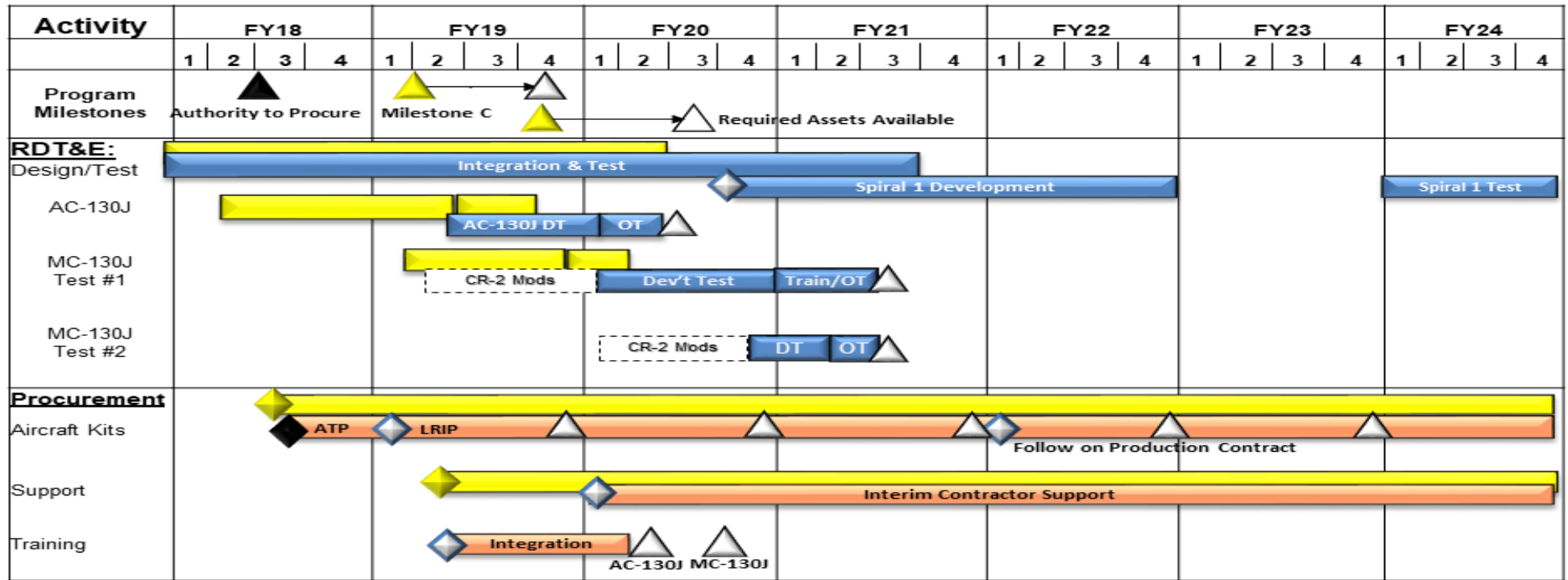
Activity	FY19				FY20				FY21				FY22				FY23				FY24																											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																								
RDTE MMP-H Capabilities Development					 PEO-FW RAMS Effort Transferred to PEO-C4 MMP-H Program																																											

 Article Award
  Article Delivery
  RDT&E
  Procurement
  O&M
  Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

AC/MC-130J RFCM Schedule

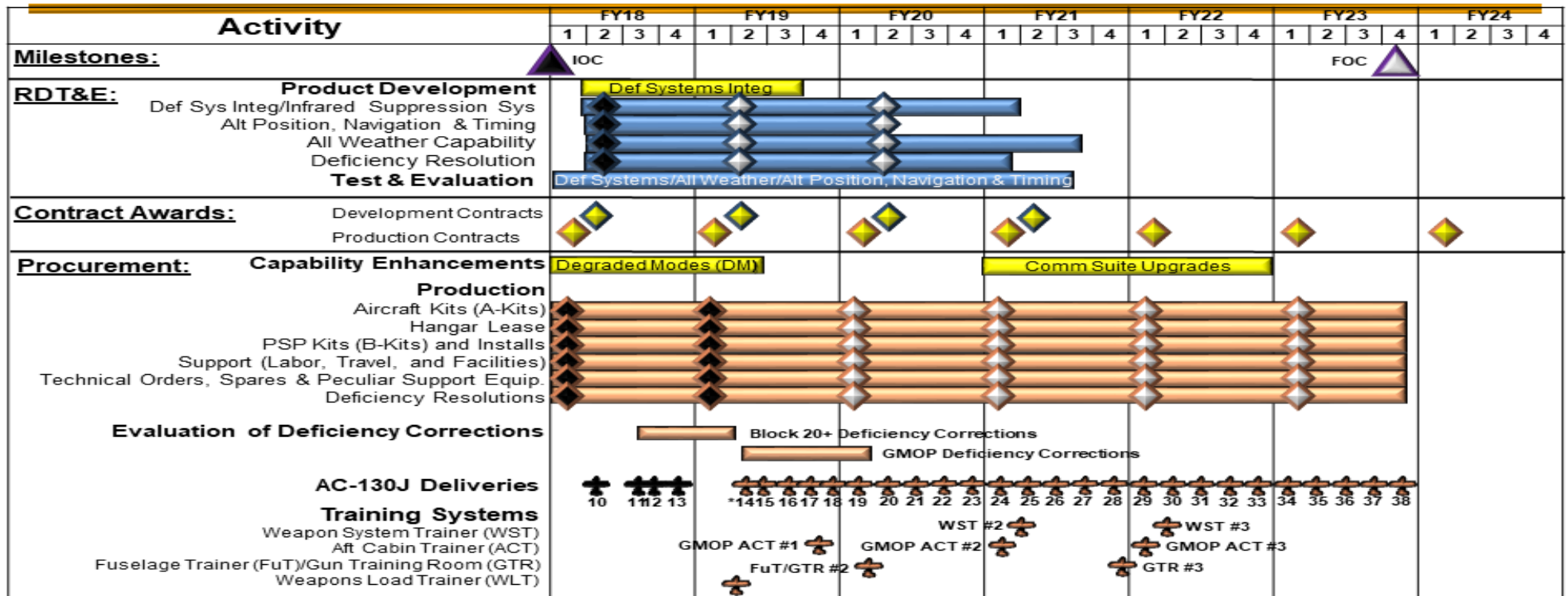


▲ Milestone ◆ Contract Award ▲ Article Delivery ■ RDT&E ■ Procurement ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

AC-130J/PSP Schedule



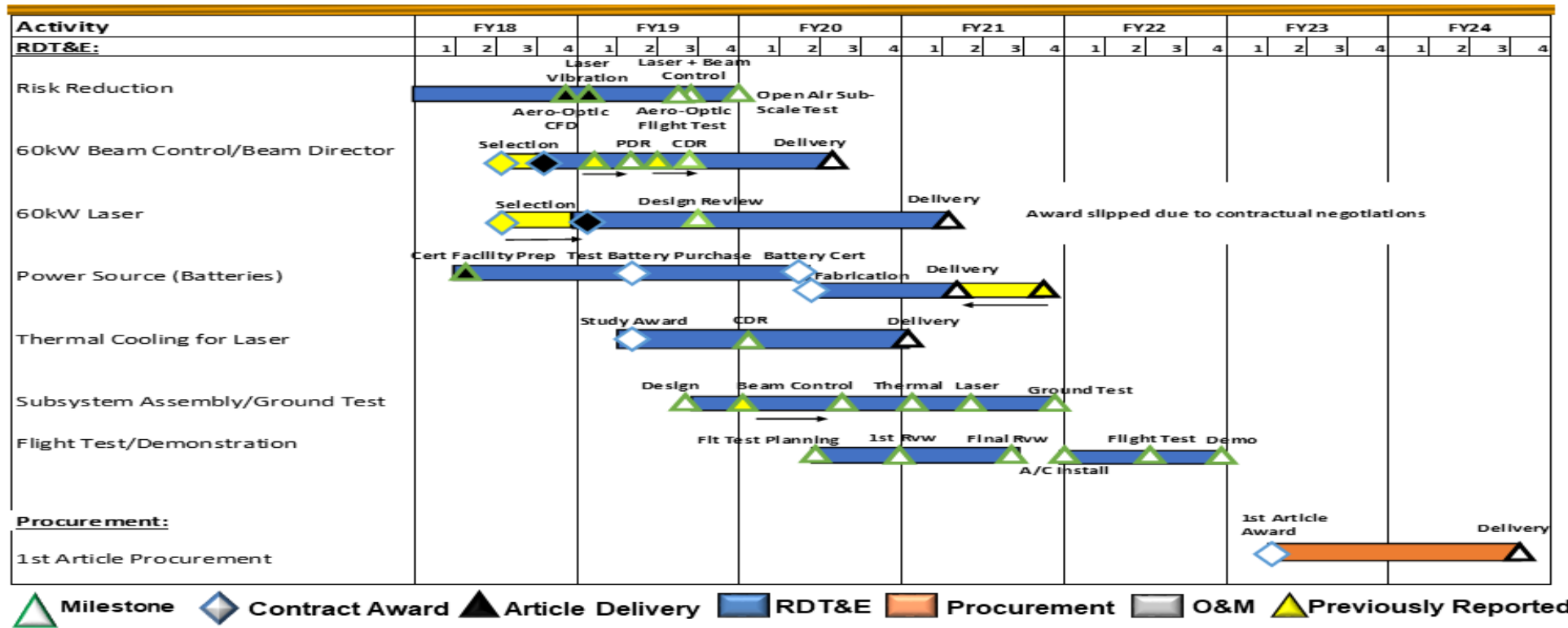
Milestones
 Contract Award
 Article Delivery
 RDT&E
 Procurement
 Previously Reported

*A/C 14 – first article with GMOP, cheek racks & Combat System Operator station

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

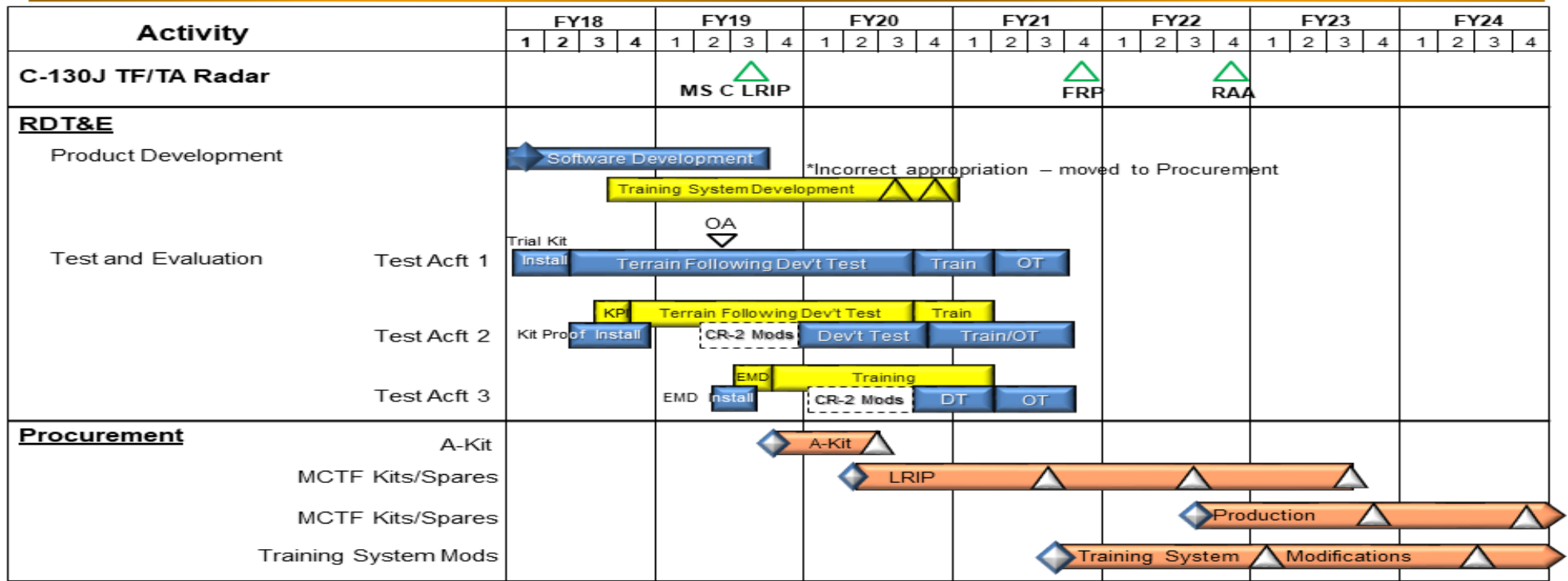
AC-130 High Energy Laser Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

C-130 SOF Common TF/TA Radar Schedule

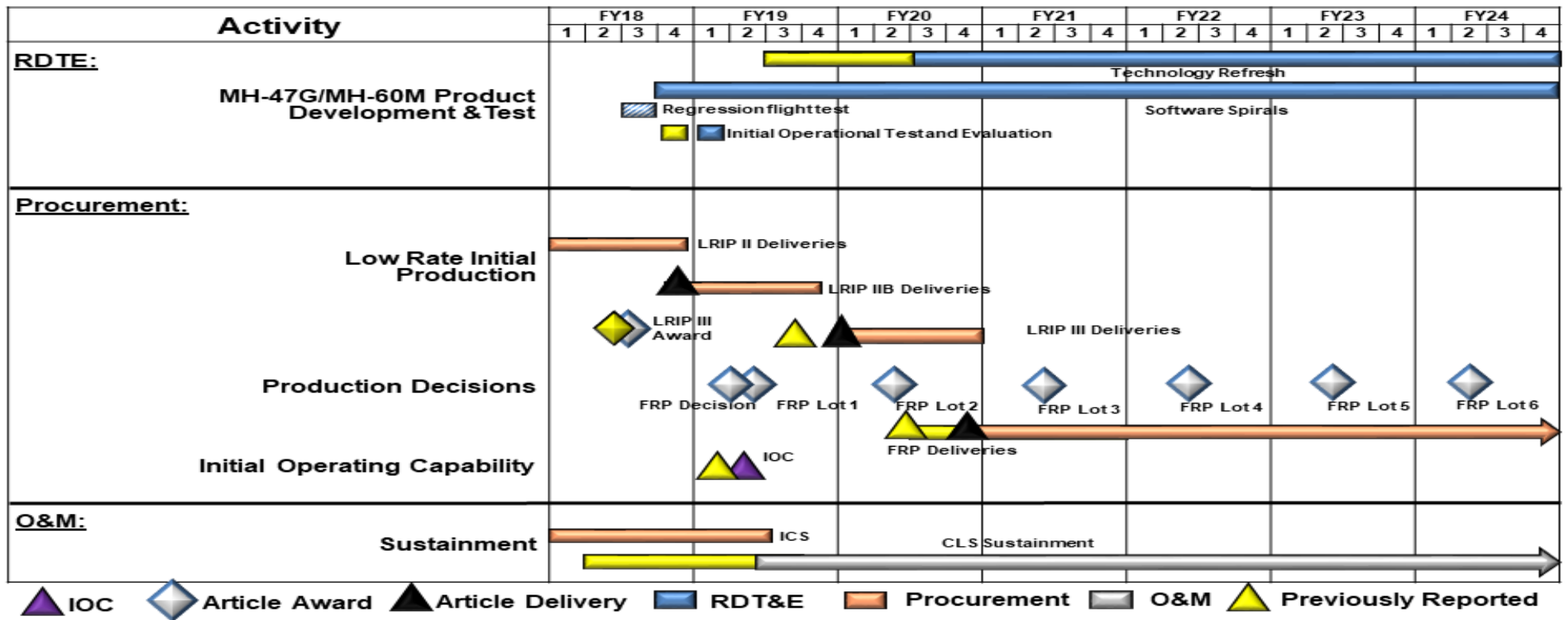


▲ Milestone
 ◆ Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

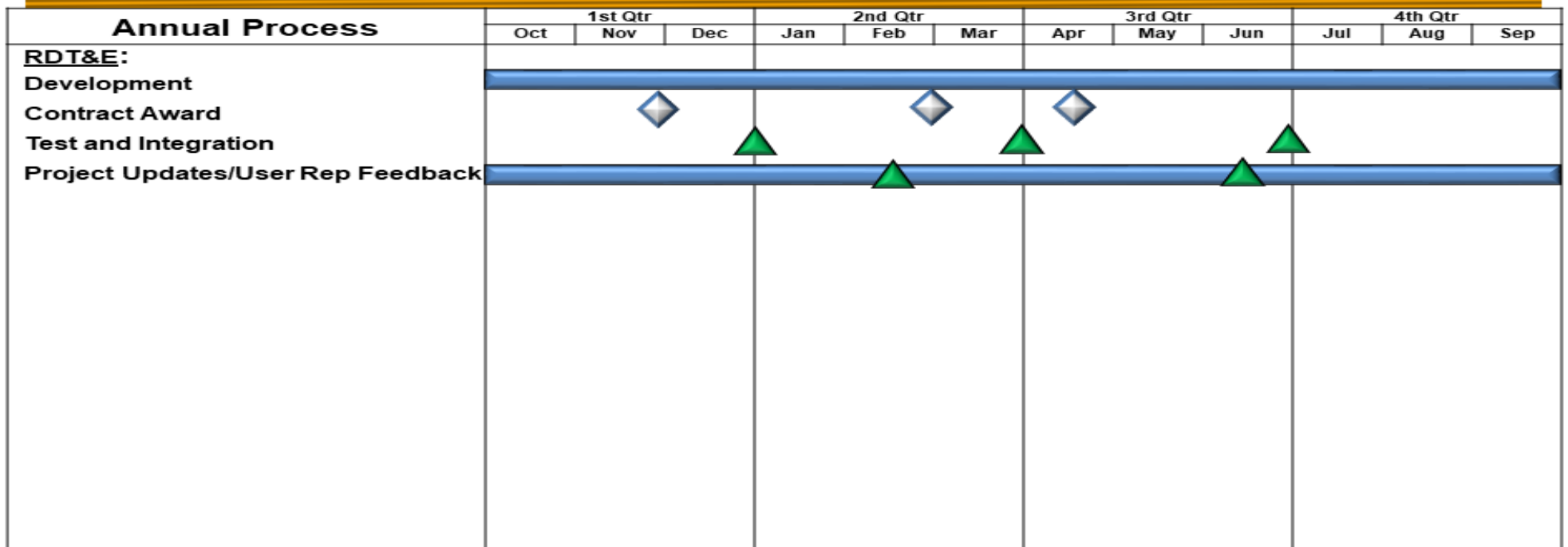
SOF Common TF/TA (Silent Knight) Radar Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

ISR Payload Sub-Project Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>EC-130J Commando Solo Multi-Mission Payload – Heavy (MMP-H)</i>				
Capabilities Development	4	2019	2	2020
<i>Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)</i>				
Product Development, Integration and Test	1	2018	3	2021
Spiral 1 Development	4	2020	4	2022
Spiral 1 Test	1	2024	4	2024
Development Test and Operational Test (DT/OT) AC-130J	2	2019	3	2020
Development Test and Operational Test #1 (DT/OT) MC-130J	1	2020	3	2021
Development Test and Operational Test #2 (DT/OT) MC-130J	4	2020	3	2021
<i>Precision Strike Package (PSP) for SOF</i>				
Capability Enhancements Product Development	1	2018	3	2021
Capability Enhancements Test and Evaluation	1	2018	4	2021
<i>PSP High Energy Laser (HEL)</i>				
PSP HEL Risk Reduction Demonstration	1	2018	4	2019
PSP HEL 60kw Beam Control/Beam Director	4	2018	3	2020
PSP HEL 60kW Laser	1	2019	2	2021
PSP HEL Power Source (Batteries)	2	2018	2	2021
PSP HEL Thermal Cooling for Laser	2	2019	1	2021
PSP HEL Subsystem Assembly/Ground Test	3	2019	4	2021
PSP HEL Flight Test/Demonstration	3	2020	4	2022
<i>C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) (Silent Knight) Radar</i>				

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	Project (Number/Name) SF100 / <i>Aviation Systems Advanced Development</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Software Development	1	2018	3	2019
Development/Flight Testing	1	2018	2	2021
Operational Testing	2	2021	4	2021
<i>MH-60/MH-47 SOF Common (TF/TA) (Silent Knight) Radar</i>				
MH-47G/MH-60M Product Development & Test	3	2018	4	2024
Initial Operation Test and Evaluation	1	2019	1	2019
Technology Refresh	3	2020	4	2024
<i>Intelligence, Surveillance, and Reconnaissance (ISR) Payload</i>				
Payload Development	1	2020	4	2020
Testing and Integration	1	2020	3	2020
Project Update/User Rep Feedback	1	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	Project (Number/Name) SF200 / CV-22
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
SF200: CV-22	3.644	12.292	22.344	28.081	-	28.081	10.093	9.634	17.942	18.360	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 212

A. Mission Description and Budget Item Justification

The CV-22 is a SOF variant of the Joint V-22 vertical medium lift, multi-mission aircraft. The CV-22 project provides long range, high speed, infiltration, exfiltration, and resupply to Special Forces teams in hostile, denied, and politically sensitive areas. This is a capability not currently provided by other existing aircraft. The funding in this project supports integration, design, development, rapid prototyping, and test to provide improved capabilities to include, but not limited to, more robust performance in situational awareness, intelligence, surveillance, and reconnaissance, weapons, avionics, survivability, maneuverability, mission deployment and improved reliability and maintainability of the CV-22 platform.

CV-22 SOF Common Terrain Following Terrain Avoidance (TF/TA) (Silent Knight) Radar: Provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas for infiltration, exfiltration, and resupply of SOF forces. This more sustainable and capable radar replaces the obsolescing APQ-186 terrain following/avoidance radar currently integrated on CV-22 aircraft.

Block 20: Design, integrate, test, and validate enhancements required to meet SOF-unique mission requirements and correct deficiencies identified in previous testing. This incremental development will provide improved capabilities to include, but not limited to, robust performance in situational awareness, weapons, avionics, survivability, maneuverability, mission deployment, improved reliability and maintainability of the CV platform.

Included within Block 20, but not limited to, is the Forward Defensive Weapon System (FDWS). FDWS provides the CV-22 with the capability to suppress threats in the forward hemisphere while the aircraft is in the critical phase of landing and takeoff at the mission objective. The FDWS integrates the fielded GAU-17 belly gun system currently employed on the USMC MV-22 aircraft with the SOF peculiar color helmet mounted display (CHMD) and cockpit firing controls for pilot operation.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: CV-22 SOF Common TF/TA (Silent Knight) Radar	12.292	22.344	27.587	-	27.587
Description: Provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas for infiltration, exfiltration, and resupply of SOF forces. This more sustainable and capable radar replaces the obsolescing APQ-186 terrain following/avoidance radar currently integrated on CV-22 aircraft.					
FY 2019 Plans: Continue integration/testing of CV-22 SF Common TF/TA (Silent Knight) radar.					
FY 2020 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	Project (Number/Name) SF200 / CV-22

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continues integration/testing of CV-22 SOF Common TF/TA (Silent Knight) radar. FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$5.243 million is to support Operational Flight Program (OFP) Software development and continues integration/testing of the CV-22 SOF Common TF/TA (Silent Knight) radar.					
Title: CV-22 Block 20 Systems Description: Provides the CV-22 with the improved capabilities to include, but not limited to, robust performance in situational awareness, weapons, avionics, survivability, maneuverability, mission deployment, improved reliability and maintainability of the CV platform. Included within Block 20, but not limited to, is the FDWS. FDWS provides the CV-22 with the capability to suppress threats in the forward hemisphere while the aircraft is in the critical phase of landing and takeoff at the mission objective. The FDWS integrates the fielded GAU-17 belly gun system currently employed on the USMC MV-22 aircraft with the SOF peculiar color helmet mounted display (CHMD) and cockpit firing controls for pilot operation. FY 2020 Base Plans: Continue integration/testing of Block 20 FDWS onto CV-22. Previous efforts leading up to FY20 were MFP-4 funded. FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.494 million to continue integration/testing of Block 20 FDWS onto CV-22. Previous efforts leading up to FY20 were MFP-4 funded.	-	-	0.494	-	0.494
Accomplishments/Planned Programs Subtotals	12.292	22.344	28.081	-	28.081

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/1000CV22: <i>CV-22 SOF Modification</i>	42.178	32.529	17.256	-	17.256	21.509	38.770	45.569	70.188	Continuing	Continuing
• PROC/V022A0: <i>Aircraft Procurement CV-22 (MYP)</i>	-	-	-	-	-	-	-	-	-	0.000	4,415.234
• RDT&E1/0401318F: <i>RDT&E, USAF</i>	22.519	18.502	16.606	-	16.606	14.873	15.183	15.459	-	64.350	225.577

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	Project (Number/Name) SF200 / CV-22

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDT&E/0604262N: <i>V-22 RDT&E, N BA-05</i>	182.916	143.079	184.705	-	184.705	133.425	110.559	125.764	111.218	184.398	1,105.301

Remarks

D. Acquisition Strategy

When possible, rapid prototyping will be incorporated in the acquisition strategies below to develop, demonstrate and evaluate residual operational capabilities.

The (Silent Knight) radar was developed by USSOCOM to provide a common TF/TA capability for SOF aircraft. The (Silent Knight) radar replaces the obsolescing APQ-186 TF/TA multimode radar on the CV-22. The acquisition strategy for the CV-22 SF Common TF/TA (Silent Knight) radar program is to procure radar units and radar software modifications through the USSOCOM (Silent Knight) radar Program Management Office, integrate (Silent Knight) radar into CV-22 aircraft, and buy aircraft modification kits, using a mixture of both sole source and competitive contracts.

The Block 20 Forward Defensive Weapon System (FDWS) will be based on modifications to the DWS currently fielded on USMC MV-22 aircraft and previously tested on a CV-22. These modifications will integrate the DWS with the CV-22 pilots' helmet mounted displays and cockpit controls to correct deficiencies/improve system effectiveness and will award a competitive EMD contract for development.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF200 / CV-22
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CV-22 SF Common TF/ TA (Silent Knight) Radar - Operational Flight Program (OFP) Development	TBD	Various : Various	-	5.417	Jan 2018	7.910	Nov 2018	16.123	Nov 2019	-		16.123	Continuing	Continuing	-
CV-22 SF Common TF/ TA (Silent Knight) Radar - Integration	TBD	Various : Various	-	5.774	Feb 2018	12.099	Feb 2019	9.082	Feb 2020	-		9.082	Continuing	Continuing	-
CV-22 Block 20 Forward Defensive Weapon System (FDWS)	Various	Various : Various	1.057	-		-		0.494	Feb 2020	-		0.494	Continuing	Continuing	-
Subtotal			1.057	11.191		20.009		25.699		-		25.699	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CV-22 SF Common TF/ TA (Silent Knight) Radar - OFP	TBD	Various : Various	0.651	0.590	Jan 2018	1.110	Nov 2018	1.132	Nov 2019	-		1.132	Continuing	Continuing	-
CV-22 SF Common TF/ TA (Silent Knight) Radar - Integration	TBD	Various : Various	-	0.511	Feb 2018	1.225	Feb 2019	1.250	Feb 2020	-		1.250	Continuing	Continuing	-
Prior Year	Various	Various : Various	1.936	-		-		-		-		-	0.000	1.936	-
Subtotal			2.587	1.101		2.335		2.382		-		2.382	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		3.644	12.292	22.344	28.081	-	28.081	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

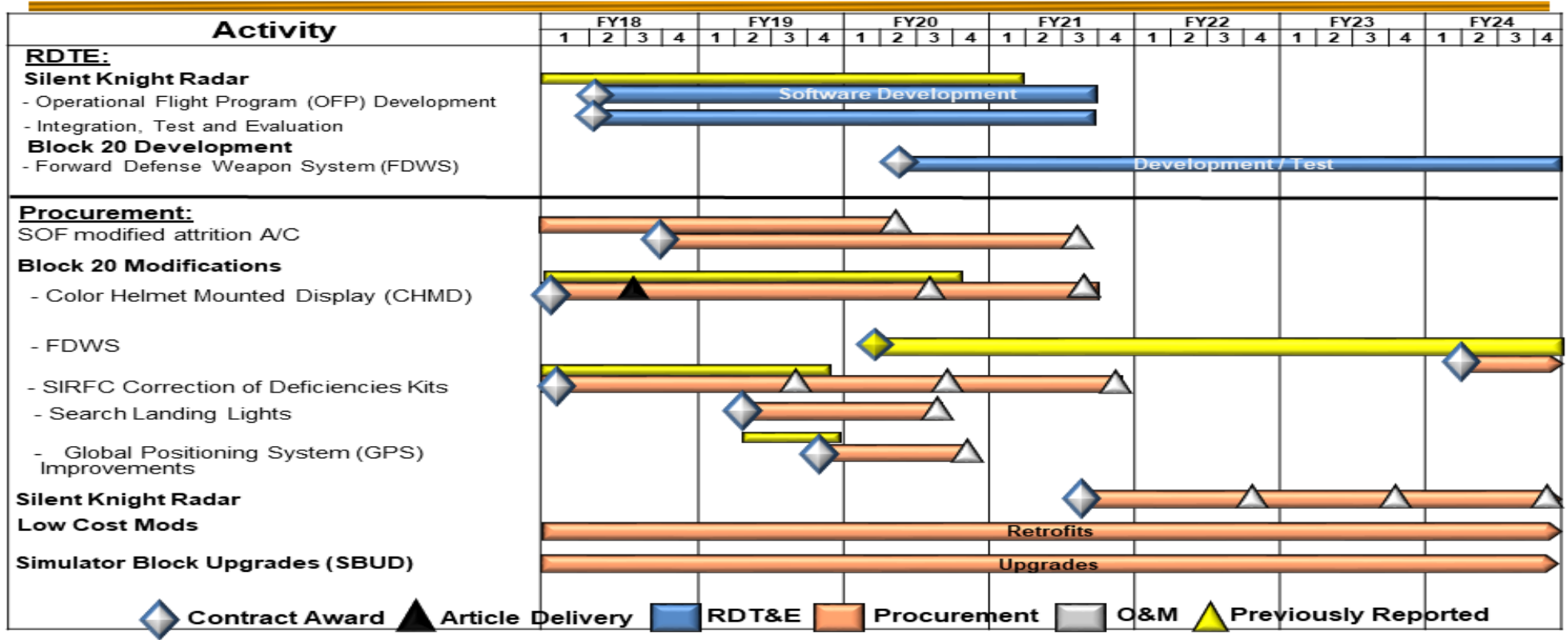
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
SF200 / CV-22

CV-22 Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	Project (Number/Name) SF200 / CV-22
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CV-22				
SOF Common TF/TA (Silent Knight) Radar - OFP Development	2	2018	4	2021
SOF Common TF/TA (Silent Knight) Radar - Radar Integration, Test & Evaluation	2	2018	4	2021
Block 20 Forward Defensive Weapon System (FDWS) Development/Test	2	2020	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems				Project (Number/Name) S750 / Mission Training and Preparation Systems			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S750: Mission Training and Preparation Systems	26.392	8.181	7.520	8.595	-	8.595	9.630	9.558	9.757	9.983	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds the definition, design, development, prototyping, integration, and testing of Mission Training and Preparation Systems (MTPS) to support training, avoid obsolescence, and maintain simulator concurrency with weapon system configurations; support mission planning and rehearsal systems enhancements required to meet Special Operations Force (SOF)-unique mission requirements and correct deficiencies identified in previous testing; and support mission planning and rehearsal capabilities in current MTPS. The MTPS project also includes program management, systems engineering, configuration management, architecture development, risk reduction, and trade study initiatives, as well as initiatives to assure interoperability and commonality between diverse SOF training systems.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SOMPE	8.181	7.520	8.595	-	8.595
<p>Description: Special Operations Mission Planning and Execution (SOMPE) develops, integrates, tests, and validates software enhancements required to meet SOF-unique requirements for, and correct deficiencies to, mission planning, preview, and execution software tools to support all phases of SOF operations from deliberate to time-critical. The SOMPE project automates time-sensitive planning activities and provides enhanced situational awareness during mission execution. SOMPE provides the interoperable environment for SOF adaptive planning to integrate global operations including, but not limited to, precision strike software, digital navigation, and unmanned aerial systems command and control. This project also provides the integration of SOMPE with multi-dimensional visualization systems, providing immersive mission rehearsal in minimal timeframes from the SOMPE mission plan. SOMPE is embedded in the USSOCOM Headquarters, Theater Special Operations Commands, Joint Special Operations Task Forces, Joint Special Operations Aviation Components, SOF warfighters, and SOF warfighter platforms.</p> <p>FY 2019 Plans: Continue development of software applications to address SOF-unique aviation, ground and maritime mission planning requirements, data transfer software from mission planning systems to SOF helicopters, airplanes, and simulator/rehearsal systems, and automated performance models and performance prediction software.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) S750 / Mission Training and Preparation Systems

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Continues updating of mission planning, data transfer and performance software. Continue development of software applications for smaller mobile computer devices (tablets, smart phones, etc).</p> <p>FY 2020 Base Plans: Continues development of software applications to address increased SOF-unique aviation, ground and maritime mission planning requirements, data transfer software from mission planning systems to SOF helicopters, airplanes, and simulator/rehearsal systems, and automated performance models and performance prediction software. Continues updating of mission planning, data transfer and performance software. Continues development of software applications for smaller mobile computer devices (tablets, smart phones, etc).</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$1.075 million is to support substantial growth of mobile computing tactical applications of both Ground and Air operational requirements for Mission Networking and situational awareness.</p>					
Accomplishments/Planned Programs Subtotals	8.181	7.520	8.595	-	8.595

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

N/A

Remarks

D. Acquisition Strategy

SOMPE comprises multiple mission planning software development contracts awarded to developers for each project effort. Acquisition strategies depend on the type of development effort. For minor software development projects, contracts may be awarded as sole source acquisitions from existing contract vehicles. For major software development projects, contracts may be awarded as limited or full and open competition acquisitions. Individual acquisition strategies are developed as the scope of software development projects are identified and defined.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) S750 / Mission Training and Preparation Systems
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Special Operations Mission Planning and Execution (SOMPE) Software Development and Integration	MIPR	Various : Various	20.632	6.682	Jan 2018	6.073	Jan 2019	7.032	Jan 2020	-		7.032	Continuing	Continuing	-
Subtotal			20.632	6.682		6.073		7.032		-		7.032	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SOMPE Software	MIPR	Special Operations Mission Planning Office : Fort Eustis, VA	1.941	0.385	Feb 2018	0.371	Feb 2019	0.388	Feb 2020	-		0.388	Continuing	Continuing	-
Subtotal			1.941	0.385		0.371		0.388		-		0.388	Continuing	Continuing	N/A

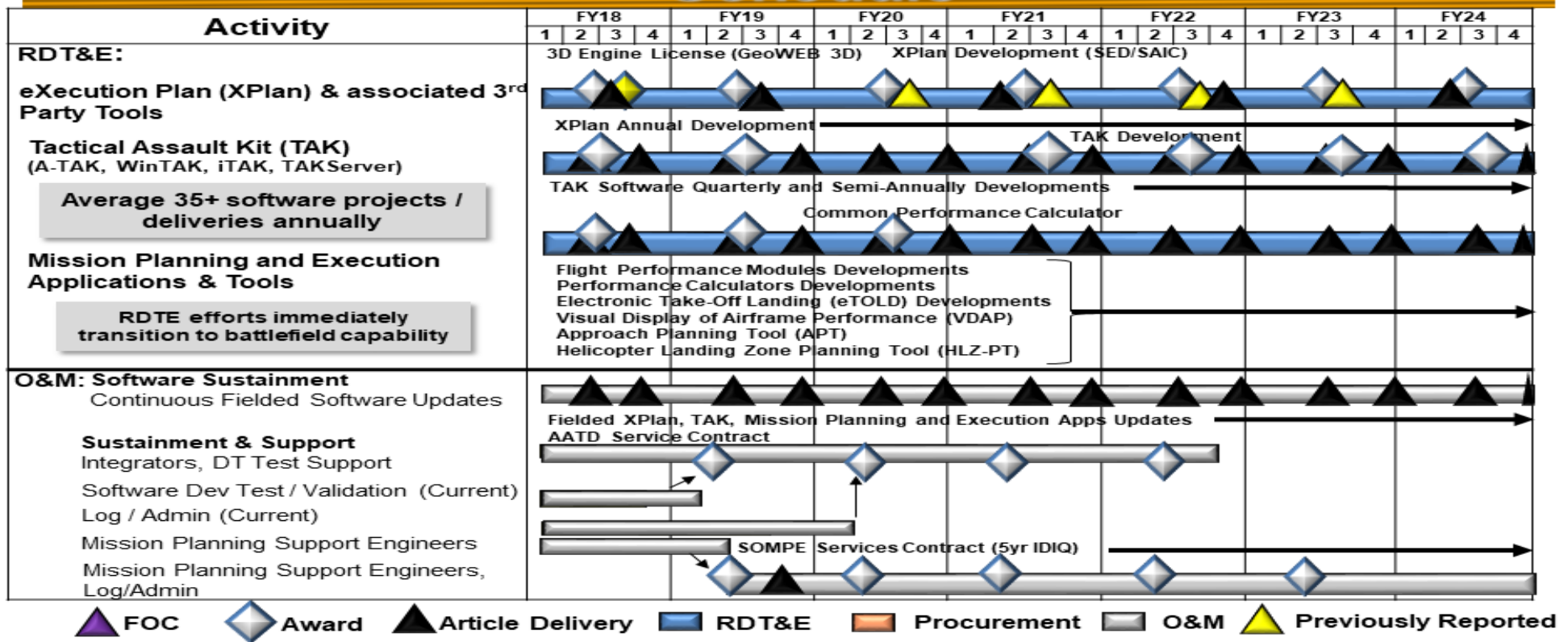
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SOMPE Software	C/CPFF	Wyle-CAS : Huntsville, AL	3.819	1.114	Jan 2018	1.076	Jan 2019	1.175	Jan 2020	-		1.175	Continuing	Continuing	-
Subtotal			3.819	1.114		1.076		1.175		-		1.175	Continuing	Continuing	N/A

			Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			26.392	8.181	7.520	8.595	-	8.595	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) S750 / Mission Training and Preparation Systems

Special Operations Mission Planning and Execution (SOMPE) Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) S750 / Mission Training and Preparation Systems

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Special Operations Mission Planning and Execution (SOMPE)				
eXecution Plan (XPlan) & Associated 3rd Part Tools	2	2018	4	2024
Tactical Assault Kit (TAK)	2	2018	4	2024
Mission Planning and Execution Applications & Tools	2	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>				Project (Number/Name) S875 / <i>AC/MC-130J</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S875: <i>AC/MC-130J</i>	37.926	9.351	17.091	31.891	-	31.891	55.083	53.892	54.943	56.224	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AC/MC-130J project funds core SOF-unique modifications to replace aging/retired AC-130H Spectre, AC-130W Stinger II, AC-130U Spooky, MC-130E Combat Talon I, MC-130P Combat Shadow, MC-130H Combat Talon II aircraft. The 8 AC-130H Spectre, 12 AC-130W Stinger II and 17 AC-130U Spooky airframes will be replaced with MC-130J aircraft modified with the Precision Strike Package (PSP) to achieve the AC-130J configuration. The AC-130J aircraft will provide close air support, air interdiction, and armed reconnaissance capability. The 14 MC-130E Talon I, 23 MC-130P Combat Shadow, and 20 MC-130H Talon II airframes will be replaced by MC-130J Commando II aircraft with SOF mission modifications. The MC-130J Commando II aircraft with SOF mission modifications perform clandestine or low visibility, single or multi-ship low-level missions intruding politically-sensitive or hostile territories; provide air refueling for special operations helicopters and CV-22 aircraft; and airdrop of leaflets, insert small special operations teams, resupply bundles and combat rubber raiding craft. The Air Force procures and fields the basic aircraft, common support equipment, and trainers for USSOCOM. An incremental upgrade approach will be used to integrate SOF capabilities onto the aircraft and training systems. SOF capabilities include, but are not limited to, Airborne Mission Networking, data fusion, threat detection and avoidance, integrated terrain following/terrain avoidance, electronic warfare, and embedded training. Integrating and automating SOF mission systems that deliver these capabilities is critical to fielding SOF-capable AC/MC-130J aircraft to recapitalize Air Force Special Operations Command's legacy C-130 fleet.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: MC-130J Airborne Mission Networking (AbMN)	8.936	4.324	2.688	-	2.688
<p>Description: AbMN provides aircrew and mission personnel aboard MC-130J aircraft with the ability to send and receive mission-critical data to/from tactical and operational nodes in the battlespace. Capabilities include, but are not limited to, secure Line-of-Sight/Beyond Line-of-Sight voice/data communications, friendly force identification, mission tracking, threat identification, full-motion video, collaboration, chat, e-mail, and data links. AbMN enables SOF ability to streamline command and control, improve situational awareness, and reduce operational risk through real time exchange of digital information among aircraft, SOF components, and other tactical and operational nodes.</p> <p>FY 2019 Plans: Complete design phase with critical design review. Delivers trial installation and begins ground and flight testing. Develops technical data package.</p> <p>FY 2020 Base Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019		
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) S875 / AC/MC-130J			
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Completes ground flight testing. Begins development and interoperability testing on MC-130J Terrain Following/Terrain Avoidance (TF/TA) radar, electronic warfare systems and airborne mission networking systems.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease of \$1.636 million is due to completion of trial installation in FY 2019.</p> <p>Title: AC-130J</p> <p>Description: Develops, integrates, and tests aircraft enhancements to meet SOF-unique mission requirements. Enhancements include providing PSP aircraft infrastructure development.</p>	0.415	-	-	-	-
<p>Title: Integrated Tactical Mission Systems (ITMS)</p> <p>Description: ITMS resolves aircrew workload by merging SOF mission systems data with green aircraft flight information and automating displays and controls. Capabilities include, but are not limited to, automated route replanning, tactical flight management, integrated aircraft defensive systems, defensive countermeasures, and embedded training. ITMS provides reduced aircrews with integrated real-time information and decision-making data for safe terrain following/terrain avoidance flight and mission completion (MC-130J aircraft) and seamless employment of the Precision Strike Package (AC-130J aircraft).</p> <p>FY 2019 Plans: Began integration, interoperability risk reduction and test of SOF tactical mission systems, including but not limited to; terrain following/terrain avoidance capabilities, situational awareness capabilities, electronic warfare capabilities, and special mission systems (SMS). Began development of SMS capabilities required to automate tactical mission systems (TMS) (including, but not limited to; mission planning, data fusion, & threat correlation).</p> <p>FY 2020 Base Plans: Continues integration, interoperability risk reduction and test of SOF tactical mission systems, including but not limited to terrain following/terrain avoidance capabilities, situational awareness capabilities, electronic warfare capabilities, and SMS. Continues development of SMS capabilities required to automate TMS (including, but not limited to, data fusion, threat correlation, and applications of machine learning and artificial intelligence).</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$16.436 million supports open mission systems architecture development and software, integration, and evaluation required to automate TMS. SMS will provide the enabling architecture and capabilities.</p>	-	12.767	29.203	-	29.203
Accomplishments/Planned Programs Subtotals	9.351	17.091	31.891	-	31.891

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) S875 / AC/MC-130J

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

Line Item	FY 2018	FY 2019	FY 2020	FY 2020	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PROC/2012C130J: AC/MC-130J	164.837	160.681	173.419	-	173.419	187.846	234.161	302.270	322.669	Continuing	Continuing
• PROC/1202PSP: Precision Strike Package	219.728	226.965	232.930	-	232.930	243.111	168.520	142.038	135.542	Continuing	Continuing

Remarks

D. Acquisition Strategy

When possible, rapid prototyping will be incorporated in the acquisition strategies below to develop, demonstrate and evaluate residual operational capabilities.

MC-130J AbMN: Award sole source Cost-Plus-Fixed-Fee contract to develop a battlespace information exchange system for the MC-130J consisting of Government/Commercial-off-the-shelf communications and computing hardware and Government/developmental software. This approach leverages portions of the AC-130J gunship infrastructure design applicable to the MC-130J. After completing developmental and operational flight testing, award a sole source contract for Low Rate Initial Production followed by a competitive Firm-Fixed Price contract for production, aircraft integration, and fielding.

ITMS: Develop virtual environment to enable collaborative integration of software services procured through competitive and sole source contracts. Use of open mission system compliant standards for hardware and software architecture, software, services and future subsystems.

The U.S. Air Force procures the basic AC-130J aircraft under the HC/MC-130J Recapitalization procurement program. USSOCOM will fund development, integration, and testing of capability enhancements for SOF-unique mission equipment using an incremental acquisition strategy. Multiple contract awards.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) S875 / AC/MC-130J
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MC-130J Airborne Mission Networking (AbMN)	C/CPFF	Sierra Nevada Corporation : Centennial, CO	7.486	8.436	Dec 2017	3.596	Dec 2018	1.708	Dec 2019	-		1.708	Continuing	Continuing	-
Integrated Tactical Mission System (ITMS) - Tactical Flight Management System Development	C/Various	TBD : TBD	-	-		10.567	Jan 2019	22.675	Jan 2020	-		22.675	Continuing	Continuing	-
Prior Year	C/Various	Various : Various	29.906	-		-		-		-		-	Continuing	Continuing	-
Subtotal			37.392	8.436		14.163		24.383		-		24.383	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ITMS - Support	C/Various	Various : Various	-	-		1.200	Mar 2019	1.225	Mar 2020	-		1.225	Continuing	Continuing	-
Subtotal			-	-		1.200		1.225		-		1.225	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AC-130J	C/Various	Lockheed Martin : Atlanta, GA	0.393	0.415	Jan 2018	-		-		-		-	0.000	0.808	-
MC-130J AbMN Integration and Test	MIPR	USSOCOM Detachment 1 Joint Test Interoperability Command : Eglin AFB, FL	0.141	0.500	Dec 2017	0.728	Dec 2018	0.980	Dec 2019	-		0.980	Continuing	Continuing	-
ITMS - Integration and Test	Sub Allot	USSOCOM Detachment 1 : Eglin AFB, FL	-	-		1.000	Jan 2019	5.303	Jan 2020	-		5.303	Continuing	Continuing	-
Subtotal			0.534	0.915		1.728		6.283		-		6.283	Continuing	Continuing	N/A

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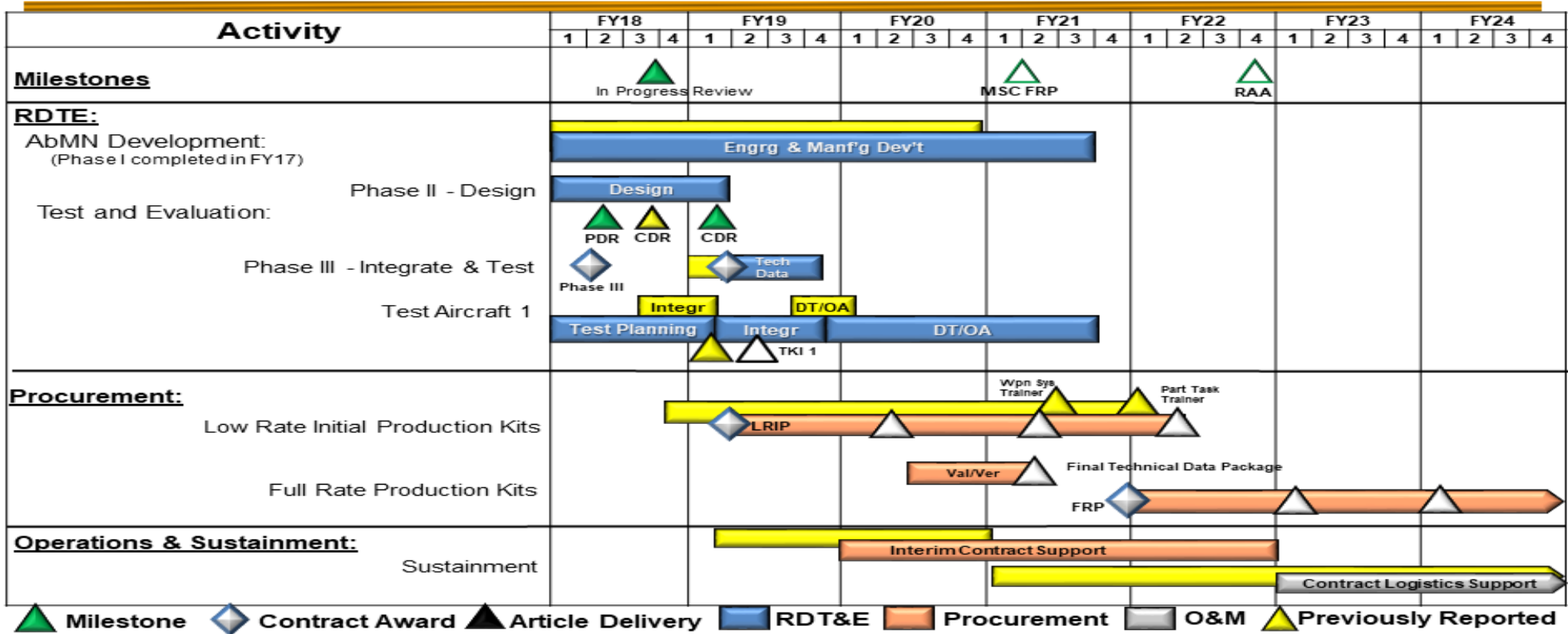
Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command								Date: March 2019		
Appropriation/Budget Activity 0400 / 7			R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>			Project (Number/Name) S875 / <i>AC/MC-130J</i>				
	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	37.926	9.351	17.091	31.891	-	31.891	Continuing	Continuing	N/A	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) S875 / AC/MC-130J

MC-130J AbMN Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

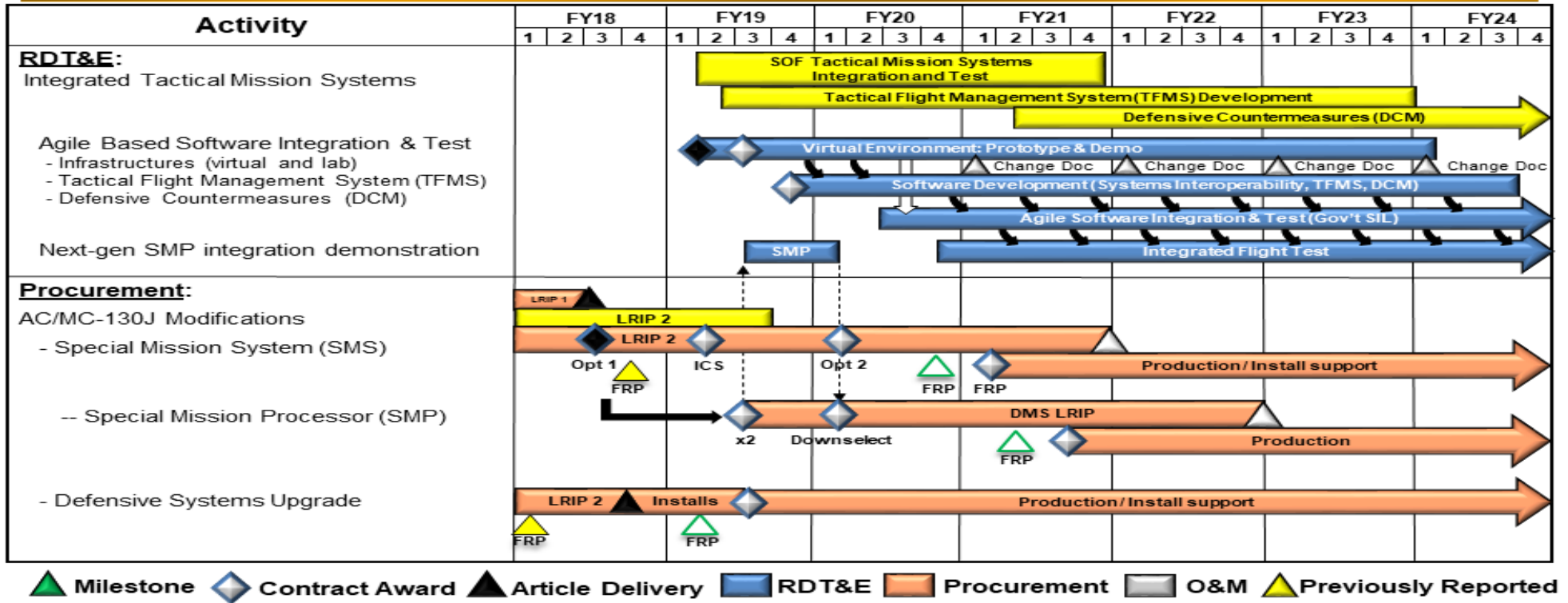
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
S875 / AC/MC-130J

Common AC/MC-130J Mission Systems



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	Project (Number/Name) S875 / <i>AC/MC-130J</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MC-130J Airborne Mission Networking (AbMN)</i>				
Engineering and Manufacturing Development	1	2018	3	2021
Phase II Design	1	2018	1	2019
Phase III Integration & Test (Includes Tech Data, Aircraft Integration, & Testing)	2	2018	4	2021
<i>Integrated Tactical Mission Systems (ITMS) Agile Based Software Integration & Test</i>				
Virtual Environment Prototype and Demonstration	1	2019	1	2024
Software Development (Systems interoperability, Tactical Flight Management System, Defensive Countermeasures)	4	2019	4	2024
Integration Demo of Next Generation Special Mission Systems	3	2019	1	2020
Agile Software Integration and Test	2	2020	4	2024
Integrated Flight Test	4	2020	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems				Project (Number/Name) D615 / Rotary Wing Aviation			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
D615: Rotary Wing Aviation	187.116	51.492	20.010	39.768	-	39.768	33.395	29.433	25.633	25.798	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development, rapid prototyping, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique rotary wing aviation and training requirements. This project includes modifications to Aircraft Survivability Equipment (ASE) avionics and weapons systems to counter rapidly emerging threats, address cyber security, improve lethality and enhance aircraft self-protection in contested environments. Rotary wing aircraft supported by this project include: MH-60M, MH-47G, and A/MH-6M. These aircraft provide aviation support to SOF in worldwide contingency operations and low-intensity conflicts. They must be capable of rapid deployment, undetected penetration of hostile areas, and operations at extended ranges under adverse weather conditions to infiltrate, provide logistics for, reinforce, and extract SOF. The anti-access/area denial (A2/AD) threat is characterized by an extensive and sophisticated ground based air defense system and an upgraded air-to-air capability targeted against helicopters. When possible, Middle-Tier Acquisition (2016 NDAA Section 804) may be used to accommodate rapid prototyping in the above projects to develop, demonstrate and evaluate residual operational capabilities.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: A/MH-6M Block 3.0 Upgrade	15.608	3.120	2.688	-	2.688
<p>Description: This upgrade is necessary to restore structural safety margins and performance margins for the aircrews. A new integrated airframe shell will address recurring structural failures due to high intensity, high gross weight operations and a decade of battle damage. A main/tail rotor drive train and engine control improvement effort will reduce airframe loads and restore sufficient safety and performance margins. An avionics upgrade will replace obsolescent components and provide improved battlefield situational awareness to the aircrew and operators necessary to support time-sensitive mission requirements. This upgrade is critical to keeping the A/MH-6M aircraft operational beyond FY 2020 and until a suitable replacement aircraft is available. The non-recurring effort provides development, fabrication of test hardware, qualification of components and systems, and data collection to support issuance of government airworthiness releases for structural and software modifications.</p> <p>FY 2019 Plans: Complete software qualification and initiates Airworthiness and Flight Characteristics (A&FC) testing efforts.</p> <p>FY 2020 Base Plans: Complete A&FC testing efforts, Electromagnetic Environmental Effects (E3) testing, and radio communications performance testing.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Decrease of \$0.432 million is due to higher command priorities.					
<p>Title: MH-60M Modifications and Upgrades</p> <p>Description: Develops technologies to improve safety of the MH-60 and decrease operational costs. Efforts include, but are not limited to, DOD MH-60 engineering changes and product improvements to SOF-unique equipment, munitions utilized for testing, modifications to ASE and weapons systems designed to counter rapidly emerging threats, improve lethality, and enhance aircraft self-protection. The MH-60 Block Upgrades provide the development, integrations, and qualification efforts for the MH-60 helicopter to include flight test support, engineering analysis, documentation, and airworthiness substantiation.</p> <p>FY 2019 Plans: Continue integration and testing of Upturned Exhaust System (UES) II and other technologies to improve safety and decrease operational costs to include ASE, weapons systems improvement and munitions during testing.</p> <p>FY 2020 Base Plans: Continues integration and testing of UES II and other technologies to improve safety and decrease operational costs to include aircraft survivability equipment, weapons systems improvement and munitions during testing, such as the Joint Air-to-Ground Missile.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$4.351 million to support aircraft survivability and integration efforts. Increased funding will support UES II efforts and future munition modifications, such as the Joint Air-to-Ground Missile.</p>	3.479	2.182	6.533	-	6.533
<p>Title: Degraded Visual Environment (DVE)</p> <p>Description: Solution will fuse information from aircraft sensors to display real-time reference points, obstacles, and landing zone information to the aircrew. The DVE solution will provide MH-47/60 aircrews with visual cues for obstacle avoidance and aircraft control during all phases of flight and significantly increase crew and passenger survivability in DVE. This program addresses SOF-unique requirements for rapid fielding and weight limitations, and capitalizes integration of SOF-unique avionics with the unique skills of the SOF aviator.</p> <p>FY 2019 Plans: Complete aircraft integration and testing of the DVE two sensor solution on SOF MH-47 and MH-60.</p> <p>FY 2020 Base Plans: Begins airworthiness release support efforts.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>	7.000	1.672	0.871	-	0.871

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Decrease of \$0.801 million due to completion of planned flight testing.					
<p>Title: Future Vertical Lift (FVL)</p> <p>Description: Provides for the long-term replacement of an aging fleet of aircraft and provides a significant increase in range, speed, payload, survivability, reliability, and maintainability of vertical lift aircraft to meet emerging mission requirements. USSOCOM will participate in the service-common development of a joint FVL aircraft by injecting USSOCOM requirements and equities into the initial development and design efforts to minimize SOF-unique modifications to the common aircraft.</p> <p>FY 2019 Plans: Continue to participate in providing guidance and infrastructure necessary for FVL to implement a mission systems architecture that enables the integration of SOF capabilities into the aircraft.</p> <p>FY 2020 Base Plans: Continues to participate in providing guidance and infrastructure necessary for FVL to implement a mission systems architecture that enables the integration of SOF capabilities into the aircraft.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.408 million is due to increased engineering and development analysis requirements.</p>	1.012	0.800	1.208	-	1.208
<p>Title: Infrared Countermeasures (IRCM)</p> <p>Description: Provides a low Size, Weight, and Power (SWaP) IRCM capability suitable for the A/MH-6 Mission Enhanced Little Bird with potential use on the MH-60 and MH-47 aircraft. The IRCM program will leverage the Department of Navy developed Distributed Aperture Infrared Countermeasure System by integrating and testing a complete lightweight IRCM systems to include a missile warning system and countermeasure capability. The IRCM program includes development of an infrared exhaust suppressor for the A/MH-6. The A/MH-6 is the only tactical aircraft in the SOF inventory without protection from infrared guided and other advanced Man Portable Air Defense missiles.</p> <p>FY 2019 Plans: Continue qualification testing of missile warning and lightweight IRCM systems for the A/MH-6 aircraft.</p> <p>FY 2020 Base Plans: Completes development and begins qualification testing of infrared exhaust suppressor for the A/MH-6 aircraft. Continues qualification testing of missile warning and lightweight IRCM systems.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>	2.277	2.461	3.425	-	3.425

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Increase of \$0.964 million in support of development efforts for infrared exhaust suppressor for the A/MH-6 aircraft.					
<p>Title: MH-47 Modifications and Upgrades</p> <p>Description: Develops technologies to improve performance and safety of the MH-47G and decrease operational costs. Efforts include, but are not limited to, the Active Parallel Actuator Subsystem (APAS) and Engine Barrier Filter. This sub-project also includes modifications to ASE and weapons systems to counter rapidly emerging threats and enhance aircraft self-protection.</p> <p>FY 2019 Plans: Continue APAS development and testing, including integration with MH-47G subsystems.</p> <p>FY 2020 Base Plans: Continues APAS development, including integration with MH-47G subsystems, such as Common Avionics Architecture System and torque measurement development efforts.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$3.601 million is to support system integration, qualification, and flight testing.</p>	9.736	5.305	8.906	-	8.906
<p>Title: Mission Processor Upgrades (MPU)</p> <p>Description: Provides for non-recurring engineering (NRE), systems engineering/testing, and future aircraft architecture studies that support replacement and upgrade of the current mission and video processors for all Army Special Operations Aviation (ARSOA) rotary wing aircraft. Upgrading all internal processors increases the processing power to support critical functionality and emerging technologies that will be integrated into the Common Avionics Architecture System (CAAS). This MPU provides the processing and memory resources required to incorporate the following functions into the General Purpose Processing Unit (GPPU): (1) Global Air Traffic Management replaces ground-based navigation aids with a capability that meets the international requirement that all aircraft be compliant with digital and space-based navigation systems; (2) Cognitive Decision Aiding System fuses information on threat, route, weather, terrain, and friendly forces, instantaneously adjusting an aircraft's route to protect the flight crew in hazardous weather, low levels, and night conditions.</p> <p>FY 2019 Plans: Continue exploration of the next generation ARSOA cockpit, to include video processing module (VPM) development and testing.</p> <p>FY 2020 Base Plans:</p>	0.500	0.362	0.604	-	0.604

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continues exploration of the next generation ARSOA cockpit, to include VPM development and testing. FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.242 million supports exploration of next generation cockpit technology.					
Title: Aircraft Survivability Equipment (ASE) Upgrades Description: Develops, integrates, and tests critical active and passive SOF-unique aircraft survivability equipment to counter the acknowledged high proliferation of advanced surface-to-air threat systems for the A/MH-6, MH-60, and MH-47. These threat systems are technically evolving at an unprecedented rate, requiring rapid counter measure system development and immediate spiraled improvements that will reduce the probability of successful engagement, increase the probability of detecting and countering threat systems, and improve the aircraft's ability to continue operating after sustained battle damage. This program includes development and testing of both new systems and pre-planned product improvements (P3I)/upgrades of fielded survivability equipment, flares, and associated qualification testing. P3I upgrades may include, but are not limited to, expansion of frequency ranges on existing systems, modernization of legacy components, and studies directed at potential "collaborative off-boarding/on-boarding" detect/countermeasure capabilities to provide expanded coverage for aircrews in a high threat environment. FY 2019 Plans: Continue development of new systems, P3I/upgrades of fielded survivability equipment, and continues development of flare countermeasures. FY 2020 Base Plans: Continues development of new systems, P3I/upgrades of fielded survivability equipment, and continues development of flare countermeasures. Additional detail can be provided under separate cover. FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$11.425 million supports development of increased capability into the current SOF Radio Frequency Countermeasures system to address emerging threats. Additional detail can be provided under separate cover.	11.880	4.108	15.533	-	15.533
Accomplishments/Planned Programs Subtotals	51.492	20.010	39.768	-	39.768

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0201RWUPGR: Rotary Wing Upgrades and Sustainment	149.747	146.526	172.020	-	172.020	181.380	198.276	229.219	230.428	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation

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

Line Item	FY 2018	FY 2019	FY 2020	FY 2020	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Cost To	
			Base	OCO	Total					Complete	Total Cost
• 0201MH60: <i>MH-60 Blackhawk</i>	-	27.600	0.000	28.100	28.100	-	-	-	-	981.513	981.513
• 0601MH47: <i>MH-47 Chinook</i>	244.115	167.533	173.812	37.500	211.312	174.482	178.074	181.755	185.993	Continuing	Continuing

Remarks

D. Acquisition Strategy

- A/MH-6M Block 3.0 Upgrade comprises three distinct efforts: integrated airframe, Block 3 performance kits and avionics upgrades. The airframe efforts (new rotor blades/flight control kits and new shells) will be a sole-source contract to Boeing, owner of the technical data associated with the A/MH-6 airframes. The cockpit avionics architecture will be developed by Rockwell-Collins. Any new hardware components will be Non Developmental Item/Commercial-Off-The-Shelf to the extent possible and will be competitively selected. Airframe modification and integration work will be conducted at the Special Operations Forces Support Activity (SOFSA) by the incumbent contractor.
- MH-60M Modifications and Upgrades supports systems integration and qualification efforts on MH-60M helicopters. This includes, but is not limited to, government and contractor flight test support, engineering analysis, documentation, and airworthiness substantiation. Airframe modification and integration work will be conducted at SOFSA by the incumbent contractor.
- DVE integrates and qualifies a solution to address a safety of flight issue while flying in DVE. A competitive source selection process was conducted, resulting in down-selection of one vendor for the DVE solution which will procure, integrate, and install components to provide real-time “see through” imagery and visual cues for obstacle avoidance and landing zone information during all phases of flight.
- FVL is the SOF aviation participation in the Joint FVL effort to develop the next generation of vertical takeoff and landing aircraft and establishes the foundation for the transformation of DOD vertical lift aviation capabilities over the next forty years.
- IRCM integrates a mission configurable Missile Warning System and IRCM capability at a weight suitable for the A/MH-6 aircraft. Procurement of systems for integration and test will leverage Department of Navy IRCM development efforts and contracts. The government will integrate the systems onto the A/MH-6 utilizing existing aircraft modification contracts. Will begin evaluation and qualification of an infrared exhaust suppressor for the A/MH-6M aircraft.
- MH-47 Modifications and Upgrades will develop technologies to improve performance and safety of the MH-47G and decrease operational costs. Efforts include the APAS and Engine Barrier Filter. The upgrades and modifications consist mostly of government and contractor executed integration, testing, and qualification efforts with some analytical engineering services to be completed.
- MPU provides for future cockpit architecture studies that will help define the replacement of current mission and video processors for all ARSOA platforms. Additionally it will address near term required upgrades to existing components. Potential upgrades will be through existing Original Equipment Manufacturers (OEM), while the future cockpit architecture studies will be competitively awarded.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0400 / 7	PE 1160403BB / <i>Aviation Systems</i>	D615 / <i>Rotary Wing Aviation</i>

• The ASE Upgrades program develops and tests both new systems and pre-planned product improvements/upgrades of fielded survivability equipment and flares. For new systems, other services' development and testing contracts are leveraged to the maximum extent possible. Upgrades of fielded equipment are typically accomplished by the OEM.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Degraded Visual Environment (DVE)	C/Various	PM TAPO : Fort Eustis, VA	46.418	7.000	May 2018	1.672	Jan 2019	0.871	Apr 2020	-		0.871	Continuing	Continuing	-
MH-47 Modifications and Upgrades	C/Various	PM TAPO : Fort Eustis, VA	29.017	9.736	Nov 2017	5.305	Nov 2018	8.906	Nov 2019	-		8.906	Continuing	Continuing	-
Aircraft Survivability Equipment (ASE) Radio Frequency Countermeasures (RFCM) Upgrades	C/Various	PM TAPO : Fort Eustis, VA	1.573	11.880	Jan 2019	4.108	Apr 2019	15.533	Mar 2020	-		15.533	Continuing	Continuing	-
Prior Years Funding	C/Various	PM MELB : Fort Eustis, VA	59.820	-		-		-		-		-	0.000	59.820	-
Subtotal			136.828	28.616		11.085		25.310		-		25.310	Continuing	Continuing	N/A

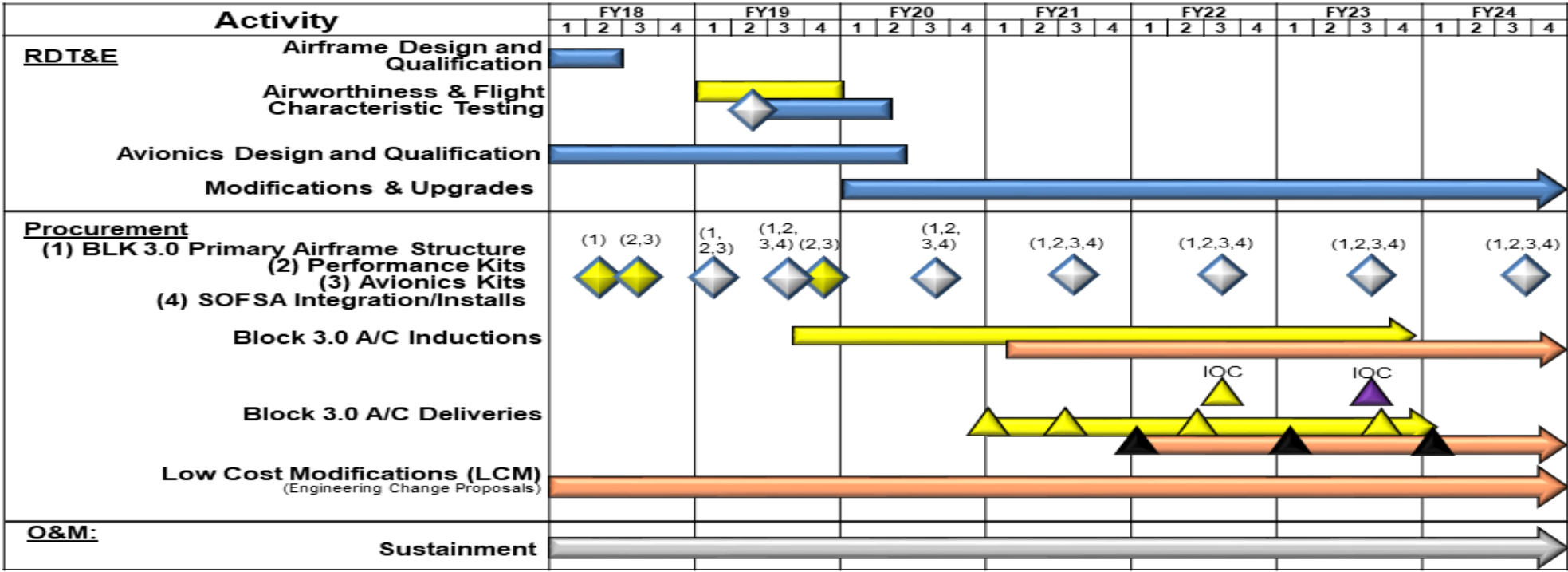
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Future Vertical Lift	C/Various	PEO-RW : MacDill AFB, FL	2.119	1.012	Feb 2018	0.800	Feb 2019	1.208	Feb 2020	-		1.208	Continuing	Continuing	-
Subtotal			2.119	1.012		0.800		1.208		-		1.208	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A/MH-6M Block 3.0 Upgrades	C/Various	PM MELB : Fort Eustis, VA	13.420	15.608	Nov 2018	3.120	Jan 2019	2.688	Jan 2020	-		2.688	Continuing	Continuing	-
MH-60M Modification and Upgrades	C/Various	Various : Various	0.952	3.479	May 2018	2.182	Jan 2019	6.533	Jul 2020	-		6.533	Continuing	Continuing	-
IRCM Integration and Testing	C/Various	PM TAPO : Fort Eustis, VA	8.950	2.277	Jun 2018	2.461	Apr 2019	3.425	Feb 2020	-		3.425	Continuing	Continuing	-
MPU	C/Various	PM TAPO : Fort Eustis, VA	-	0.500	Apr 2018	0.362	Jun 2019	0.604	Apr 2020	-		0.604	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation

A/MH-6 Program Schedule

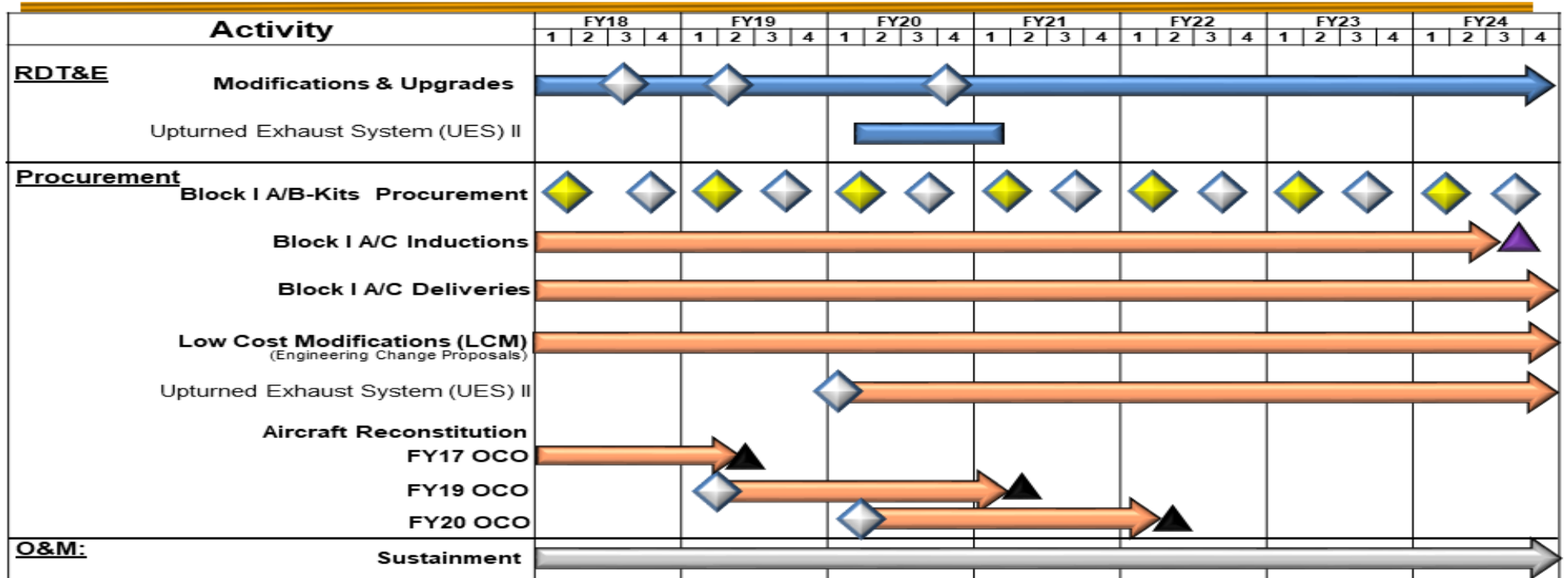


▲ IOC
 ◆ Article Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation

MH-60M Program Schedule



▲ FOC
 ◆ Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
D615 / Rotary Wing Aviation

Degraded Visual Environment Schedule

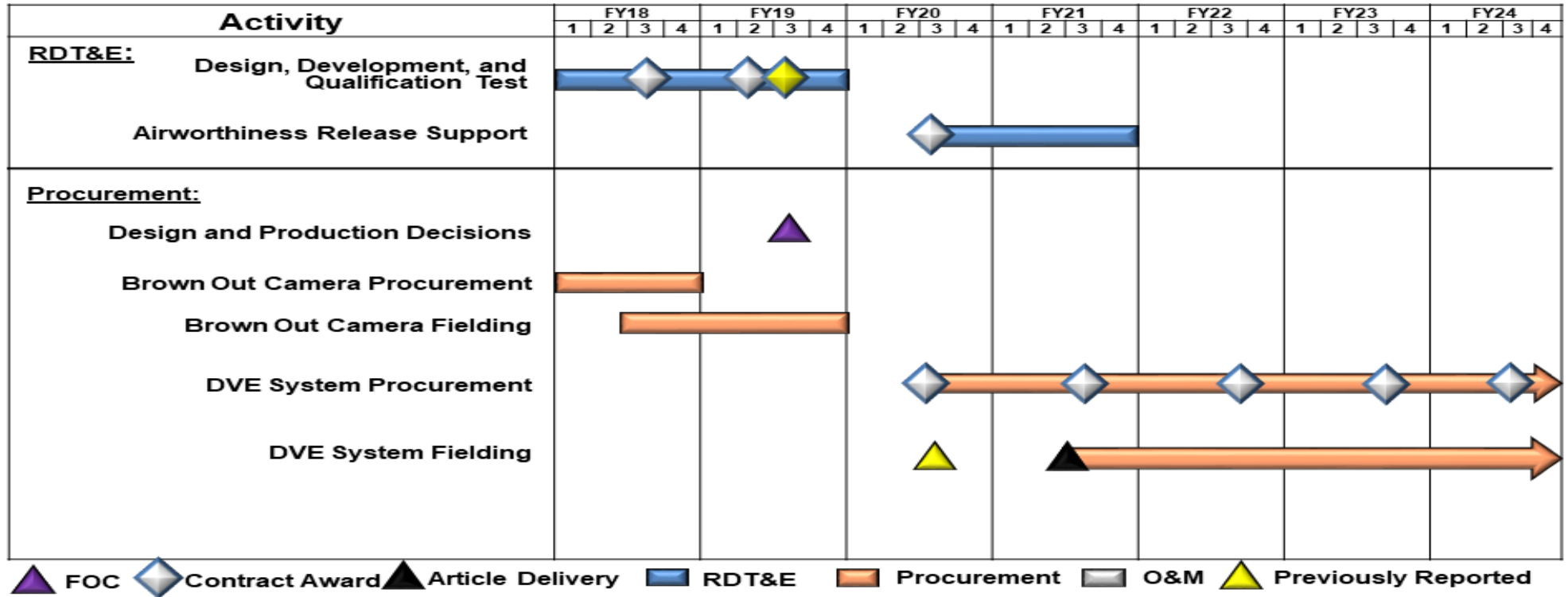
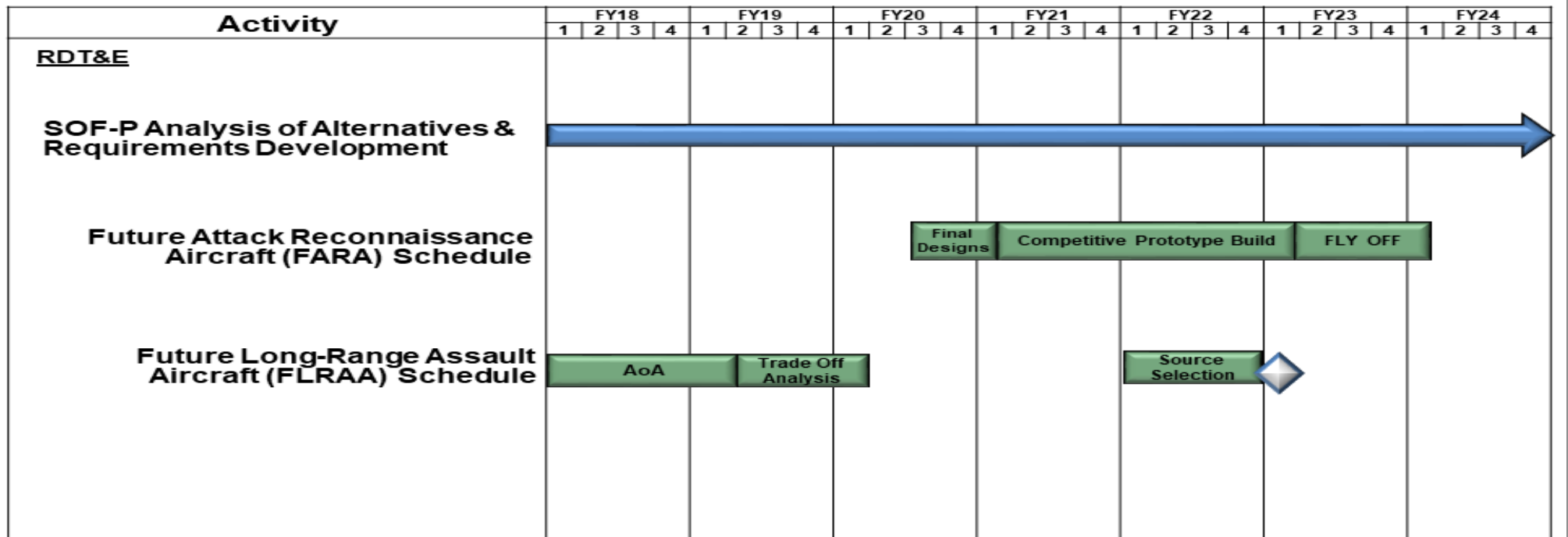


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation

Future Vertical Lift Schedule



▲ FOC
 ◆ Contract Award
 ▲ Article Delivery
 ▬ RDT&E
 ▬ Procurement
 ▬ Army Funded
 ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

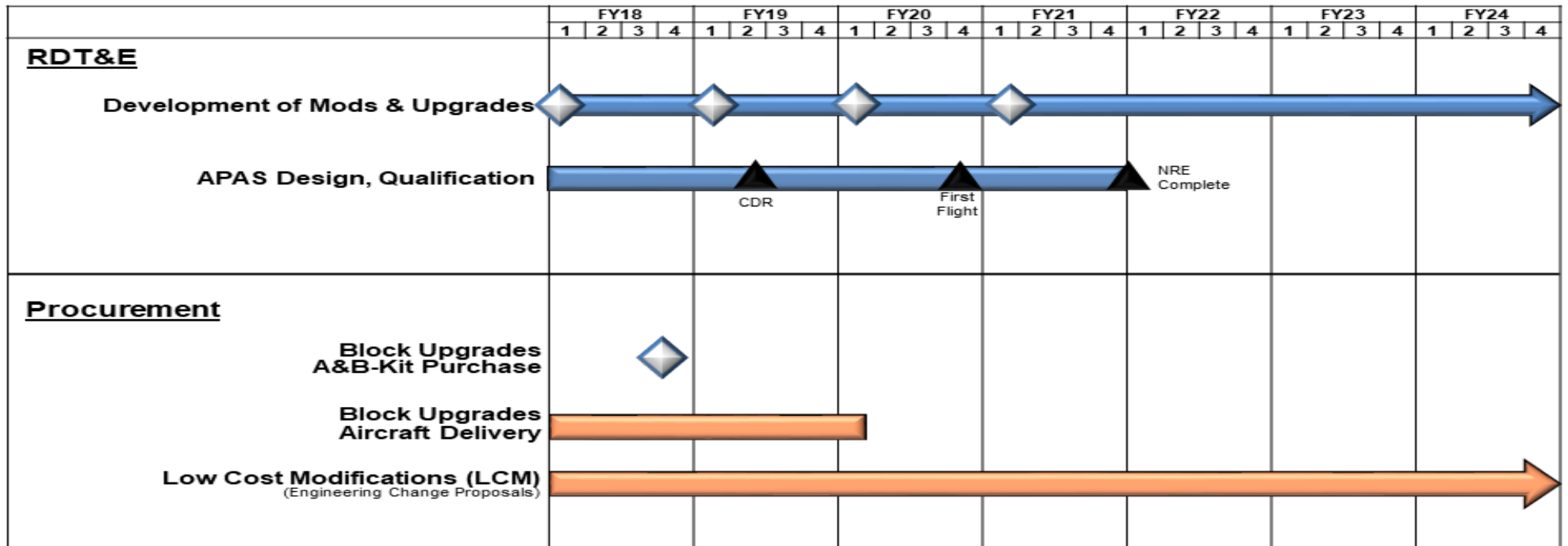
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Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
D615 / Rotary Wing Aviation

MH-47 Program Schedule



▲ FOC
 ◆ Contract Award
 ▲ Article Delivery
 ▬ RDT&E
 ▬ Procurement
 ▬ O&M
 ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

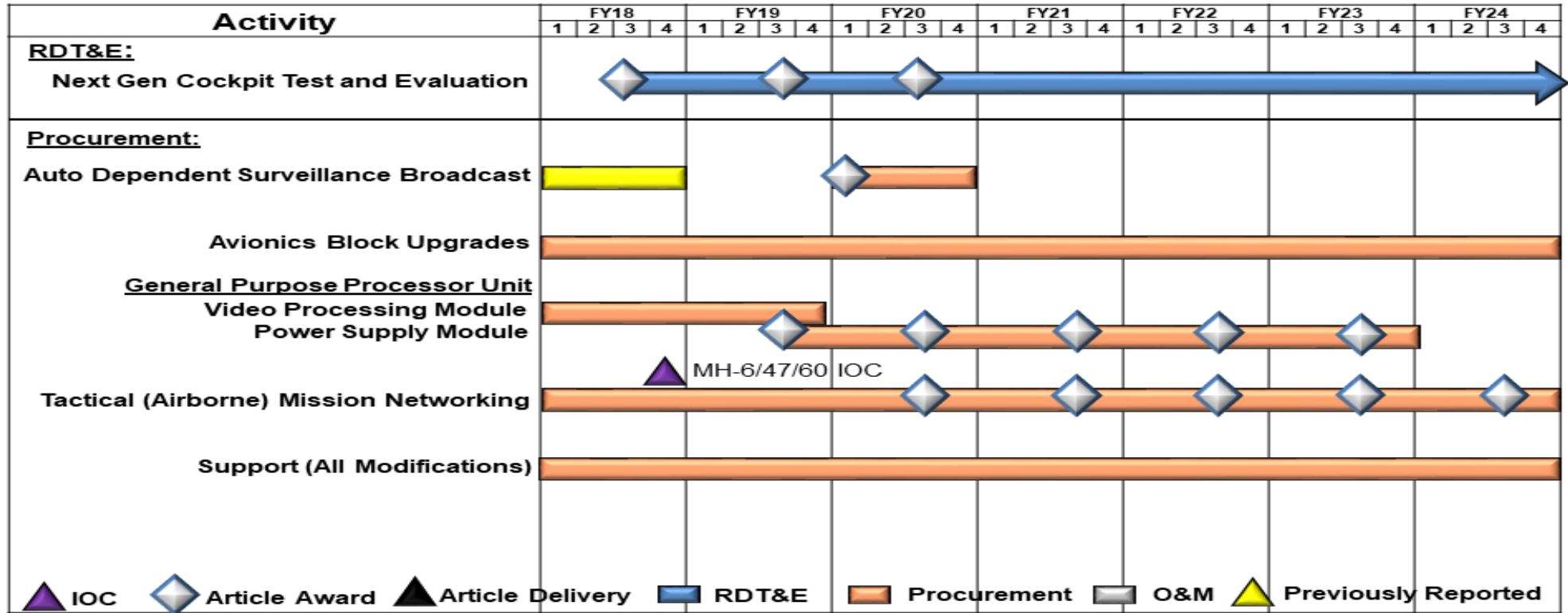
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
D615 / Rotary Wing Aviation

Mission Processor Upgrades Schedule

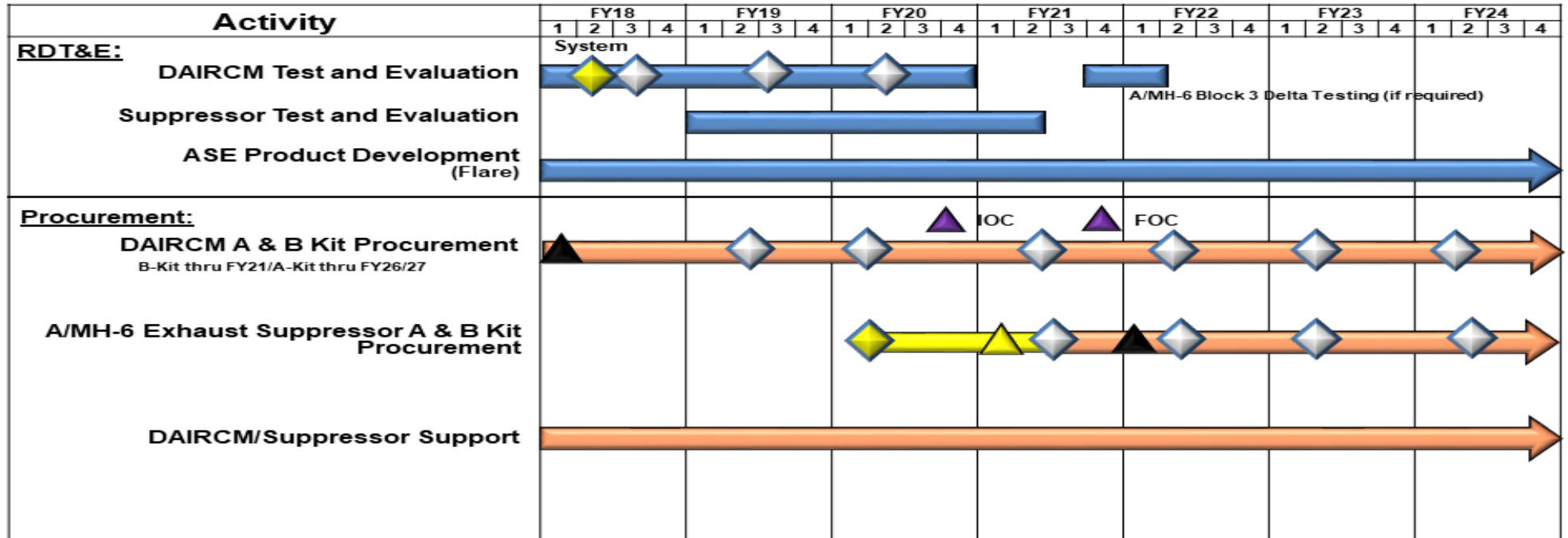


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
D615 / Rotary Wing Aviation

Aircraft Survivability Equipment IRCM Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

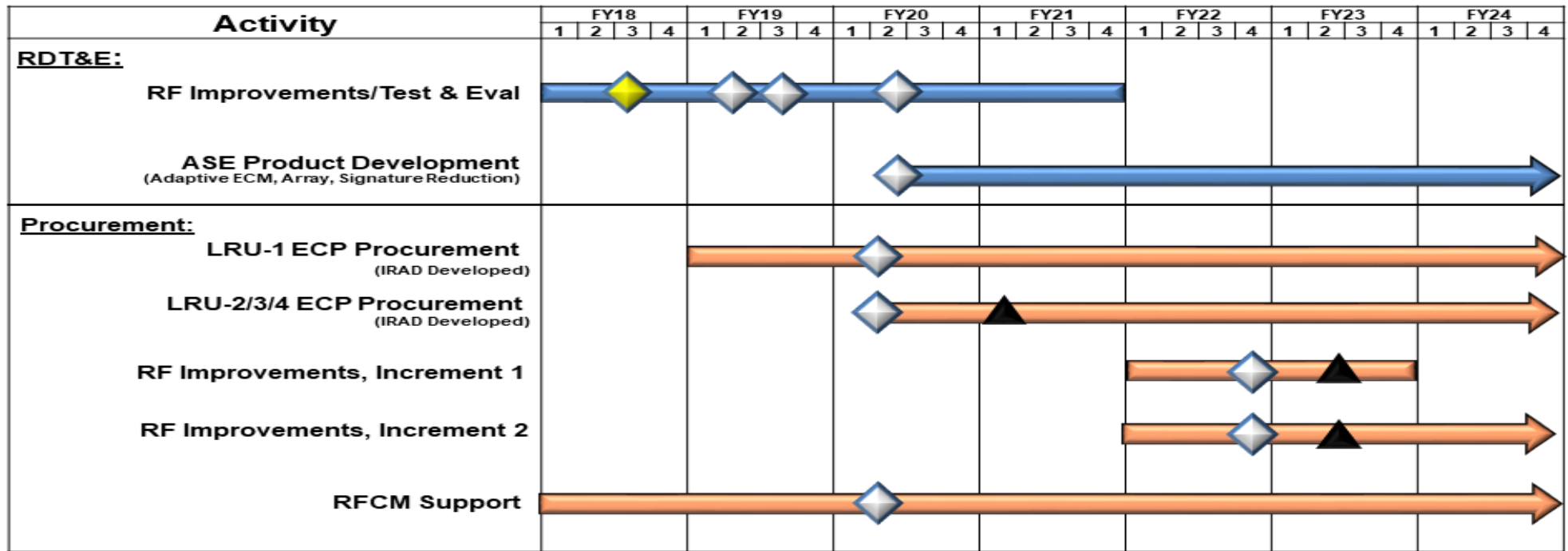
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
D615 / Rotary Wing Aviation

Aircraft Survivability Equipment RFCM Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>A/MH-6M Block 3.0 and Modifications</i>				
Airframe Design and Qualification	1	2018	2	2018
Airworthiness and Flight Characteristics Testing	2	2019	2	2020
Avionics Design and Qualification	1	2018	2	2020
Modifications and Upgrades	1	2020	4	2024
<i>MH-60M Modifications and Block Upgrades</i>				
Modifications and Upgrades	1	2018	4	2024
Upturned Exhaust System (UES) II Development	1	2020	4	2020
<i>Degraded Visual Environment</i>				
Design, Development, and Qualification Test	1	2018	4	2019
Airworthiness Release Support	1	2020	4	2021
<i>Future Vertical Lift</i>				
SOF-P Analysis of Alternatives/Requirements Development	1	2018	4	2024
<i>MH-47 Modifications and Block Upgrades</i>				
Development of Modifications and Upgrades	1	2018	4	2024
Active Parallel Actuator Subsystem (APAS) Design, Qualification	1	2018	4	2021
<i>Mission Processor Upgrades</i>				
Next Gen Cockpit Exploration	3	2018	4	2024
<i>Aircraft Survivability Equipment (ASE) Infrared Countermeasures (IRCM)</i>				
DAIRCM Test and Evaluation	1	2018	4	2020
Suppressor Test and Evaluation	1	2019	2	2021
Product Development (Flare)	1	2018	4	2024
<i>ASE Radio Frequency Countermeasures (RFCM)</i>				

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	Project (Number/Name) D615 / <i>Rotary Wing Aviation</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
RF Improvements, Increment 1	1	2018	4	2021
RF Improvements, Increment 2	1	2018	4	2021
Product Development (Adaptive ECM, Array, Signature Reduction)	2	2020	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	576.045	8.837	10.625	15.484	-	15.484	17.974	16.729	16.181	16.567	Continuing	Continuing
S400: <i>SO Intelligence Systems</i>	576.045	8.837	10.625	15.484	-	15.484	17.974	16.729	16.181	16.567	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element is part of the Military Intelligence Program (MIP) that provides for the identification, development, rapid prototyping and testing of Special Operations Forces (SOF) intelligence equipment to identify and eliminate deficiencies in providing timely intelligence to deployed forces. Sub-projects address the primary areas of intelligence dissemination, sensor systems, tagging, tracking, and locating devices, integrated threat warning to SOF mission platforms, biometric/forensic site exploitation and tactical exploitation of national system capabilities. USSOCOM has developed an overall strategy to ensure that Command, Control, Communications, Computers, and Intelligence (C4I) systems continue to provide SOF with the required capabilities into the 21st century. USSOCOM's C4I systems comprise an integrated network of systems providing positive command and control and timely exchange of intelligence and threat warning to all organizational echelons. The C4I systems that support this new architecture employ the latest standards and technology by transitioning from separate systems to full integration with the Global Information Grid (GIG). The GIG allows SOF elements to operate with any force combination in multiple environments.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	8.245	10.625	9.094	-	9.094
Current President's Budget	8.837	10.625	15.484	-	15.484
Total Adjustments	0.592	0.000	6.390	-	6.390
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.592	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	6.390	-	6.390

Change Summary Explanation

Funding:

FY 2018: Increase of \$0.592 is due to a reprogramming into the National System Support to SOF program.

FY 2019: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	PE 1160405BB / <i>Intelligence Systems Development</i>

FY 2020: Increase of \$6.390 million due to an increase for the Joint Threat Warning System Maritime Electronic Intelligence Modular/Scalable open architecture and all variant Development and Testing efforts.

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>				Project (Number/Name) S400 / <i>SO Intelligence Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S400: <i>SO Intelligence Systems</i>	576.045	8.837	10.625	15.484	-	15.484	17.974	16.729	16.181	16.567	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This sub-project is part of the Military Intelligence Program (MIP). Provides for the identification, development, testing, and rapid prototyping of Special Operations Forces (SOF) intelligence equipment to identify and eliminate deficiencies in providing timely intelligence to deployed forces. Sub-projects address the primary areas of intelligence dissemination, sensor systems, tagging, tracking, and locating devices, integrated threat warning to SOF mission platforms, and SOF-unique support from space systems, including Tactical Exploitation of National System Capabilities (TENCAP). The systems developed and tested in this line item are National Systems Support to SOF (NSSS); Joint Threat Warning System (JTWS); Hostile Forces - Tagging, Tracking, and Locating (HF-TTL); Special Operations Tactical Video System/ Reconnaissance, Surveillance, and Target Acquisition (TVS/RSTA); Special Operations Forces Planning, Rehearsal and Execution Preparation (SOFPREP); Integrated Survey Program (ISP); and Sensitive Site Exploitation (SSE).

U.S. Special Operations Command (USSOCOM) has developed an overall strategy to ensure that Command, Control, Communications, Computers, and Intelligence (C4I) systems continue to provide SOF with the required capabilities throughout the 21st century. USSOCOM's C4I systems comprise an integrated network of systems providing positive command and control and timely exchange of intelligence and threat warning to all organizational echelons. The C4I systems that support this new architecture employ the latest standards and technology by transitioning from separate systems to full integration with the Global Information Grid (GIG). The GIG allows SOF elements to operate with any force combination in multiple environments. The intelligence programs funded in this project will meet annual emergent requirements and are grouped by the level of organizational element they support: Operational Element (Team) and Above Operational Element (Garrison).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: NSSS	1.442	0.849	0.862	-	0.862
Description: This program provides research and development, and rapid prototyping to support HQ SOCOM TENCAP program and associated similar and supporting capabilities. NSSS improves the combat effectiveness of USSOCOM, its components, and the Theater Special Operations Commands (TSOC) by providing innovative space-based intelligence, surveillance, and reconnaissance technologies and system enhancements, products, and special communications capabilities to tactical SOF units. NSSS leverages current and developmental National systems to integrate with, augment, and support SOCOM systems. Focus areas include Geospatial Intelligence (GEOINT), Signals Intelligence (SIGINT), Special Communications, and intelligence fusion, reporting, and dissemination. NSSS efforts are characterized by rapid prototype development to transition to SOCOM Programs of Records. These developmental efforts usually support SOCOM's existing MIPs. NSSS will also improve SIGINT capabilities by pursuing Joint Interface Control Document 4.x and follow-on compliant					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>SIGINT capabilities, extending SOCOM's cross-domain security infrastructure by adding unclassified sensors into theater net-centric geo-location architecture, improving detection of Low-Probability of Intercept/Low Probability of Detection signals, and automating radar characterizations that enhance tactical SOF capabilities to find, fix, monitor, and target assets using National Technical Means in support of tactical operators.</p> <p>FY 2019 Plans: Continue development of SOF-required prototype capabilities, primarily through leveraging current or developing technologies and assets in the Intelligence Community (IC), while coordinating with SOCOM and IC Programs of Record for production and operational fielding of successful capabilities. Emphasis areas include Intelligence, Surveillance and Reconnaissance (ISR) support for Tagging, Tracking, and higher-accuracy geo-locating of hostile and friendly forces, especially in low sensor density environments, and providing timely intelligence to deployed forces.</p> <p>FY 2020 Base Plans: Continues development of SOF-required prototype capabilities, primarily through leveraging current or developing technologies and assets in the IC, while coordinating with SOCOM and IC Programs of Record for production and operational fielding of successful capabilities. Emphasis areas include ISR support for Tagging, Tracking, and higher-accuracy geo-locating of hostile and friendly forces, especially in low sensor density environments, and providing timely intelligence to deployed forces.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.013 million due to inflation adjustment.</p>					
<p>Title: JTWS</p> <p>Description: The JTWS System of Systems (SoS) enables the SOF Cryptologic Operator to collect, process, locate and exploit threat communications signals of interest in order to provide timely, relevant, and responsive intelligence, cross-cueing, and threat avoidance information directly to the SOF Commanders. The JTWS SoS is assembled in four variants: Ground SIGINT Kit; Maritime; Air; and Unmanned Aerial Systems (UAS). Each variant has additional requirements for Communications Intelligence, Electronic Intelligence, and Precision Geo-location.</p> <p>FY 2019 Plans: Continue evaluating interoperability of technologies on JTWS variants as well as continue testing of the various system of systems. Continues technical evaluation of evolving technologies for all variants in order to provide</p>	5.335	4.532	11.945	-	11.945

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>additional capabilities to address emerging threats. Continues modular/scalable open architecture Development & Testing (D&T).</p> <p>FY 2020 Base Plans: Continues evaluating interoperability of technologies on JTWS variants as well as continue testing of the various system of systems. Continues technical evaluation of evolving technologies for all variants in order to provide additional capabilities to address emerging threats. Begins development of an Electronic Intelligence (ELINT) rapid prototyping capability for the Maritime system. Continues modular/scalable open architecture D&T.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$7.413 million due to Maritime ELINT (\$2.098), Modular/Scalable Open Architecture Development & Testing (\$1.800) and All Variants D&T (\$3.515) JTWS efforts.</p>					
<p>Title: HF-TTL</p> <p>Description: This program provides SOF with the necessary tools to find, fix, and finish target assets through the emplacement of sophisticated tags and devices that feed into an integrated architecture. HF-TTL provides Global Combatant Commanders (GCC) and SOF operators with an immediate capability to tag, track, and locate people, things, and activities. The HF-TTL program provides actionable intelligence for SOF mission planners. The mission sets comprise a mix of different classes of tags and their associated detection, interrogation, viewing, tracking, and communications systems that are fielded annually to SOF Components and TSOC based upon dynamic and emergent SOF operational requirements.</p> <p>FY 2019 Plans: Continue rapid prototyping, specialized device modifications, product development support, integration, and operational testing and evaluation in support of UAS payload integration, maritime specialized tag development, and Low Probability of Intercept (LPI) – Low Probability of Detection (LPD) waveform refinements.</p> <p>FY 2020 Base Plans: Continues rapid prototyping, specialized device modifications, product development support, integration and operational testing and evaluation in support of UAS payload integration, maritime specialized tags development, and LPI-LPD waveform refinements.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>	0.811	0.709	1.078	-	1.078

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Increase of \$0.369 million due to minor adjustments for rapid prototyping and additional product development focused on maritime TTL capabilities development.					
<p>Title: TVS/RSTA</p> <p>Description: This program provides SOF with critical Special Reconnaissance (SR) equipment that directly supports the planning and execution of SOF missions. This capability allows the SOF warfighter to meet SOF SR mission requirements to find, fix, finish, exploit, analyze, and disseminate information of an adversary's movement, construct, identification, location; and associated activities. TVS/RSTA provides GCC and SOF operators with an immediate capability to visually and electronically acquire people, things, and activities and provides actionable intelligence for SOF planners and Commanders. The program Family of Systems (FoS) consists of interoperable equipment to capture and transfer near-real-time ground-based, tactical day/night/ reduced visibility, imagery, video, and electronic proximity and movement sensing, all capable of dissemination through SOF organic, global C4I, and commercial communications infrastructures.</p> <p>FY 2019 Plans: Continue specialized device modifications, integration and operational testing and evaluation.</p> <p>FY 2020 Base Plans: Continues specialized device modifications, integration and operational testing and evaluation.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.152 million for rapid prototyping and product improvement.</p>	0.393	0.564	0.716	-	0.716
<p>Title: SOFPREP</p> <p>Description: This program serves as the intelligence focal point for production of SOF enhanced GEOINT (maps, imagery, and terrain data) and 3D scene visualization databases. SOFPREP gathers, processes, exploits, disseminates, and manages classified high resolution 3D databases and GEOINT data in support of SOF training, mission rehearsal, and execution preparation systems. The program builds the SOF common geospatial environment and manages the authoritative database of SOF-specific GEOINT terrain data. SOFPREP is a NGA-certified co-producer in support of time-sensitive SOF specific requirements.</p> <p>FY 2019 Plans:</p>	0.291	3.376	0.280	-	0.280

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Continue testing and evaluation of operational prototype systems to speed production of correlated high resolution 3D geospatial databases.</p> <p>FY 2020 Base Plans: Continues testing and evaluation of operational prototype systems to speed production of correlated high resolution 3D geospatial databases.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease of \$3.096 million due to the completion of high performance computing modernization efforts performed in FY19.</p>					
<p>Title: ISP</p> <p>Description: This program collects and produces current, detailed, tactical planning data to support military operations to counter threats against U.S. citizens, interests, and property located both domestically and overseas. ISP products are specifically tailored packages that provide operational information, as well as intelligence data for use by DOD and the U.S. Department of State to support operational planners for counter-terrorism operations, evacuations, and other rescue missions.</p> <p>FY 2019 Plans: Continue development and rapid fielding of ISP system and products to integrate with enterprise architecture and support the latest standards and technology.</p> <p>FY 2020 Base Plans: Continues development and rapid fielding of ISP system and products to integrate with enterprise architecture and support the latest standards and technology.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.006 million is due to inflation adjustment.</p>	0.384	0.409	0.415	-	0.415
<p>Title: SSE</p> <p>Description: This program uses rapid test and evaluation of emerging Biometric and Forensic technology to provide state-of-art capabilities to the warfighter thus allowing for exploitation of personnel, documents, electronic data, materiel, and forensic evidence on sensitive sites/objectives. Biometric kits allow collection and transmission of unique, measurable biometric signatures from personnel, including live/latent fingerprints, iris patterns, and facial features. It also provides a means to verify against and enroll subjects into the DOD authoritative database, and to query that database to support hold or release decisions. Forensic kits enable</p>	0.181	0.186	0.188	-	0.188

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
on-objective linking of events to specific persons through chemical analysis, latent fingerprints, cell phones and computer data analysis, and deoxyribonucleic acid collection. Exploitation Analysis Centers provide theater-level mobile forensic capabilities for more in-depth exploitation of captured evidence.					
<i>FY 2019 Plans:</i> Continue technical evaluation of new technologies.					
<i>FY 2020 Base Plans:</i> Continues technical evaluation of new technologies.					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Increase of \$0.002 million is due to inflation adjustments.					
Accomplishments/Planned Programs Subtotals	8.837	10.625	15.484	-	15.484

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/020400INTL: <i>Intelligence Systems</i>	124.408	102.199	100.641	16.500	117.141	118.285	133.465	147.271	150.003	Continuing	Continuing

Remarks

D. Acquisition Strategy

- NSSS introduces and integrates national systems capabilities into the SOF force structure and operations. This is accomplished by partnering with existing IC and SOCOM programs of record to incorporate SOF mission requirements into current and developing technologies and assets. This leveraging of funds increases national and commercial systems awareness, demonstrates the tactical utility of national systems and commercial data, test technologies and evaluates operational concepts in biennial Joint Staff Special Projects, and allows for the transition of promising concepts and technologies to other SOF program offices for execution.
- JTWS is a SoS leveraging commercial technologies and partnerships with other government agencies. The Programs of Records (POR) will leverage Commercial Off The Shelf (COTS)/Government Off The Shelf/ and Non-Developmental Item capabilities requiring minimal modifications wherever possible. JTWS is making deliberate investments to evolve the program into modular/scalable systems with a framework supporting open architecture in order to provide common solutions across the variants, increase interoperability, and reduce duplication of efforts. JTWS will address the continuously evolving threat environments on the Ground, Air, Maritime, and Unmanned Aircraft System variants, leverage existing partnerships with the National Security Agency and other government partners to integrate and sustain systems based on prioritized need from the Components and as emerging threats require technology modernizations. The contracting strategy is a mixture of full and open competition for prime integrators and leveraging existing Indefinite Delivery/Indefinite Quantity (IDIQ) contracts for COTS procurement.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

- HF-TTL utilizes an acquisition strategy to provide highly sophisticated TTL and close target audio/video devices capable of operating in various environments as needed to meet SOF operational requirements. Commercial and government agency sources will be leveraged for required certifications, device level modifications, integration, functional, and operational testing and evaluations.
- TVS/RSTA employs an evolutionary strategy to incorporate the latest state of technology within its product line to provide upgraded next-generation technology insertion of COTS systems and address the changing threat environment to meet SOF reconnaissance and surveillance mission requirements. Commercial and government agency sources will be leveraged for required certifications, system level integration, functional, and operational testing and evaluations.
- SOFPREP employs an evolutionary strategy to insert emerging technologies for processing, exploitation and dissemination capabilities tailored to SOF user-defined mission requirements. Commercial and government agency sources are leveraged for required certifications, system level integration, functional, and operational testing and evaluations.
- ISP employs an evolutionary strategy to insert emerging technologies for collection, processing, exploitation and dissemination capabilities tailored to SOF user-defined mission requirements. Commercial and government agency sources are leveraged for required certifications, system level integration, functional, and operational testing and evaluations.
- SSE uses a commodity procurement rapid acquisition strategy to provide next-generation technologies for collection, processing, exploitation and dissemination capabilities supporting SOF exploitation mission requirements. Commercial and government agency sources are leveraged for required certifications, system level integration, functional, and operational testing and evaluations.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
National Systems Support to SOF (NSSS)	MIPR	Various : Various	16.763	1.442	Feb 2018	0.849	Feb 2019	0.862	Feb 2020	-		0.862	Continuing	Continuing	-
Joint Threat Warning System (JTWS)-Air Increment 2	MIPR	SPAWAR : Charleston, SC	7.805	0.428	Feb 2018	0.500	Dec 2018	0.510	Jan 2020	-		0.510	Continuing	Continuing	-
JTWS-Ground Sigint Kit (GSK), Inc 2	C/CPFF	Various : Various	20.933	0.932	Apr 2018	0.500	Jan 2019	0.510	Jan 2020	-		0.510	Continuing	Continuing	-
JTWS-Maritime	C/CPFF	Various : Various	9.340	0.623	Apr 2018	0.479	Apr 2019	2.577	Jan 2020	-		2.577	Continuing	Continuing	-
JTWS-All Variants	MIPR	Various : Various	2.704	-		0.393	Apr 2019	3.888	Apr 2020	-		3.888	Continuing	Continuing	-
Integrated Survey Program (ISP) - Development, Test and Evaluation	C/FFP	Various : Various	0.530	0.384	Jan 2018	0.409	Jan 2019	0.415	Jan 2020	-		0.415	Continuing	Continuing	-
Hostile Forces-Tagging Tracking, and Locating (HF-TTL)	C/CPFF	Various : Various	1.731	0.597	Feb 2018	0.489	Feb 2019	0.854	Feb 2020	-		0.854	Continuing	Continuing	-
Tactical Video System/ Reconnaissance, Surveillance, & Target Acquisition	MIPR	Various : Various	-	-		-		0.491	Jan 2020	-		0.491	Continuing	Continuing	-
Special Operations Forces Planning, Rehearsal & Execution Preparation (SOPREP) - Rapid Prototyping	C/Variou	Various : Various	-	-		1.868	Feb 2019	-		-		-	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	461.047	-		-		-		-		-	0.000	461.047	-
Subtotal			520.853	4.406		5.487		10.107		-		10.107	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JTWS Modular/Scalable D&T	C/CPFF	Various : Various	-	3.104	Oct 2018	2.360	Jan 2019	4.160	Jun 2020	-		4.160	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	8.296	-		-		-		-		-	0.000	8.296	-
Subtotal			8.296	3.104		2.360		4.160		-		4.160	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JTWS Test Support	Various	Various : Various	7.594	0.248	Mar 2018	0.300	Mar 2019	0.300	May 2020	-		0.300	Continuing	Continuing	-
Tactical Video System/ Reconnaissance, Surveillance, & Target Acquisition	MIPR	ATEC : FT Huachuca, AZ	1.315	0.393	Jan 2018	0.564	Jan 2019	0.225	Jan 2020	-		0.225	Continuing	Continuing	-
HF-TTL	MIPR	ATEC : FT Huachuca, AZ	0.285	0.214	May 2018	0.220	May 2019	0.224	May 2020	-		0.224	Continuing	Continuing	-
Sensitive Site Exploitation	MIPR	JITC : FT Huachuca, AZ	0.157	0.181	Dec 2017	0.186	Dec 2018	0.188	Dec 2019	-		0.188	Continuing	Continuing	-
Special Operations Forces Planning, Rehearsal & Execution Preparation (SPREP) - Prototype Systems	C/FFP	Various : Various	0.564	0.291	Mar 2018	1.508	Jan 2019	0.280	Mar 2020	-		0.280	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	0.549	-		-		-		-		-	0.000	0.549	-
Subtotal			10.464	1.327		2.778		1.217		-		1.217	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>
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Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Funding - Completed Efforts	Various	Various : Various	36.432	-		-		-		-		-	0.000	36.432	-
Subtotal			36.432	-		-		-		-		-	0.000	36.432	N/A

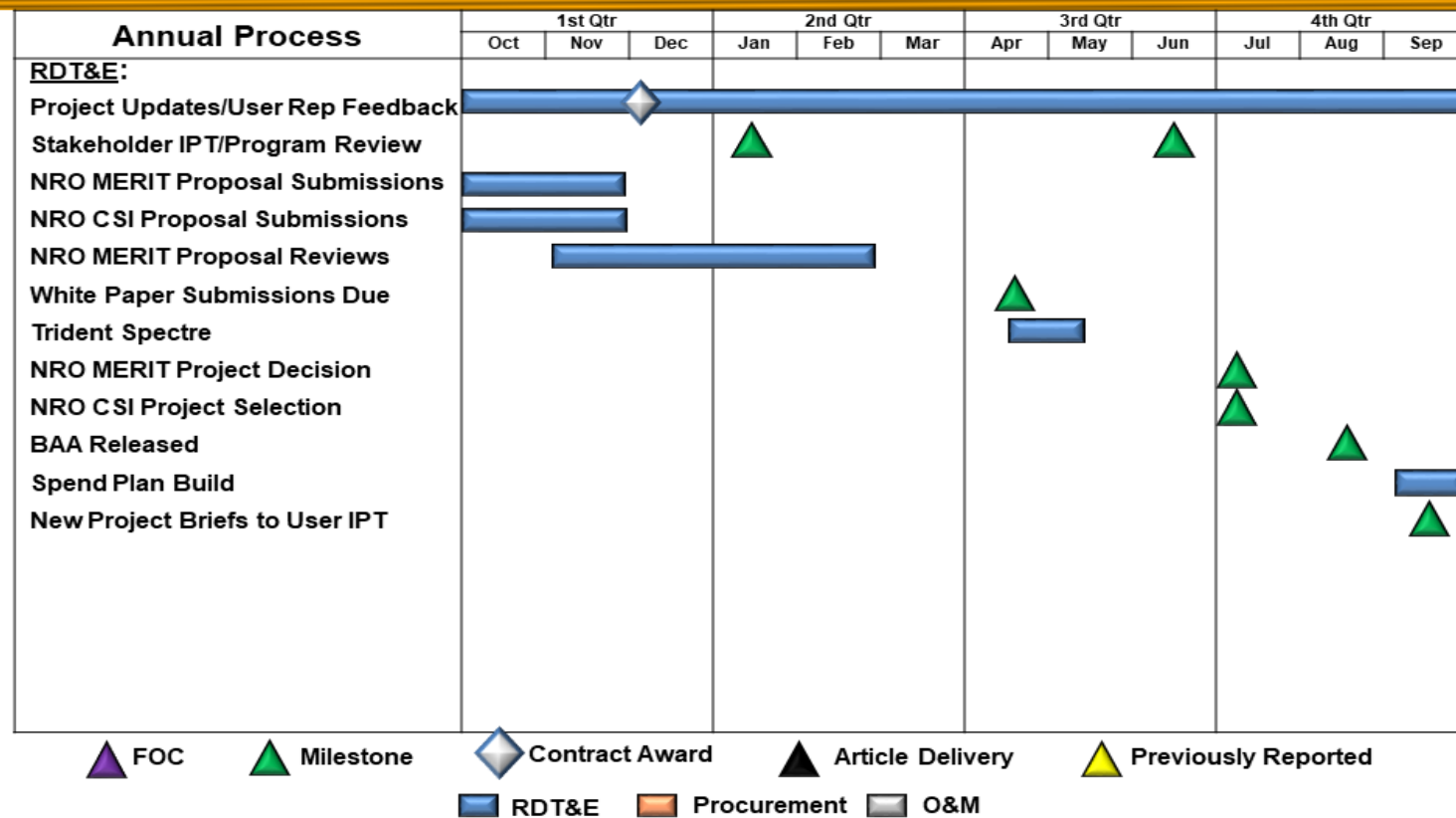
	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract		
	Project Cost Totals		576.045	8.837	10.625	15.484	-	-	15.484	Continuing	Continuing

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

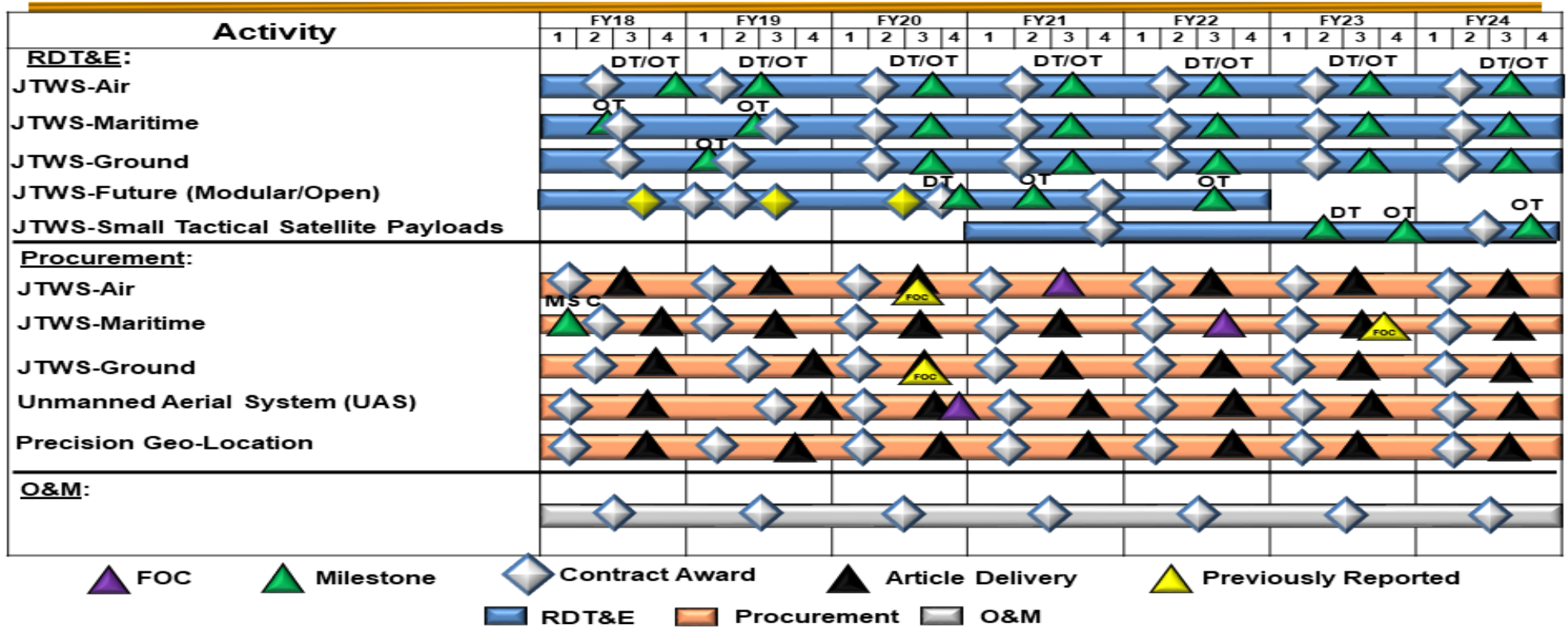
NSSS/TENCAP Program Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

JTWS Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

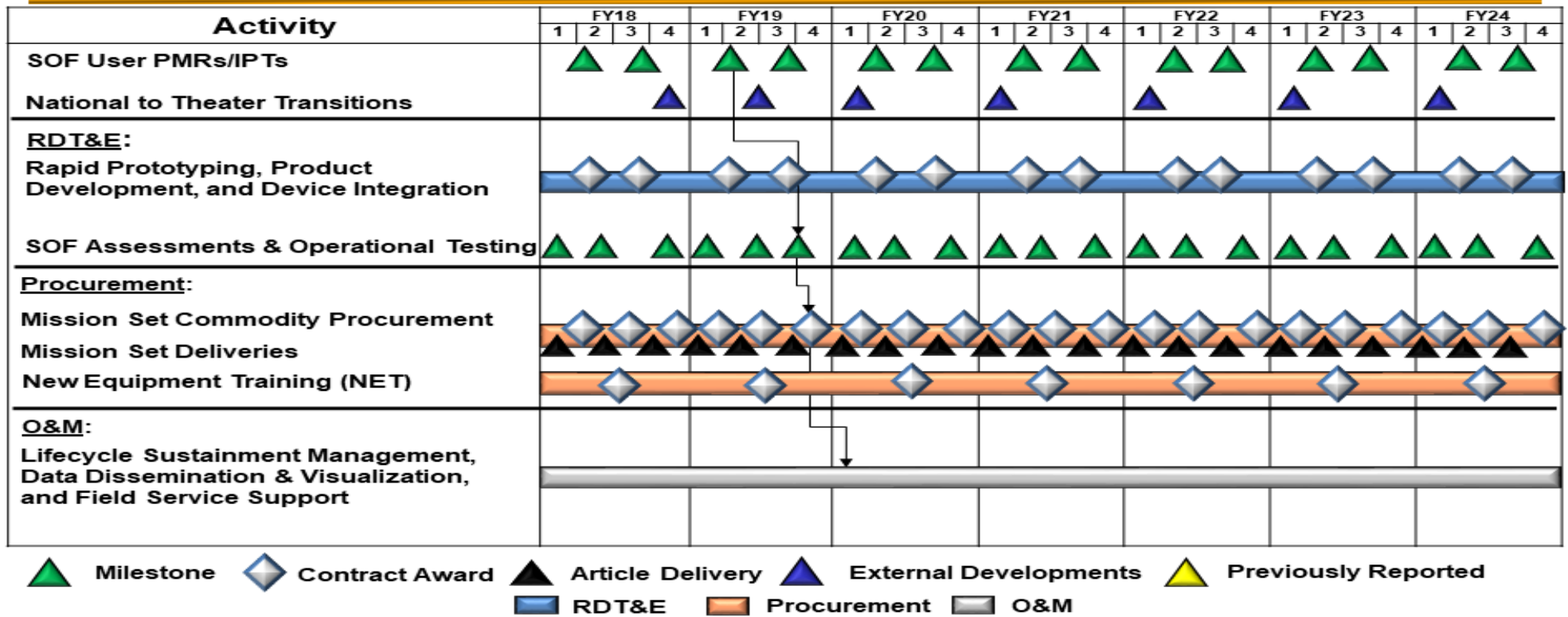
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160405BB / Intelligence Systems
Development

Project (Number/Name)
S400 / SO Intelligence Systems

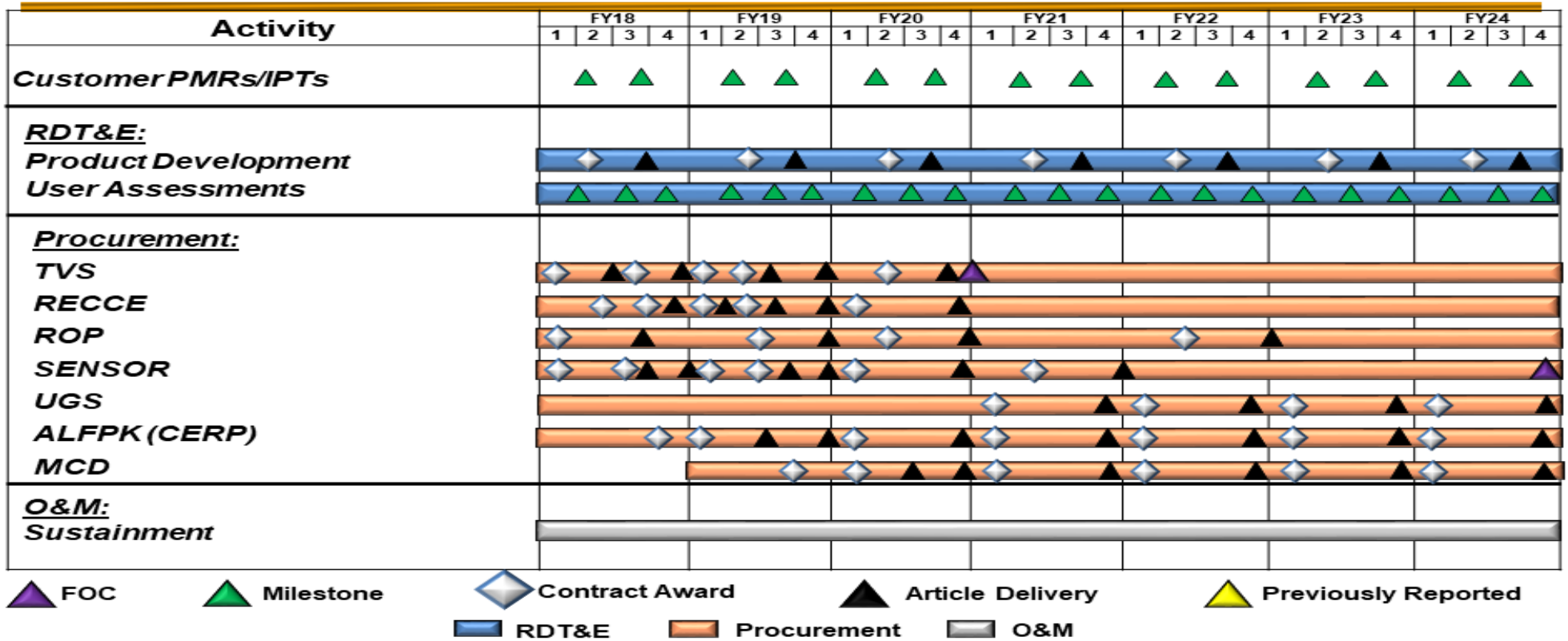
HF-TTL Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

TVS/RSTA Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

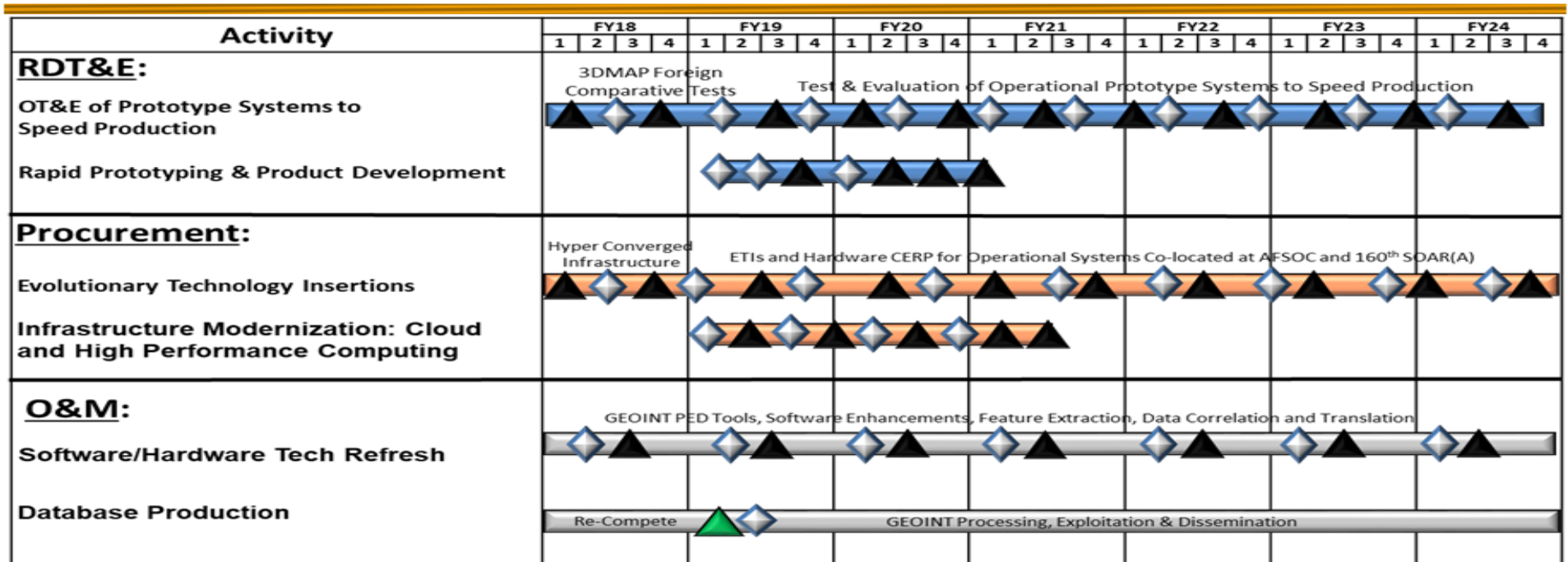
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160405BB / Intelligence Systems
Development

Project (Number/Name)
S400 / SO Intelligence Systems

SOFPREP Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

ISP Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	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
<u>RDT&E:</u>																												
Product Development, Test and Evaluation	<p>Mobile App Development & Operational Testing (FY18-20)</p> <p>SIPR Cloud Migration (FY20-22)</p> <p>Cyber Infrastructure Product Development (FY23-24)</p> <p>3D Product Development Maritime Port & Harbor (FY19-21)</p> <p>Indoor Collection Technology Test & Evaluation (FY22-23)</p>																											
<u>Procurement:</u>	<p>Hardware Recapitalization / Migration to SOCOM SIPR Cloud</p>																											
<u>O&M:</u>	<p>Software/Hardware Tech Refresh</p> <p>IT & Application Mgmt.</p> <p>Task Order Re-Compete (FY20)</p> <p>Garrison Support for Deployed Field Survey Teams (FY21-22)</p>																											

▲ FOC
 ▲ Milestone
 ◆ Contract Award
 ▲ Article Delivery
 ▲ Previously Reported

■ RDT&E
 ■ Procurement
 ■ O&M

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

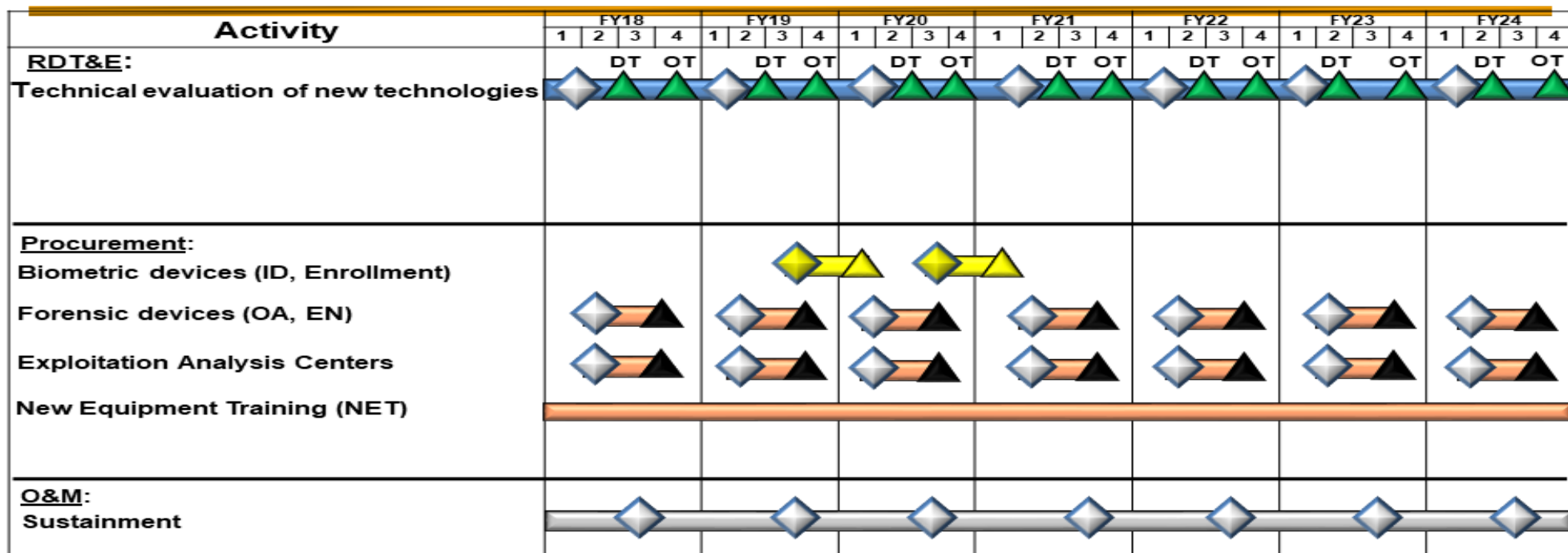
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160405BB / *Intelligence Systems Development*

Project (Number/Name)
S400 / *SO Intelligence Systems*

Sensitive Site Exploitation Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>National Systems Support to SOF Participation in Space Technology Development and Integration</i>				
National System Support to SOF Project Updates/User Rep Feedback	1	2020	4	2020
<i>Joint Threat Warning System</i>				
Air Variant Development, Test and Evaluation	2	2018	4	2024
Ground Sigint Kit Variant Development, Test and Evaluation	2	2018	4	2024
Maritime Variant Development, Test and Evaluation	3	2018	4	2024
JTWS Future (Modular/Open)	4	2018	4	2024
<i>Hostile Forces - Tagging, Tracking, and Locating</i>				
Product Development	2	2018	4	2024
Device Integration and Operational Testing	4	2018	4	2024
<i>Special Operations Tactical Video System</i>				
System Integration and Operational Testing	1	2018	4	2024
Product Development	1	2018	4	2024
<i>Special Operations Forces Planning, Rehearsal & Execution Preparation</i>				
Product Development and Operational Test and Evaluation	1	2018	4	2024
<i>Integrated Survey Program</i>				
Product Development	1	2018	4	2024
<i>Sensitive Site Exploitation</i>				
System Integration and Operational Testing	1	2018	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160408BB / <i>Operational Enhancements</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1,368.641	73.734	102.939	166.922	0.726	167.648	157.271	156.432	151.166	148.329	Continuing	Continuing
S500A: <i>Operational Enhancements</i>	1,368.641	73.734	102.939	166.922	0.726	167.648	157.271	156.432	151.166	148.329	Continuing	Continuing

A. Mission Description and Budget Item Justification

Details are provided under separate cover.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	81.375	102.939	132.143	-	132.143
Current President's Budget	73.734	102.939	166.922	0.726	167.648
Total Adjustments	-7.641	0.000	34.779	0.726	35.505
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-8.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	2.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.631	-			
• Other Adjustments	0.990	-	34.779	0.726	35.505

Change Summary Explanation

Funding:

FY2018: Net decrease of -\$7.641 million is due to congressional directed reductions of -\$8.000 million; congressional adds of \$2.000 million, transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs (-\$2.631 million) and an other adjustment increase of \$0.990 million. Details available under separate cover.

FY2019: None.

FY2020: Increase of \$35.505 million due to an increase baseline funding of \$34.779 million and Overseas Contingency Operations of \$0.726 million. Details available under separate cover.

Schedule: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	PE 1160408BB / <i>Operational Enhancements</i>

Technical: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	137.508	74.169	74.582	62.332	6.000	68.332	55.337	44.502	48.808	49.794	Continuing	Continuing
D476: <i>Military Information Support Operations</i>	14.823	27.307	9.942	2.937	-	2.937	2.945	1.785	1.822	1.864	Continuing	Continuing
S375: <i>Weapons Systems</i>	3.404	1.425	1.198	1.625	-	1.625	1.604	1.529	1.561	1.597	Continuing	Continuing
S385: <i>Soldier Protection and Survival Systems</i>	17.555	2.078	10.501	8.918	6.000	14.918	10.874	10.840	10.935	11.049	Continuing	Continuing
S385A: <i>Body Armor and Associated Equipment</i>	6.330	1.242	1.048	1.752	-	1.752	1.738	1.694	1.729	1.770	Continuing	Continuing
S395: <i>Visual Augmentation, Lasers and Sensor Systems</i>	11.383	0.940	1.257	3.212	-	3.212	2.171	2.097	2.132	2.174	Continuing	Continuing
S700: <i>Communications Equipment and Electronics Systems</i>	21.643	9.294	13.966	18.519	-	18.519	21.852	17.040	16.487	16.862	Continuing	Continuing
S710: <i>Tactical Systems Development</i>	4.400	2.327	4.240	3.313	-	3.313	3.344	3.105	3.170	3.244	Continuing	Continuing
S725: <i>Tactical Radio Systems</i>	13.304	12.704	4.660	11.315	-	11.315	7.940	2.572	2.633	2.701	Continuing	Continuing
S800: <i>Munitions Advanced Development</i>	44.666	16.852	27.770	10.741	-	10.741	2.869	3.840	8.339	8.533	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for development, rapid prototyping, testing, and integration of specialized equipment in the areas of automation, communication, radio, weapon, soldier protection and survival, visual augmentation, lasers and sensors, munition and Military Information Support Operations (MISO) systems. Warrior Systems specialized equipment will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. Special Operation Forces (SOF) must infiltrate by land, sea, and air to conduct unconventional warfare, direct action, or deep reconnaissance operations in denied areas against insurgent units, terrorists, or highly sophisticated threat forces. The requirement to operate in denied areas controlled by a sophisticated threat mandates that SOF systems remain technologically superior to threat forces to ensure mission success. The efforts within this PE improve SOF warfighting capabilities by continuing efforts to develop smaller, lighter, more efficient and more robust capabilities. The SOF mission mandates that SOF systems remain technologically superior to any threat to provide a maximum degree of survivability while, generally, being conducted in harsh environments for unspecified periods and in locations requiring small unit autonomy. Communications efforts will maintain a Command, Control, and Communications (C3) link between SOF Commanders and SOF Teams, and provide interoperability with all Services, various agencies of the U.S. Government, Air Traffic Control, commercial agencies and allied foreign forces. Efforts relating to soldier protection and

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command Date: March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>
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survival requirements will improve survivability and mobility of SOF while conducting varied missions. Counter Unmanned Aerial Systems (C-UAS) efforts rely on cutting edge detection sensors, both passive and active, paired with kinetic and non-kinetic defeat systems will allow SOF Operators to conduct Special Forces missions in denied and hostile environments worldwide. Specialized visual augmentation, lasers and sensors will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. Munition efforts include advanced engineering operational system development and qualification efforts related to SOF-peculiar munitions and equipment. Additionally, MISO efforts include planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately, the behavior of foreign governments, organizations, groups and individuals. This R-1 program element includes \$6.000 million of FY2020 enduring Overseas Contingency Operations funding.

MISO:

This project provides for the development, test and integration of MISO equipment. MISO are planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately, the behavior of foreign governments, organizations, groups, and individuals. This project funds transformational systems and equipment to conduct the seven phase MISO process (planning, targeting audience analysis, series development, product development and design, approval, production/distribution/dissemination, and measures of effectiveness) in support of combatant commanders.

Weapons Systems:

This project provides for next generation system development and pre-planned product improvements (P3I), testing, and integration of specialized weapon systems and weapon accessories to meet the unique requirements of SOF. Efforts include muzzle brakes and suppressors, and P3I for assault, sniper, and crew served weapons leveraging the latest technological advances to achieve overmatch capability against emerging threats.

Soldier Protection and Survival Systems:

This project provides for the development, testing, integration, rapid prototyping, and evaluation of specialized equipment, to meet the unique soldier protection and survival requirements of SOF in varied missions; counter-improvised explosive device systems, to meet continually emerging Counter Radio Controlled-Improvised Explosive Device (RC-IED) threats; C-UAS (aerial, ground and maritime) to mitigate and defeat the emerging and rapidly evolving unmanned system threats; and signature reducing materials and technologies, to reduce the probability of detection by battlefield threat sensors. C-UAS Family of Systems supports the development, integration and testing of Counter Unmanned (Aerial, Ground, Maritime) Sensor Integration Module (SIM) Family of Systems that enhance the Soldier's ability to detect, track, identify, exploit and defeat specific stand-off unmanned weapon threats, and to acquire objects of military significance before the Soldier is detected and to target threat objects accurately for engagement by soldiers counter-UAS defeat capabilities.

Body Armor and Associated Equipment:

This project provides specialized equipment with ballistic protection to meet the unique soldier protection and survival requirements of SOF. Specialized ballistic equipment improves survivability and load bearing equipment impacting the mobility of SOF while conducting varied missions. This project enhances the SOF Personal Equipment Advanced Requirements program by providing for the research, development, and testing of body armor plates, soft armor, helmets, eye protection, and other personal protective equipment to meet current ballistic threats that exist on the battlefield.

Visual Augmentation, Lasers and Sensor Systems:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command Date: March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>
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This project provides for development, testing, and integration of specialized visual augmentation, laser and sensor systems equipment to meet the unique requirements of SOF and facilitate future Hyper-Enabled Operator capabilities. Programs in this area include binocular/monocular devices; next generation laser designation and geo-location systems; weapon aiming lasers, scopes and accessories; and training and simulation systems.

Communications Equipment and Electronics Systems:

This project provides for communication systems to meet emergent requirements to support SOF. SOF units require communications equipment that improves their warfighting capability without degrading their mobility. SOF Communications Equipment and Electronics is a continuing effort to develop smaller, lighter, more efficient and more robust SOF Command, Control, Communications, and Computer (C4) capabilities.

Tactical Systems Development:

This project provides for development, testing, and integration of specialized automation equipment to meet the unique requirements of SOF. Tactical systems provide forward deployed forces with advanced networking, automated data processing, storage, and display capabilities to support situational awareness, mission planning and execution, and command and control (C2) of forces.

Tactical Radio Systems:

This project is for the development of all SOF tactical radio programs. SOF units require radio communication equipment that improves their warfighting capability without degrading their mobility. United States Special Operations Command (USSOCOM) has developed an overall strategy to ensure that Tactical Radio Systems continue to provide SOF with the required capabilities throughout the 21st century. SOF Tactical Radios provide the critical C3 link between SOF Commanders and SOF Teams involved in operational missions and training exercises. They also provide interoperability with all Services, various agencies of the U.S. Government, Air Traffic Control, commercial agencies, and allied/coalition forces. Tactical Radios rapidly and seamlessly establish and maintain mobile and fixed C2 communications between infiltrated/operational elements and higher echelon headquarters, allowing SOF to operate with any force combination in multiple environments.

Munitions Advanced Development:

This project provides for the advanced engineering, operational system development, and qualification efforts related to SOF-peculiar and Foreign/Non-standard munitions and equipment. Funding supports development of Insensitive Munitions (IM) technology and evaluation, in accordance with statutory requirement set forth in U.S. Code, Title 10, Chapter 141, Section 2389 (December 2001). Testing is in accordance with the USSOCOM IM Strategic Plan. Funding also supports efforts to develop and improve Stand-Off Precision Guided Munitions (SOPGM), including the development and integration of improved warheads, seekers, guidance navigation and control systems, operational flight software, and missile delivery on to SOF platforms. SOPGM development efforts utilize, to the extent possible, Middle Tier Acquisition methods to rapidly explore, prototype, demonstrate, test, and field new capabilities for near-term combat requirements, such as autonomous and synchronized targeting and strike technology, precision guided projectile ammunition, munition-based aerial sensor delivery vehicles, and alternative precision navigation technologies.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	45.935	57.982	68.336	-	68.336
Current President's Budget	74.169	74.582	62.332	6.000	68.332
Total Adjustments	28.234	16.600	-6.004	6.000	-0.004
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-3.000	-5.900			
• Congressional Rescissions	-	-			
• Congressional Adds	35.500	22.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.397	-			
• SBIR/STTR Transfer	-2.869	-			
• Other Adjustments	-	-	-6.004	6.000	-0.004

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: D476: *Military Information Support Operations*

Congressional Add: *Multi-Mission Payload (MMP) formerly known as Long Range Broadcast System (LRBS)*

Congressional Add: *Next Generation Loud Speakers (NGLS) and Scatterable Media*

Congressional Add Subtotals for Project: D476

Project: S385: *Soldier Protection and Survival Systems*

Congressional Add: *Rotary Wing Aviation Helmet*

Congressional Add Subtotals for Project: S385

Project: S800: *Munitions Advanced Development*

Congressional Add: *SOPGM*

Congressional Add Subtotals for Project: S800

Congressional Add Totals for all Projects

	FY 2018	FY 2019
	16.860	-
	5.781	6.000
Congressional Add Subtotals for Project: D476	22.641	6.000
	-	1.500
Congressional Add Subtotals for Project: S385	-	1.500
	11.557	15.000
Congressional Add Subtotals for Project: S800	11.557	15.000
Congressional Add Totals for all Projects	34.198	22.500

Change Summary Explanation

Funding:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>
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FY 2018: Net increase of \$28.234 million due to congressional adds for Multi Mission Payload (\$17.500 million); Next Generation Loud Speaker (\$6.000 million); Small Glide Munition (\$12.000 million); a transfer to Small Business Innovative Research/Small Business Technology Transfer programs (-\$2.869 million); a congressional directed reduction to the SOF Deployable Node program (-\$3.000 million) and reprogramming (-\$1.397 million) for higher Command Priorities.

FY 2019: Net increase of \$16.600 million is due to congressional adds for distributed audio media/next generation loudspeaker (\$6.000 million); rotary wing aviation helmet (\$1.500 million); Small Glide Munition Unmanned Aircraft System integration (\$15.000 million); congressional directed reductions for RC-IED test/evaluation excess growth (-\$1.900 million); and ordnance items developmental test/evaluation excess growth (-\$4.000 million).

FY 2020: Net decrease of -\$0.004 million due to Overseas Contingency Operations (OCO) to Base transfer (-\$6.000 million) to OCO (+\$6.000 million) and miscellaneous adjustments (-\$0.004 million).

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>				Project (Number/Name) D476 / <i>Military Information Support Operations</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
D476: <i>Military Information Support Operations</i>	14.823	27.307	9.942	2.937	-	2.937	2.945	1.785	1.822	1.864	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development and acquisition of Military Information Support Operations (MISO) equipment. MISO are planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately, the behavior of foreign governments, organizations, groups, and individuals. This project funds transformational systems and equipment to conduct MISO in support of combatant commanders.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Multi-Mission Payload (MMP) formerly known as Long Range Broadcast System (LRBS)	1.573	2.181	1.187	-	1.187
Description: The MMP is a family of broadcast systems intended to be integrated into multiple manned and unmanned, long-loiter aerial systems with the capability of broadcasting in AM, FM, SW, TV, Very High Frequency (VHF), TV Ultra High Frequency (UHF) and cellular Short Message Service (SMS), Multi-Media Messaging Service, and Voice. This system provides the capability to broadcast MISO messages via multiple mediums into permissive, semi-permissive, and denied foreign areas. Additionally, the MMP is capable of supporting Electronic Warfare (EW) missions.					
FY 2019 Plans: Continue with primary development, systems engineering, and test and evaluation of pod-based cellular and television broadcast, power, and antenna technologies.					
FY 2020 Base Plans: Completes MMP-Medium development, test, and evaluation and begins MMP-Light development.					
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease of \$0.994 million is due to fewer testing requirements.					
Title: Fly-Away Broadcast System (FABS)	2.656	0.900	0.888	-	0.888
Description: FABS is a transit case fly-away broadcast system that utilizes commercial & industry standard technology to disseminate approved messaging to target audiences via FM, SW, cellular SMS and TV transmitter.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) D476 / <i>Military Information Support Operations</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p><i>FY 2019 Plans:</i> Continue testing and evaluation of new systems and components to enhance MISO broadcasts. Continue with primary hardware development to reduce broadcast system weight and size while adding multi-mission capabilities. Integrate via the SOF Information Environment (SIE) with the Media Operations Center (MOC); Remote antennas for enhanced stand-off capability; Integrate with SOF Common Operating Picture (COP); Mobile Transmission Site Support Development with SOF Vehicles.</p> <p><i>FY 2020 Base Plans:</i> Continues testing and evaluation of new systems and components to enhance MISO broadcasts. Continues with primary hardware development to reduce broadcast system weight and size while adding multi-mission capabilities.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Decrease of -\$0.012 million due to minor adjustments.</p>					
<p><i>Title:</i> Next Generation Loud Speakers (NGLS)</p> <p><i>Description:</i> NGLS are portable systems capable of disseminating high quality recorded and live audio messages by MISO forces in varied geographical area and climate conditions. NGLS consists of Dismounted and Mounted variants that are lighter, smaller, and louder than legacy speaker systems, with added clarity and durability. A new variant of NGLS is the Scatterable Media (NGLS-SM), a hand-emplaced or air-delivered printed audio-visual device for disseminating delayed or on-cue messages to foreign target audiences.</p> <p><i>FY 2019 Plans:</i> Continue testing and evaluation of new systems and components to enhance MISO broadcasts. Focuses on wireless, COP integration, and development to reduce broadcast system weight and size while adding multi-mission capabilities.</p> <p><i>FY 2020 Base Plans:</i> Continues testing, development, and evaluation of new systems and components to enhance MISO broadcasts. Focuses on wireless capability with development to reduce broadcast system weight and size while adding multi-mission capabilities.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Increase of \$0.001 million due to minor adjustments.</p>	0.437	0.861	0.862	-	0.862
Accomplishments/Planned Programs Subtotals	4.666	3.942	2.937	-	2.937

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) D476 / <i>Military Information Support Operations</i>

	FY 2018	FY 2019
Congressional Add: Multi-Mission Payload (MMP) formerly known as Long Range Broadcast System (LRBS) FY 2018 Accomplishments: Congressional add for Multi Mission Payload (\$16.860 Million).	16.860	-
Congressional Add: Next Generation Loud Speakers (NGLS) and Scatterable Media FY 2018 Accomplishments: Congressional add Next Generation Loud Speaker and Scatterable Media (\$5.781 million). FY 2019 Plans: Congressional add distributable audio media and Next Generation Loud Speaker (\$6.000 million).	5.781	6.000
Congressional Adds Subtotals	22.641	6.000

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

Line Item	FY 2018	FY 2019	FY 2020			FY 2021	FY 2022	FY 2023	FY 2024	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PROC1/0204OTHER: OTHER ITEMS <\$5M	52.718	119.427	103.910	0.028	103.938	149.394	81.064	107.128	68.215	Continuing	Continuing

Remarks

None.

D. Acquisition Strategy

- The MMP program has a traditional acquisition development and procurement strategy with accelerated development that includes increased flight test and multiple combat evaluations.
- The FABS program has an evolutionary acquisition strategy. Commercial and government agency sources will be leveraged for required certifications, functional and operational tests, and acceptance support.
- The NGLS program has an evolutionary acquisition strategy for the legacy NGLS Mounted and Dismounted and an incremental acquisition strategy for new developmental variants (NGLS-Scatterable Media, NGLS-Sonic Projection). Commercial and government agencies will be leveraged for engineering, required certifications, functional and operating tests and acceptance support.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) D476 / <i>Military Information Support Operations</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Multi-Mission Payload (MMP)	MIPR	Various : Various	6.837	1.473	Jan 2018	2.038	Jan 2019	1.087	Jan 2020	-		1.087	Continuing	Continuing	-
MMP Congressional Add	MIPR	Various : Various	-	16.860	Mar 2018	-		-		-		-	0.000	16.860	-
Fly Away Broadcast Systems (FABS)	Reqn	Various : n/a	1.674	2.656	Aug 2018	0.900	Jan 2019	0.888	Jan 2020	-		0.888	Continuing	Continuing	-
Next Generation Loud Speakers (NGLS)	Allot	SOFSA : Lexington, KY	-	0.437	Jan 2018	0.761	Jan 2019	0.762	Jan 2020	-		0.762	Continuing	Continuing	-
NGLS Congressional Add	Allot	SOFSA : Lexington, KY	-	5.781	Mar 2019	6.000	Apr 2020	-		-		-	0.000	11.781	-
Prior Year	C/Various	Various : Various	5.846	-		-		-		-		-	0.000	5.846	-
Subtotal			14.357	27.207		9.699		2.737		-		2.737	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
MMP	MIPR	Various : Various	0.341	0.100	Jan 2018	0.143	Jan 2019	0.100	Jan 2020	-		0.100	Continuing	Continuing	-
NGLS	Allot	SOFSA : Lexington, KY	-	-		0.100	Jun 2019	0.100	Aug 2020	-		0.100	Continuing	Continuing	-
Prior Year	MIPR	Various : Various	0.125	-		-		-		-		-	0.000	0.125	-
Subtotal			0.466	0.100		0.243		0.200		-		0.200	Continuing	Continuing	N/A

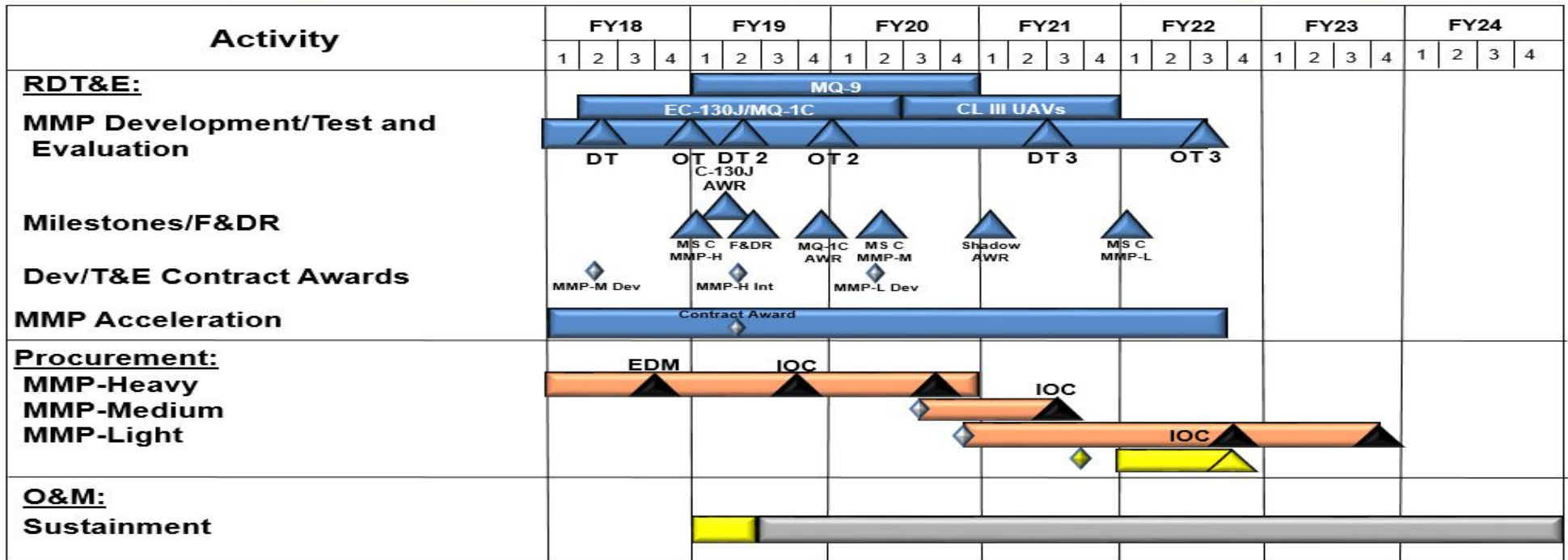
	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		14.823	27.307	9.942	2.937	-	2.937	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / Warrior Systems	Project (Number/Name) D476 / Military Information Support Operations

MMP Schedule

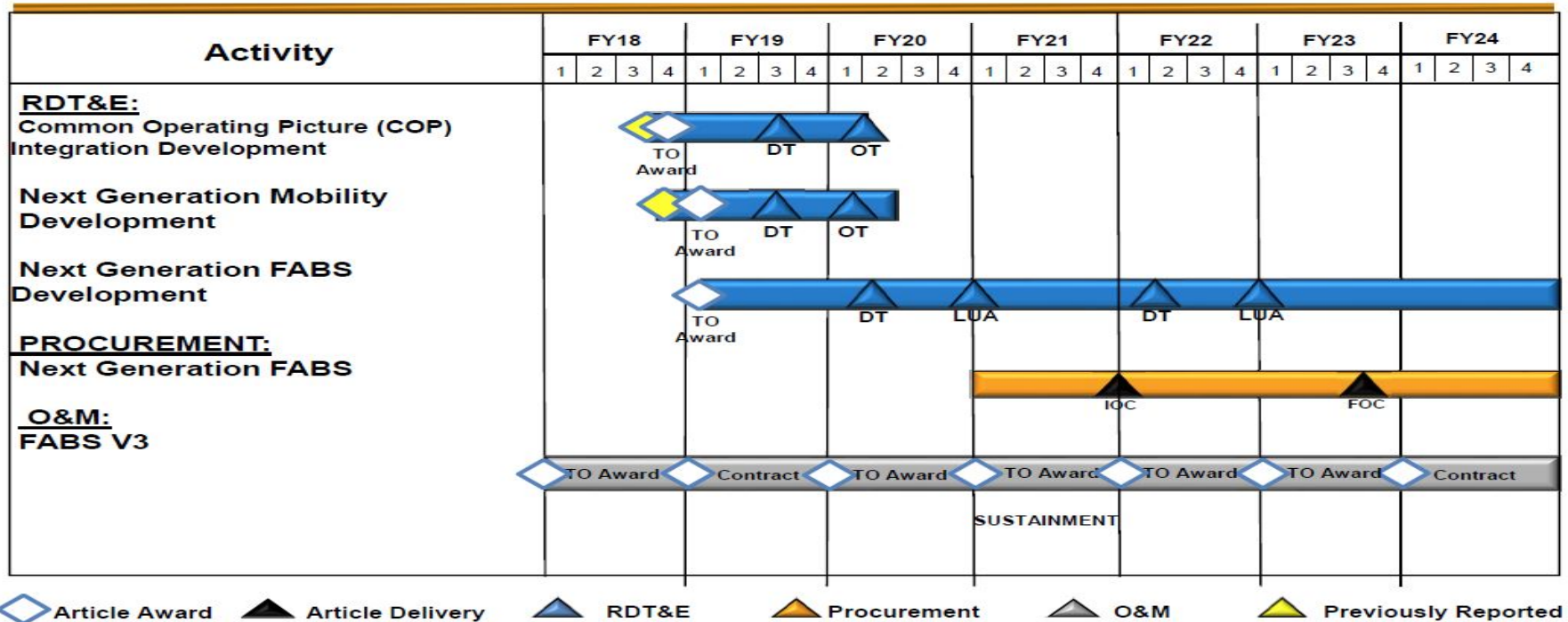


◆ Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) D476 / <i>Military Information Support Operations</i>

Fly Away Broadcast System Schedule

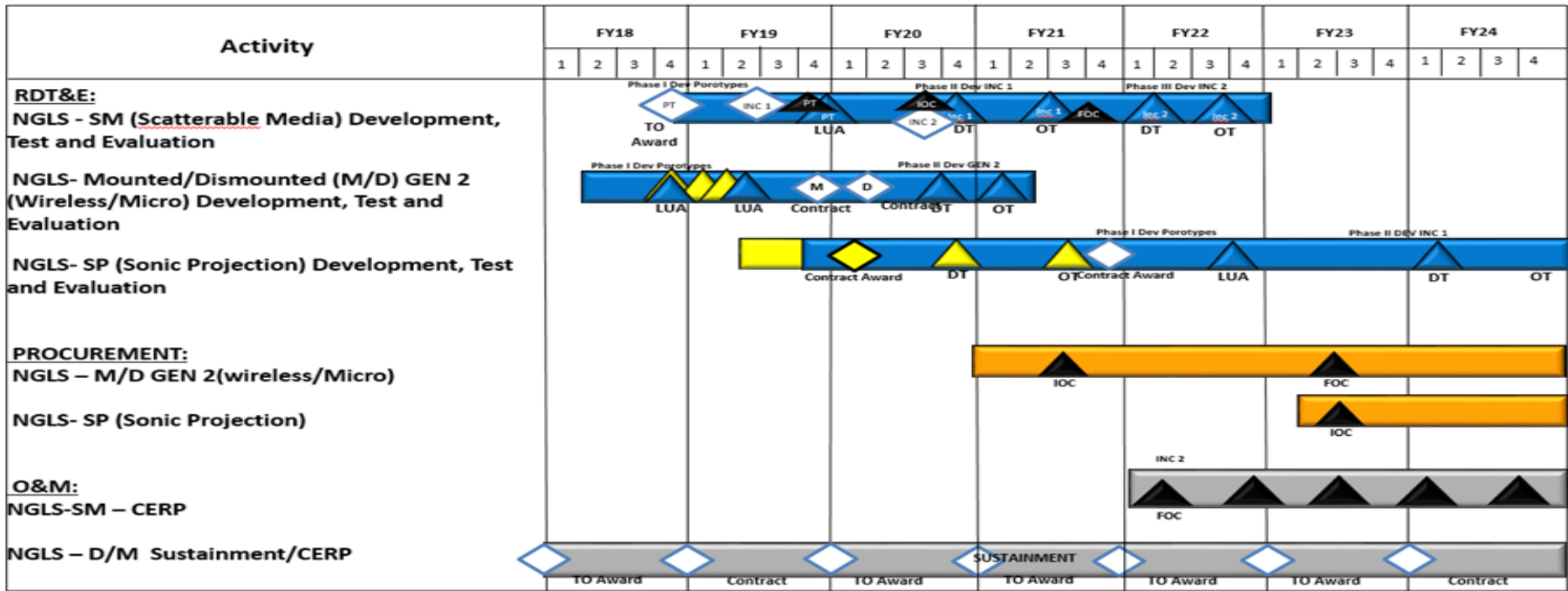


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
D476 / Military Information Support Operations

Next Generation Loudspeaker System (NGLS) Schedule



◇ Article Award
 ▲ Article Delivery
 ▲ RDT&E
 ▲ Procurement
 ▲ O&M
 ▲ Previously Reported

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) D476 / <i>Military Information Support Operations</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Multi-Mission Payload (MMP)</i>				
Development	1	2018	3	2022
Test and Evaluation	2	2018	3	2022
<i>Fly Away Broadcast Systems (FABS)</i>				
Development	4	2018	4	2024
<i>Next Generation Loudspeakers (NGLS)</i>				
Scatterable Media Development, Test, and Evaluation	4	2018	4	2022
Mounted/Dismounted GEN 2 Development, Test, and Evaluation	2	2018	4	2021
Sonic Projection Development, Test, and Evaluation	4	2019	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>				Project (Number/Name) S375 / <i>Weapons Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S375: <i>Weapons Systems</i>	3.404	1.425	1.198	1.625	-	1.625	1.604	1.529	1.561	1.597	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development and testing of specialized, common caliber, individual, sniper, machine gun, pistol, crew served weapons systems and accessories that enable SOF to accurately engage enemy personnel and material in all SOF environments at ranges up to 1500 meters. Weapons include common caliber modular assault rifles to engage out to 600 meters, Sniper Support Rifles to engage out to 800 meters, sniper rifles to engage out to 1500 meters, shoulder fired Grenade Launchers, vehicle and man-portable high velocity grenade launchers, pistols, machine guns to engage out to 1000 meters, multi-barreled mini-guns which can be mounted on boats, vehicles, aircraft, and ground mounted to engage out to 3,500 meters.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Weapons	1.425	1.198	1.625	-	1.625
Description: SOF weapons are developed to enable the operator to tailor the configuration of the weapon to the assigned mission and operational environment, enhancing the overall effectiveness of the weapons, which enables mission accomplishment and operator survivability.					
FY 2019 Plans: Continue development of enhanced capabilities to improve performance of individual sniper, rifle, and machine gun weapons.					
FY 2020 Base Plans: Continues development of enhanced capabilities to improve performance of individual sniper, rifle, and machine gun weapons.					
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.427M for testing .338 machine gun.					
Accomplishments/Planned Programs Subtotals	1.425	1.198	1.625	-	1.625

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0204WARRIOR: <i>Warrior Systems <\$5M</i>	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command	Date: March 2019
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Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S375 / <i>Weapons Systems</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

Evolutionary acquisition, leveraging emerging technology and mid-tier acquisition authorities. An evolutionary approach delivers capability in increments, recognizing, up front, the need for future capability improvements. Full and open competition with firm-fixed price contracts and other transaction authorities (OTAs).

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S375 / <i>Weapons Systems</i>
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Weapon Test & Evaluation	MIPR	Various : Various	3.404	1.425	Jan 2018	1.198	Jan 2019	1.625	Jan 2020	-		1.625	Continuing	Continuing	-
Subtotal			3.404	1.425		1.198		1.625		-		1.625	Continuing	Continuing	N/A
Project Cost Totals			3.404	1.425		1.198		1.625		-		1.625	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command Date: March 2019

Appropriation/Budget Activity: 0400 / 7 R-1 Program Element (Number/Name): PE 1160431BB / Warrior Systems Project (Number/Name): S375 / Weapons Systems

Weapon Systems Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	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
RDT&E																												
WEAPON Development, Test and Evaluation: Suppressed Upper Receiver Group (SURG), Advanced Sniper Rifle (ASR), SOF Machine Gun (SMG) Barrel	ASR				ASR Phase II				LWMMG				LWMMG Phase II/AMG				AMG Phase II				SMG Barrel							
Procurement																												
RIFLES	URG DO				M320				SURG DO				SURG DO				SURG				SURG				SURG			
HANDGUNS	MK27 DO				MK27 DO				MK27 DO				MK27 DO				MK27(SS) DO				MK27(SS) DO				MK27(SS) DO			
SNIPER RIFLES	MK13 DO				MK13 DO				MK15 DO				FRP ASR				ASR DO				ASR DO				ASR DO			
MACHINE GUNS	MK46 DO				MK46 DO				MK46 DO				MK46 DO				LWMMG DO				LWMMG DO				LWMMG DO			
O&M																												
SUSTAINMENT																												
	<div style="display: flex; justify-content: space-around; font-size: small;"> Production Award RDT&E Award Major Event Previously Reported RDT&E Procurement O&M </div>																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S375 / <i>Weapons Systems</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Weapon Systems</i>				
WEAPON Development, Test and Evaluation: Suppressed Upper Receiver Group (SURG), Advanced Snipe Rifle (ASR), SOF Machine Gun (SMG) Barrel	2	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>				Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S385: <i>Soldier Protection and Survival Systems</i>	17.555	2.078	10.501	8.918	6.000	14.918	10.874	10.840	10.935	11.049	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides development, rapid prototyping, testing, and evaluation of signature reducing materials and technology and specialized equipment to meet the unique operator protection and survival requirements for Special Operations Forces (SOF), which include: Army Rangers; Army Special Forces; Navy Sea, Air, Land (SEAL) teams; Navy Special Boat Units; Air Force Operators; and Marine Raiders. Specialized equipment improves survivability protection from the environment by providing the operator with Counter Radio Controlled Improvised Explosive Device (RC-IED) systems, Counter Unmanned Aircraft System (CUAS) systems (aerial, ground and maritime) to mitigate and defeat the emerging and rapidly evolving unmanned system threats, hearing protection and clothing systems, load bearing equipment, and personnel safety equipment to improve the mobility of SOF, while conducting varied missions. These missions are generally conducted in harsh and hostile environments, for unspecified periods and in locations requiring small unit autonomy.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SOF Personal Equipment Advanced Requirements (SPEAR)	0.475	0.880	1.259	-	1.259
Description: The SPEAR program provides for the research, development, testing and evaluation of a variety of individual and survival equipment to include: ballistic and environmental protective combat uniforms, load carriage systems, communications headsets, and visual augmentation system mounts.					
FY 2019 Plans: Continue research and development of land communications material solutions and environmental protective combat uniforms. Continue materials testing and incorporation into commodity lines. Continues wireless headset evaluations. Continue interoperability of headsets with radios and integrated communication systems.					
FY 2020 Base Plans: Continues research and development of land communications material solutions and environmental protective combat uniforms. Continues materials testing and incorporation into commodity lines. Continues wireless headset evaluations. Continues interoperability of headsets with radios and integrated communication systems.					
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.379M provides for aviation specific equipment and integrated wireless communications headsets.					
Title: Tactical Combat Casualty Care (TCCC)	0.192	0.178	0.240	-	0.240

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Description: TCCC provides lifesaving medical devices, ancillary equipment and Casualty Evacuation (CASEVAC) sets for SOF. The CASEVAC procures a suite of Food and Drug Administration approved medical items including, but not limited, to intraosseous infusion devices, patient monitoring and assessment devices, emergency airway kits, as well as devices that provide SOF the capability to support extraction, mobility, transportation, and sustainment of casualties in forward areas. This program fields tactical medical and CASEVAC capabilities with the intention to transition capabilities developed under the National Mission Force's Tactical Medical Programs. This capability provides significant ability to lessen battlefield losses by providing timely, critical lifesaving and evacuation capabilities to the forward-deployed SOF operators.</p> <p>FY 2019 Plans: Continue test support to include program management, market surveys, rapid prototyping test article acquisition, test and evaluation and systems engineering in direct support of the CASEVAC program. Continue the evaluation of enhanced medical monitoring systems for incorporation into the CASEVAC program. Complete development and testing of water resistant solutions for maritime operations of components within the CASEVAC set.</p> <p>FY 2020 Base Plans: Continues test support to include program management, market surveys, rapid prototyping, test article acquisition, test and evaluation and systems engineering in direct support of the CASEVAC program. Continues the evaluation of enhanced medical monitoring systems capable of enabling telemedicine/telementoring for incorporation into the CASEVAC program.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.062 million due to CASEVAC Prime vendor contract re-compete effort and the anticipated required network testing to enable telemedicine capabilities on enhanced medical monitoring systems.</p>					
<p>Title: Counter Radio Controlled-Improvised Explosive Device (RC-IED)</p> <p>Description: The Counter RC-IED program provides SOF with the ability to counter current and future RC-IED threats used by terrorist networks.</p> <p>FY 2019 Plans: Continue test support to the Counter RC-IED program. Continue system engineering, test and evaluation, test article acquisition, and market research of the RC-IED programs. Maintain range effectiveness and currency, ensuring the ability to accurately test against current and emerging threat systems. Continue development</p>	1.000	1.548	1.731	-	1.731

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>and testing of Electronic Counter Measures (ECM) systems capability to include advanced software technique countermeasures and loadsets for mounted and dismounted systems. Continue implementation of Modi software refactoring, improving stability and future technology integration.</p> <p>FY 2020 Base Plans: Continues test support to the Counter RC-IED program. Continues system engineering, test and evaluation, test article acquisition, and market research of the RC-IED programs. Maintains range effectiveness and currency, ensuring the ability to accurately test against current and emerging threat systems. Continues development and testing of ECM systems capability to include advanced software technique countermeasures and loadsets for mounted and dismounted systems. Continues implementation of Modi software refactoring, improving stability and future technology integration. Begin Next generation ECM study.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.183 to begin Next generation ECM study.</p>					
<p>Title: Counter Unmanned Aerial System (CUAS)</p> <p>Description: The objective of this program is to research, develop, integrate, generate rapid prototypes, test and evaluate cutting edge Counter-Small Unmanned (Aerial, Ground, Maritime) Systems. This effort will support a CUAS Sensor Integration Module (SIM) Family of Systems (FoS) that integrates various detection sensor modalities (passive sensors, Radio frequency (RF) detection, acoustic, Light Detection and Ranging (LiDAR), radar, day/night Short-Wave Infrared, Mid-Wave Infrared, Long-Wave Infrared (SWIR/MWIR/LWIR) imaging, etc.) along with defeat systems into a SIM. The results of this effort will enhance the soldiers ability to detect, track, identify and defeat specific stand-off weapon threats, to acquire objects of military significance before the soldier is detected and to target threat systems accurately for engagement by the soldiers. This system integration will take the man-out-of-the-loop for detection of threat systems and include man-in-the-loop for defeat capabilities. To accomplish this objective, the project will be broken down into the following: (1) technology and concept evaluation, (2) prototype development, and (3) prototype evaluation and assessment. This program received overseas contingency operations (OCO) funding in FY2019.</p> <p>FY 2019 Plans: FY 2019 dollars will support all three Phases (1) of this project. The SIM effort will be develop under the guidance and authorities of Middle Tier Acquisition. Complete phase 1 for CUAS technology and concept</p>	0.411	4.731	4.000	6.000	10.000

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) <i>S385 / Soldier Protection and Survival Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>evaluation. Began phase 2 for hardware/prototype development and systems engineering of CUAS FoS SIM layered multi-sensor interface technologies. Began phase 3 for systems prototype test and evaluation.</p> <p>FY 2020 Base Plans: Completes phase 2 and 3 of CUAS FoS SIM layered multi-sensor interface technologies. Begins 4G/5G Long Term Evaluation (LTE) Datalinks/Autonomous Flight Development and countering high accuracy Global Positioning System (GPS) and Inertial Measurement Unit (IMU) optics.</p> <p>FY 2020 OCO Plans: CUAS FoS-SIM device for further developmental test and evaluation where the developed CUAS FoS-SIM prototype will undergo several levels of performance testing and interoperability assessments.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$10 million is due to the creation of the SOF CUAS program as a result of adding base funding and OCO funding to effectively meet the current and emerging enemy threats posed to SOF operations by small unmanned systems in harsh and denied environment.</p>					
<p>Title: Personal Signature Management (PSM)</p> <p>Description: This project provides for development, rapid prototyping, test, and evaluation of signature reducing materials and technology, in order to reduce the probability of detection by battlefield threat sensors.</p> <p>FY 2019 Plans: Provide research, development, rapid prototyping, test and evaluation of next generation signature reducing solutions. Provide for program management, market research, test item acquisition and test and evaluation, in support of PSM efforts for both land and maritime operations.</p> <p>FY 2020 Base Plans: Continues research, development, rapid prototyping, test and evaluation of next generation signature reducing solutions. Provides for program management, market research, test item acquisition and test and evaluation, in support of PSM efforts for both land and maritime operations.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.024 million is due to anticipated increased cost of threat sensor exploitation efforts.</p>	-	1.664	1.688	-	1.688
Accomplishments/Planned Programs Subtotals	2.078	9.001	8.918	6.000	14.918

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>

	FY 2018	FY 2019
Congressional Add: Rotary Wing Aviation Helmet	-	1.500
FY 2019 Plans: Research and development of rotary wing aviation helmet.		
Congressional Adds Subtotals	-	1.500

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

Line Item	FY 2018	FY 2019	FY 2020			FY 2021	FY 2022	FY 2023	FY 2024	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PROC/0204WARRIOR: <i>Warrior Systems<\$5M</i>	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing

Remarks

D. Acquisition Strategy

Counter Unmanned Aerial System (CUAS): SOF CUAS acquisition strategy is predicated on a layered approach of developing and integrating various advancing detection sensor modalities paired with kinetic and non-kinetic defeat capabilities to include exploitation and digital manipulation technologies. SOF Operators require CUAS capability in hand held, man-portable, mounted and fixed site/expeditionary form factors. SOF CUAS collaborates with the Joint Services, Academia and other government agencies to maintain interoperability and cost effectiveness. As SOF CUAS capabilities are developed for specific SOF mission profiles, centralized life cycle sustainment will be required in support of the SOF Components and Theater Special Operations Commands (TSOC). SOF CUAS will utilize Special Operations Forces Support Activity (SOFSA) for warehousing and sustainment.

Counter Radio Controlled - Improvised Explosive Device (RC-IED): USSOCOM collaborates with the DoD Joint CREW manager and other government agencies in order to maintain Joint Force compatibility and improve program affordability. All next generation Electronic Countermeasures (ECM) development designed as National to Theater ("N-to-T") transition programs. Centralized life cycle sustainment of SOF CREW inventory supports TSOC operational demand as theater provided equipment (TPE).

Personal Signature Management (PSM): Signature reducing technologies will be embedded into SOF clothing and equipment via modified commercial-off-the-shelf variants. Contracts in support of fielding/sustainment of PSM clothing and equipment will be a combination of sole source firm fixed price 5-year indefinite delivery indefinite quantity contracts, Source America mandatory sole sources, small business set asides and prime vendor style multiple award contracts. PSM will utilize SOFSA for warehousing and sustainment.

Tactical Combat Casualty Care (TCCC): Operator & Medic Kits - Program managed by Program Manager-Special Operations Forces Survival, Support, and Equipment Systems (PM-SOF SSES) using US Army Medical Materiel Agency prime vendor contracts for equipment purchases and the SOFSA for warehousing and sustainment. CASEVAC Set - Program managed by PM-SOF SSES and utilizes and Indefinite Delivery Indefinite Quantity Commercial-Off-The-Shelf prime integrator contract.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>

SPEAR: Contracts in support of SPEAR are a combination of firm fixed price five year indefinite delivery indefinite quantity with single vendor awards, Source America mandatory sole sources, small business set asides and prime vendor style multiple awards.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) <i>S385 / Soldier Protection and Survival Systems</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SOF Personal Equipment Advanced Requirements (SPEAR) - Protective Combat Uniform (PCU)	Various	PM-SSES : Natick, MA	0.331	0.116	Jan 2018	0.200	Jan 2019	0.295	Jan 2020	-		0.295	Continuing	Continuing	-
SPEAR - Modular Integrated Communications Helmet/Land Maritime Communication System	Various	PM-SSES : Natick, MA	1.095	0.100	Jan 2018	0.150	Feb 2019	0.205	Jan 2020	-		0.205	Continuing	Continuing	-
SPEAR Modular Glove System (MGS)	Various	PM-SSES : Natick, MA	0.040	-		0.010	Jan 2019	0.025	Jan 2020	-		0.025	Continuing	Continuing	-
SPEAR - Load Carriage System (LCS) and Backpacks	Various	PM-SSES : Natick, MA	0.045	0.010	Feb 2018	0.050	Mar 2019	0.085	Mar 2020	-		0.085	Continuing	Continuing	-
Counter Unmanned Aerial System (C-UAS) Overseas Contingency Operations (OCO)	C/Various	Various : Various	-	-		3.000	Feb 2019	-		-		-	0.000	3.000	-
C-UAS 4G/5G LTE Datalinks/Autonomous Flight (Mission Planning) Development OCO	C/Various	Various : Various	-	-		-		0.000		6.000	Nov 2019	6.000	Continuing	Continuing	-
C-UAS High Accuracy Global Positioning System (GPS) and Inertial Measurement Unit (IMU) Development	C/Various	Various : Various	-	-		-		4.000	Mar 2020	-		4.000	Continuing	Continuing	-
C-UAS Prototype Development	C/Various	Night Vision Labs : Ft. Belvoir, VA	-	-		1.000	Feb 2019	-		-		-	0.000	1.000	-
Rotary Wing Aviation Helmet Congressional Add	C/TBD	TBD : TBD	-	-		1.500	Mar 2019	-		-		-	Continuing	Continuing	-
Subtotal			1.511	0.226		5.910		4.610		6.000		10.610	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) <i>S385 / Soldier Protection and Survival Systems</i>
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SPEAR - PCU testing/P3I	Various	PM-SSES : Natick, MA	0.256	0.100	Mar 2018	0.200	Feb 2019	0.245	Mar 2020	-		0.245	Continuing	Continuing	-
SPEAR-MGS Test and Evaluation	Various	PM-SSES : Natick, MA	0.091	-		0.010	Jan 2019	0.045	Jan 2020	-		0.045	Continuing	Continuing	-
SPEAR - Maritime Comms Test and Evaluation	Various	PM-SSES : Natick, MA	1.568	0.100	Jan 2018	0.210	Jan 2019	0.265	Jan 2020	-		0.265	Continuing	Continuing	-
SPEAR - LCS/Body Armor Vest/Backpack Material and Prototype Test and Evaluation	Various	PM-SSES : Natick, MA	0.067	0.049	Feb 2018	0.050	Jan 2019	0.094	Feb 2020	-		0.094	Continuing	Continuing	-
Tactical Combat Casualty Care CASEVAC Sets Development, Test and Evaluation	Various	PM-SSES : Natick, MA	1.375	0.192	Feb 2018	0.178	Feb 2019	0.240	Feb 2020	-		0.240	Continuing	Continuing	-
Counter Radio Controlled - Improvised Explosive Device Test and Evaluation Support	Various	Various : Various	12.127	1.000	Jun 2018	1.548	Jan 2019	1.731	Jan 2020	-		1.731	Continuing	Continuing	-
C-UAS Tech. and Concept Evaluation	C/Various	Night Vision Labs : Ft. Belvoir, VA	-	0.411	Aug 2018	0.231	Feb 2019	-		-		-	Continuing	Continuing	-
C-UAS Test and Evaluation Support	C/Various	Night Vision Labs : Ft. Belvoir, VA	-	-		0.500	Aug 2019	-		-		-	Continuing	Continuing	-
Personal Signature Management (PSM) Test and Evaluation	Various	Various : Various	-	-		1.664	Jan 2019	1.688	Jan 2020	-		1.688	Continuing	Continuing	-
Prior Year	MIPR	Various : Various	0.160	-		-		-		-		-	0.000	0.160	-
Prior Year (OCO)	Various	Various : Various	0.400	-		-		-		-		-	0.000	0.400	-
Subtotal			16.044	1.852		4.591		4.308		-		4.308	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	17.555	2.078	10.501	8.918	6.000	14.918	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command							Date: March 2019		
Appropriation/Budget Activity 0400 / 7			R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>			Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>			

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks									

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>

SPEAR Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	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
RDT&E																												
Product Development -Protective Combat Uniform (PCU)	[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]			
Product Development - Modular Integrated Communications Helmet (MICH) Comms/Land Maritime Communication System	[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]			
Product Development - Modular Glove System (MGS)	[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]			
Product Development - Load Carriage System (LCS) and Backpacks	[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]			
Test & Evaluation PCU	[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]			
Test & Evaluation MGS	[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]			
Test & Evaluation Comms	[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]			
Test & Evaluation LCS/ Backpack/Body Armor Vest	[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]			
O&M																												
Sustainment all capabilities	[O&M]				[O&M]				[O&M]				[O&M]				[O&M]				[O&M]				[O&M]			

Production Award
 RDT&E Award
 Major Event
 Previously Reported
 RDT&E
 Procurement
 O&M

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>

TCCC Schedule

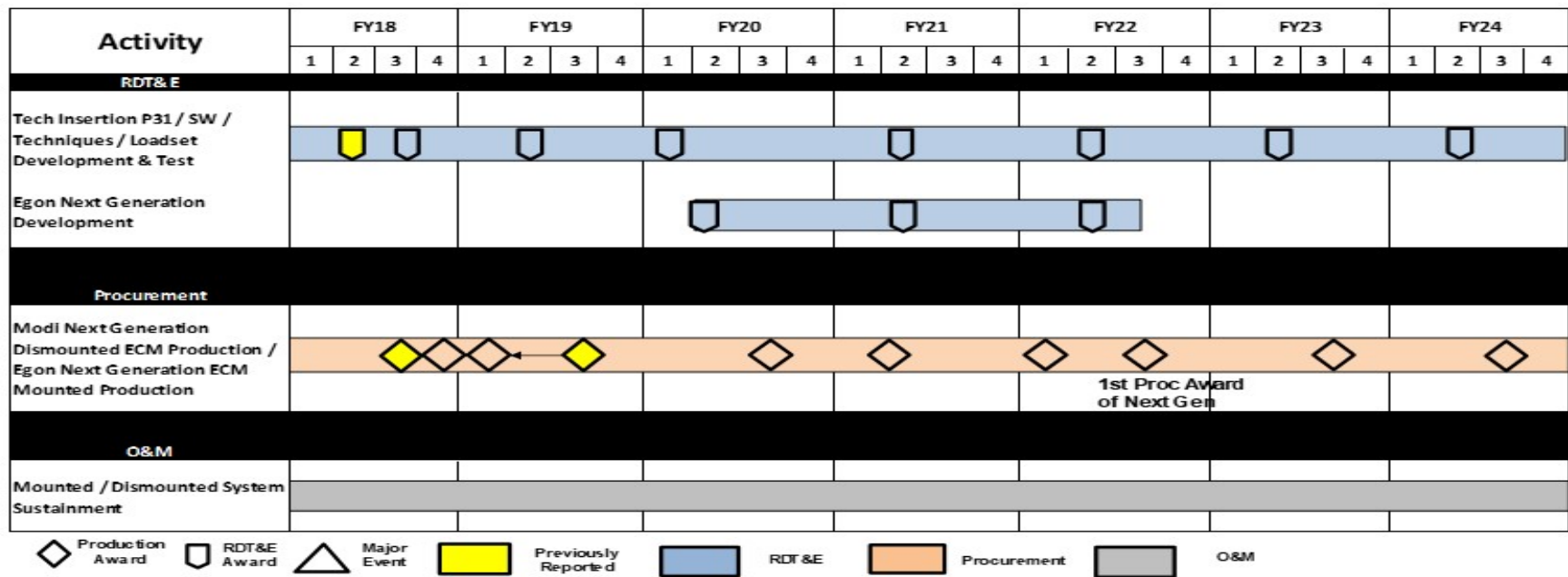
Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RDT&E																												
TCCC CASEVAC Sets Development, Test, and Evaluation	◡				◡				◡				◡				◡				◡				◡			
Procurement																												
TCCC CASEVAC Set New Technology Insertion					◊								◊				◡				◊				◊			
					Contract MOD								Contract MOD				FOC				Contract MOD				Contract MOD			
O&M																												
TCCC CASEVAC Set Sustainment																												
Operator Kit Sustainment																												
Medic Kit Sustainment																												

◊ Production Award
 ◡ RDT&E Award
 ◻ Previously Reported
 ◻ RDT&E
 ◻ Procurement
 ◻ O&M

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>

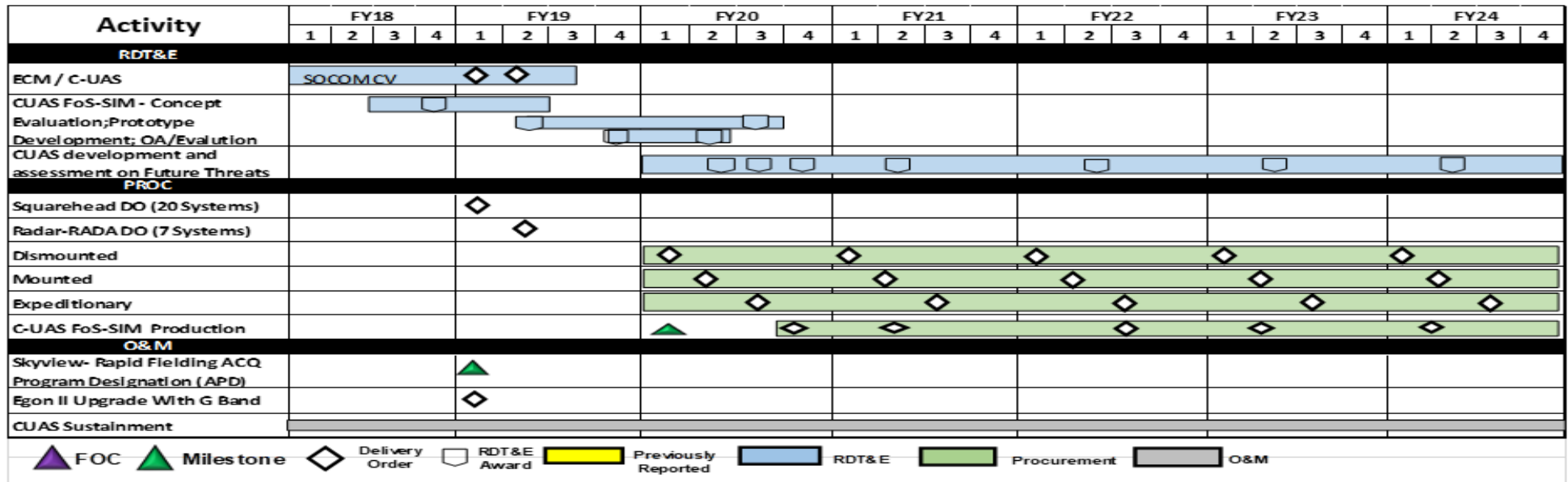
Counter RC-IED Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>

CUAS Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>

Personal Signature Management Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24							
	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				
RDT&E																																
Personal Signature Management (PSM) - Development (Incr II)						◻				△																						
Personal Signature Management (PSM) - Development (Incr III)										◻	◻			△																		
PSM - Test and Evaluation																																
Procurement																																
PSM (Incr II/III)																																
O&M																																
PSM Sustainment (Incr II/III)						◊				◊				◊				◊				◊				◊				◊		
Signature Management Training Program (SMTP)												◊								◊												◊
<div style="display: flex; justify-content: space-between; font-size: small;"> ◊ Production Award ◻ RDT&E Award △ Major Event ◻ Previously Reported ◻ RDT&E ◻ Procurement ◻ O&M </div>																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Soldier Protection and Survival Systems</i>				
Protective Combat Uniform (PCU) Product Development	2	2018	4	2024
Modular Integrated Communications Helmet (MICH) Comms/Land Maritime Communication System Product Development	2	2018	4	2024
Modular Glove System (MGS) Product Development	2	2019	4	2024
Load Carriage System (LCS) and Backpacks Product Development	2	2018	4	2024
PCU Test & Evaluation	2	2018	4	2024
MGS Test & Evaluation	2	2019	4	2024
Comms Test & Evaluation	2	2018	4	2024
LCS/Backpack/Body Armor Vest Test & Evaluation	2	2018	4	2024
<i>Tactical Combat Casualty Care</i>				
TCCC CASEVAC Sets Development, Test & Evaluation	2	2018	4	2024
<i>Counter Radio Controlled-Improvised Explosive Device</i>				
Test & Evaluation Support	3	2018	4	2024
Next Generation ECM development	2	2020	3	2022
<i>Counter Unmanned Aerial System (C-UAS)</i>				
C-UAS Family of Systems (FoS) SIM - Phase 1 (Technology and Concept Evaluation)	3	2018	2	2019
CUAS FoS-SIM - Phase 2 (Prototype Development)	2	2019	3	2020
CUAS FoS-SIM - Phase 3 (Prototype Evaluation and Assessment)	4	2018	3	2020
Test Range Support, Developmental Testing	2	2019	4	2024
<i>Personnel Signature Management (PSM)</i>				
PSM Development (Incr II)	1	2019	4	2024

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385 / <i>Soldier Protection and Survival Systems</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
PSM Development (Incr III)	1	2019	4	2024
PSM Test & Evaluation	1	2019	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>				Project (Number/Name) S385A / <i>Body Armor and Associated Equipment</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S385A: <i>Body Armor and Associated Equipment</i>	6.330	1.242	1.048	1.752	-	1.752	1.738	1.694	1.729	1.770	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides specialized equipment to meet the unique operator protection and survival requirements of SOF, to include: Army Rangers; Army Special Forces; Navy Sea, Air, Land (SEAL) teams; Navy Special Boat Units; Air Force Operators; and Marine Raiders. Specialized ballistic equipment improves survivability impacting the mobility of SOF while conducting varied missions. These missions are generally conducted in harsh environments, for unspecified periods and in locations requiring small unit autonomy.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SOF Personal Equipment Advanced Requirement (SPEAR)-Ballistic Protection	1.242	1.048	1.752	-	1.752
Description: This project enhances the SPEAR program by supporting body armor helmets, and eye protection. It also provides for the research, development, and testing of a variety of body armor and personal protective equipment.					
FY 2019 Plans: Continue foreign ammunition testing and threat validation to assess effectiveness of currently fielded personal protective equipment. Continue development and testing of lightweight body armor and helmets to upgrade systems that have been fielded. Continue evaluation of transparent armor products which include variable light transmission and laser lenses to upgrade systems that have been fielded. Continue development and testing of technologies to upgrade the maritime crewman helmet.					
FY 2020 Base Plans: Continues foreign ammunition testing and threat validation to assess effectiveness of currently fielded personal protective equipment. Continues development and testing of lightweight body armor and helmets to upgrade systems that have been fielded. Continues evaluation of transparent armor products which include variable light transmission and laser lenses to upgrade systems that have been fielded. Continues development and testing of technologies to upgrade the maritime crewman helmet.					
FY 2019 to FY 2020 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385A / <i>Body Armor and Associated Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Increase of \$0.704 million is for product improvements of helmets and body armor.					
Accomplishments/Planned Programs Subtotals	1.242	1.048	1.752	-	1.752

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PROC/0204WARRIOR: <i>Warrior Systems<\$5M</i>	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing

Remarks

D. Acquisition Strategy

SPEAR ballistic protection equipment takes advantage of modified commercial-off-the-shelf or non-developmental items. As USSOCOM required tailored solutions for SOF Mission sets, SPEAR items leveraged from industry are often on cutting edge of technology with modifications specific for SOF missions and require substantial testing in SOF environments. Utilizes Special Operations Forces Support Activity (SOFSA) for warehousing and sustainment, Program Manager Special Operations Forces - Survival, Support, and Equipment Systems (PM-SOF SSES) has cradle to grave responsibility. Contracts in support of SPEAR are a combination of firm fixed price five year indefinite delivery indefinite quantity with single vendor awards, Source America mandatory sole sources, small business set asides and prime vendor style multiple award contracts.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385A / <i>Body Armor and Associated Equipment</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SOF Personal Equipment Advanced Requirement (SPEAR) - Body Armor	Various	PM-SSES : Natick, MA	2.025	0.480	Jan 2018	0.359	Apr 2019	0.395	Feb 2020	-		0.395	Continuing	Continuing	-
SPEAR - Lightweight Ballistic Helmets	Various	PM-SSES : Natick, MA	1.497	0.220	Jan 2018	0.126	Apr 2019	0.385	Jan 2020	-		0.385	Continuing	Continuing	-
SPEAR - Eye Protection	Various	PM-SSES : Natick, MA	0.186	0.050	Mar 2018	0.050	Apr 2019	0.107	Mar 2020	-		0.107	Continuing	Continuing	-
Subtotal			3.708	0.750		0.535		0.887		-		0.887	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SPEAR - Body Armor	Various	PM-SSES : Natick, MA	1.414	0.312	Feb 2018	0.322	Apr 2019	0.385	Apr 2020	-		0.385	Continuing	Continuing	-
SPEAR - Lightweight Ballistic Helmet	Various	PM-SSES : Natick, MA	1.081	0.150	Feb 2018	0.153	Apr 2019	0.385	Apr 2020	-		0.385	Continuing	Continuing	-
SPEAR - Transparent Armor	Various	PM-SSES : Natick, MA	0.127	0.030	Mar 2018	0.038	Apr 2019	0.095	Mar 2020	-		0.095	Continuing	Continuing	-
Subtotal			2.622	0.492		0.513		0.865		-		0.865	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		6.330	1.242	1.048	1.752	-	1.752	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385A / <i>Body Armor and Associated Equipment</i>

SPEAR – Body Armor Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	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
RDT&E																												
Product Development Body Armor	[RDT&E Award]				[Previously Reported]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]			
Product Development Lightweight Ballistic Helmets	[RDT&E Award]				[Previously Reported]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]			
Product Development Eye Protection	[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]			
Test & Evaluation Body Armor	[RDT&E Award]				[Previously Reported]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]			
Test & Evaluation Lightweight Ballistic Helmets	[RDT&E Award]				[Previously Reported]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]			
Test & Evaluation -Transparent Armor	[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]				[RDT&E Award]			
O&M																												
Body Armor Sustainment	[Production Award]				[Production Award]				[Production Award]				[Production Award]				[Production Award]				[Production Award]				[Production Award]			
	Soft Armor IDIQ Award				Hard Armor IDIQ Award																							
Lightweight Ballistic Helmet Sustainment	[Production Award]				[Production Award]				[Production Award]				[Production Award]				[Production Award]				[Production Award]				[Production Award]			
					Helmet IDIQ Contract Re compete																							
Eye Protection / Transparent Armor Sustainment	[Production Award]				[Production Award]				[Production Award]				[Production Award]				[Production Award]				[Production Award]				[Production Award]			
	Eye Protection P3I Award								Eye Protection P3I Award																			

Production Award
 RDT&E Award
 Major Event
 Previously Reported
 RDT&E
 Procurement
 O&M

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S385A / <i>Body Armor and Associated Equipment</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Body Armor and Associated Equipment</i>				
Body Armor Product Development	2	2018	4	2024
Lightweight Ballistic Helmets Product Development	2	2018	4	2024
Eye Protection Product Development	2	2018	4	2024
Body Armor Test & Evaluation	2	2018	4	2024
Lightweight Ballistic Helmets Test & Evaluation	2	2018	4	2024
Transparent Armor Test & Evaluation	2	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>				Project (Number/Name) S395 / <i>Visual Augmentation, Lasers and Sensor Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S395: <i>Visual Augmentation, Lasers and Sensor Systems</i>	11.383	0.940	1.257	3.212	-	3.212	2.171	2.097	2.132	2.174	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for development, testing and integration of specialized visual augmentation, binocular and monocular night vision devices, laser markers, laser designators, geo-location systems, weapon optics, weapon aiming lasers, sensor systems, visible lights, infrared imagers, clandestine pointers, simulators and accessories to meet the unique requirements of SOF. These projects ensure SOF hyper-enabled operators will remain technologically superior to enemy threats and ensure mission success.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Visual Augmentation Systems	0.940	1.257	3.212	-	3.212
Description: Sensor technologies being developed include image intensification thermal imaging, short wave infrared, multi-spectral, fusion, and other sensor types. Developments will decrease weight, increase range, increase situational awareness, provide data, image processing, image filtering, determine wind speed, observe bullet trace, and sensor fusion to be able to detect, identify, classify and engage targets at greater ranges. Some efforts may be tied to Hyper-Enabled Operator (HEO).					
FY 2019 Plans: Continue development and testing of visual augmentation and laser devices to improve situational awareness, sharing of data/images and target acquisition.					
FY 2020 Base Plans: Continues development and testing of visual augmentation, laser devices, and begin development and testing of simulators to improve situational awareness, sharing of data/images, target acquisition, and training.					
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$1.955 million for simulator development.					
Accomplishments/Planned Programs Subtotals	0.940	1.257	3.212	-	3.212

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S395 / <i>Visual Augmentation, Lasers and Sensor Systems</i>	

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

Line Item	FY 2018	FY 2019	FY 2020	FY 2020	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PROC/0204WARRIOR: <i>Warrior Systems<\$5M</i>	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing

Remarks

D. Acquisition Strategy

Evolutionary acquisition, leveraging emerging technologies and mid-tier acquisition approaches. An evolutionary approach delivers capability in increments, recognizing, up front, the need for future capability improvements. Full and open competition; Contracts are a combination of five-year Firm Fixed Price Indefinite Delivery Indefinite Quantity, small business set asides at several locations, and other transaction authorities (OTAs); primarily via Naval Surface Warfare Center, Crane Contracting office, USSOCOM Contracting Office and other contracting offices.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S395 / <i>Visual Augmentation, Lasers and Sensor Systems</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Visual Augmentation Systems (VAS) Product Development (Laser and Optic)	C/CPFF	USSOCOM : Tampa, FL	8.516	0.645	Jun 2018	1.257	Jan 2019	1.507	Apr 2020	-		1.507	Continuing	Continuing	-
Visual Augmentation Systems (VAS) Product Development (Simulator)	C/CPFF	USSOCOM : Tampa, FL	-	-		-		1.493	Apr 2020	-		1.493	Continuing	Continuing	-
Prior Year Overseas Contingency Operations (OCO)	C/CPFF	USSOCOM : Tampa, FL	2.667	-		-		-		-		-	0.000	2.667	-
Subtotal			11.183	0.645		1.257		3.000		-		3.000	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
VAS Test and Evaluation	C/CPFF	USSOCOM : Tampa, FL	0.200	0.295	Jun 2018	-		-		-		-	Continuing	Continuing	-
VAS Optic Test and Evaluation	C/CPFF	USSOCOM : Tampa FL	-	-		-		0.106	Apr 2020	-		0.106	Continuing	Continuing	-
VAS Laser Test and Evaluation	C/CPFF	USSOCOM : Tampa FL	-	-		-		0.106	Apr 2020	-		0.106	Continuing	Continuing	-
Subtotal			0.200	0.295		-		0.212		-		0.212	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		11.383	0.940	1.257	3.212	-	3.212	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S395 / Visual Augmentation, Lasers and Sensor Systems



Visual Augmentation Systems Laser Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	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
RDT&E																												
VAS Development & Test	[Yellow] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]			
Procurement																												
Precision Aiming Laser	[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]			
Thermal Beacon Procure/Field	[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]			
Squad Aiming Laser	[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]			
Handgun Aiming Laser	[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]			
Laser Spot Tracker/Designator	[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]			
Ranging Aiming Laser	[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]				[White] [White] [White] [White]			
O&M																												
VAS Systems Sustainment	[Grey]																											

Production Award
 RDT&E Award
 Previously Reported
 RDT&E
 Procurement
 O&M

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S395 / Visual Augmentation, Lasers and Sensor Systems



Visual Augmentation Systems Optic Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24							
	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				
RDT&E																																
VAS Development & Test	[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]				[RDT&E]							
Procurement																																
BNVD (AN/PVS-31a)	[DO]				[DO]				[DO]				[DO]	[RFP]	[UA]		[DO]	[Contract]			[DO]				[DO]				[DO]			
Improved Night/Day Observation device (IN OD BLK III) NG MASN		[DO]			[DO]						[RFP]		[UA]	[Contract]					[DO]				[DO]						[DO]			
Enhanced Combat Optical Sight (ECOS) Procure/Field			[Contract]	[Contract]	[DO]				[DO]				[DO]				[DO]				[DO]				[DO]				[DO]		[RFP]	
HHI Mini (AN/PAS 33) Procure/Field	[DO]				[DO]	[Contract]			[DO]				[DO]				[DO]				[DO]				[DO]				[DO]		[RFP]	
Sniper Scope Procure/Field						[Contract]	[RFP]		[DO]	[UA]	[Contract]		[DO]				[DO]				[DO]				[DO]				[DO]			
E-COTI/E-COSI Procure/Field (NG)	[DO]				[DO]				[DO]				[DO]				[DO]		[RFP]		[DO]				[UA]				[Contract]			
Crew-Served Fire Control System (FCS) Procure/Field									[RFP]		[UA]		[Contract]	[DO]			[DO]				[DO]				[DO]				[DO]			
O&M																																
VAS Systems Sustainment	[O&M]																															

Production Award
 RDT&E Award
 Previously Reported
 RDT&E
 Procurement
 O&M

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S395 / <i>Visual Augmentation, Lasers and Sensor Systems</i>



Visual Augmentation Systems Simulator Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	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
RDT&E																												
VAS Simulator Development & Test									⏏				⏏				⏏				⏏				⏏			
Procurement																												
Simulator (Deployable, Classroom, Immersive)									△ RFP				△ Contract				◇ DO				◇ DO				◇ DO			
O&M																												
VAS Simulator Sustainment									■																			
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>◇ Production Award</div> <div>⏏ Major Event</div> <div>■ Previously Reported</div> <div>■ RDT&E</div> <div>■ Procurement</div> <div>■ O&M</div> </div>																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S395 / <i>Visual Augmentation, Lasers and Sensor Systems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Visual Augmentation Systems</i>				
VAS Optic Development and Test	3	2018	4	2024
VAS Laser Development and Test	3	2018	4	2024
VAS Simulator Development and Test	3	2020	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>				Project (Number/Name) S700 / <i>Communications Equipment and Electronics Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S700: <i>Communications Equipment and Electronics Systems</i>	21.643	9.294	13.966	18.519	-	18.519	21.852	17.040	16.487	16.862	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for communication systems to meet emergent requirements to support Special Operations Forces (SOF). Communications Equipment and Electronics Systems is a continuing effort to develop smaller, lighter, more efficient and more robust SOF Command, Control, Communications, and Computer (C4) capabilities.

USSOCOM's C4 systems comprise an integrated network of systems providing positive command and control and the timely exchange of information to all organizational echelons. The C4 systems that support this new architecture employ the latest standards and technology by transitioning from separate systems to full integration within the Global Information Grid (GIG). The GIG is a multitude of existing and projected national assets that allows SOF elements to operate with any force combination in multiple environments.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Satellite Deployable Node (SDN)	4.785	9.527	10.487	-	10.487
<p>Description: SDN is a family of deployable, super high frequency, multi-band, Satellite Communications (SATCOM) systems providing the transport path for high-capacity, voice, data, Video Teleconferencing (VTC), and Full Motion Video at all levels of classification. It consists of SDN subprograms, transport for intelligence variants, technology insertions and capital equipment replacement.</p> <p>FY 2019 Plans: Continue assessments, tests and evaluations for wide-band Communications On The Move (COTM) maritime, ground mobile, and airborne technologies. Continues assessments of reduction of size, weight and power (SWAP). Continue Evolutionary Technology Insertion (ETI) integration. Continue evaluation of new SATCOM constellations and terminals. Evaluate resiliency of systems in a degraded communication environment. Evaluate and test SDN wireless network capabilities. Evaluate and test mobile technologies.</p> <p>FY 2020 Base Plans: Continues assessments, tests and evaluations for wide-band COTM maritime, ground mobile and airborne technologies. Continues assessments of reduction of size, weight and power (SWAP). Continues ETI</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S700 / <i>Communications Equipment and Electronics Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>integration. Continues evaluation of new SATCOM constellations and terminals. Continues evaluation of resiliency of systems in a degraded communication environment. Continues the evaluation and tests SDN wireless network capabilities. Continues evaluation and testing of mobile technologies.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.960 million supports COTM and new SATCOM constellation terminal certifications.</p>					
<p>Title: Civil Information Management (CIM)</p> <p>Description: The Civil Information Management Data Processing System (CIMDPS) is an automation system that assists active Civil Affairs (CA) and others engaged in civil-military operations to collect, process, analyze, maintain, mine, and deliver Civil Information and analysis products to support the Next Generation CIMDPS Systems.</p> <p>FY 2019 Plans: Completes development and integration of Link Analysis and Mobility, and Next Generation CIMDPS Hardware platform in support of CA communities, as a one-time cost.</p> <p>FY 2020 Base Plans: Funding required for follow-on development and integration of the Next Generation CIMDPS Hardware platform in support of CA communities.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease of -\$0.169 million is due to fewer testing requirements.</p>	0.007	0.185	0.016	-	0.016
<p>Title: Special Communications (SPCOM) Enterprise program</p> <p>Description: SPCOM includes organizations, practices, processes, services, networks, systems and subsystems that manage and provide clandestine exchange of information between elements (field-to-field, field-to-base, base-to-field) for worldwide deployed SOF units, often in austere environments with heavy adversarial monitoring. Acquisition efforts are structured for rapid, tailored development to counter adaptable emerging threats in all theaters of SOF sensitive missions.</p> <p>FY 2019 Plans: Continue segment development for the SPCOM enterprise; develops means and methods to provide near-term impact to operators. Continue development of anti-intrusion/anti-tamper capabilities. Continue extensive</p>	4.502	4.254	8.016	-	8.016

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019	
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S700 / <i>Communications Equipment and Electronics Systems</i>		

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
vulnerability assessments plus independent verification and validation. Acquisition efforts are structured for rapid, tailored development to counter adaptable emerging threats in all theaters of SOF sensitive missions. FY 2020 Base Plans: Continues segment development for the SPCOM enterprise; develops means and methods to provide near-term impact to operators. Continues development of anti-intrusion/anti-tamper capabilities. Continues extensive vulnerability assessments plus independent verification and validation. Acquisition efforts are structured for rapid, tailored development to counter adaptable emerging threats in all theaters of SOF sensitive missions. FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$3.762 million will fulfill additional Theater Special Operations Commands' area and mission-specific tailored requirements for low-signature, threat-mitigated, sensitive missions as authorities to conduct these missions have expanded.					
Accomplishments/Planned Programs Subtotals	9.294	13.966	18.519	-	18.519

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PROC/0204WARRIOR: <i>Warrior Systems <\$5M</i>	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing
• PROC/0204OTHER: <i>OTHER ITEMS <\$5M</i>	52.718	119.427	103.910	0.028	103.938	149.394	81.064	107.128	68.215	Continuing	Continuing

Remarks

D. Acquisition Strategy

- SDN is a fielded program with ETIs into all variants: heavy, medium, and light, wide-band COTM, Mobile SOF Strategic Entry Point, and Airborne Intelligence Surveillance Reconnaissance transport variants. Commercial and government agency sources will be leveraged for required certifications, functional and operational tests, and acceptance support.
- CIM has an evolutionary acquisition strategy to enhance its capability to meet the CA communities emerging requirements.
- SPCOM is an ETI effort to provide and support multiple field mission sets full integrated with secure transports for complete end-to end capabilities. In particular, rapid, phased prototyping is prioritized to both develop operational-relevant prototypes but also to be flexible and agile in ensuring countermeasures against dynamically

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S700 / <i>Communications Equipment and Electronics Systems</i>
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adapting special communication threats in all worldwide theaters. Commercial and government agency sources will be leveraged for required certifications, functional and operational tests, and acceptance support.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) <i>S700 / Communications Equipment and Electronics Systems</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Satellite Deployable Node (SDN) Development	Various	Various : Various	4.852	2.110	Dec 2017	4.806	Dec 2018	8.200	Mar 2019	-		8.200	Continuing	Continuing	-
Civil Information Management Data Processing System (CIMDPS) Development	PO	SOF AT&L -KS : MACDILL AFB	1.788	0.007	Mar 2018	0.185	Mar 2019	0.016	Mar 2020	-		0.016	0.000	1.996	-
Special Communications (SPCOM) Enterprise Capability Development	TBD	Various : Various	8.473	3.672	Feb 2018	3.329	Mar 2019	6.650	Mar 2020	-		6.650	Continuing	Continuing	-
SPCOM Technology Vulnerability Assessments	MIPR	MITRE : Bedford, MA	1.680	0.530	Dec 2017	0.669	Dec 2018	1.026	Dec 2019	-		1.026	Continuing	Continuing	-
Subtotal			16.793	6.319		8.989		15.892		-		15.892	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SDN Market Research Evaluation and Testing	Various	Various : Various	3.765	2.675	Jan 2018	4.721	Feb 2019	2.287	Jun 2019	-		2.287	Continuing	Continuing	-
SPCOM Independent Verification and Validation	MIPR	MITRE : Bedford, MA	1.085	0.300	Dec 2017	0.256	Dec 2018	0.340	Dec 2019	-		0.340	Continuing	Continuing	-
Subtotal			4.850	2.975		4.977		2.627		-		2.627	Continuing	Continuing	N/A

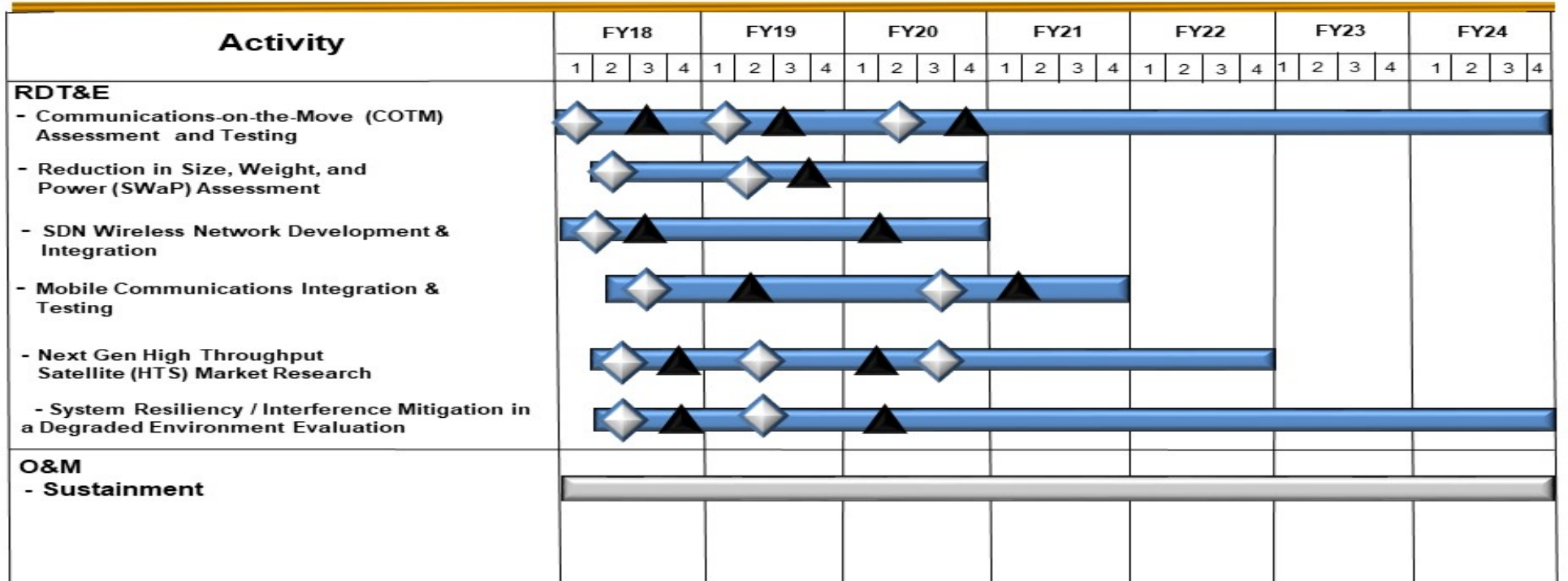
	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		21.643	9.294	13.966	18.519	-	18.519	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S700 / <i>Communications Equipment and Electronics Systems</i>

SDN Schedule

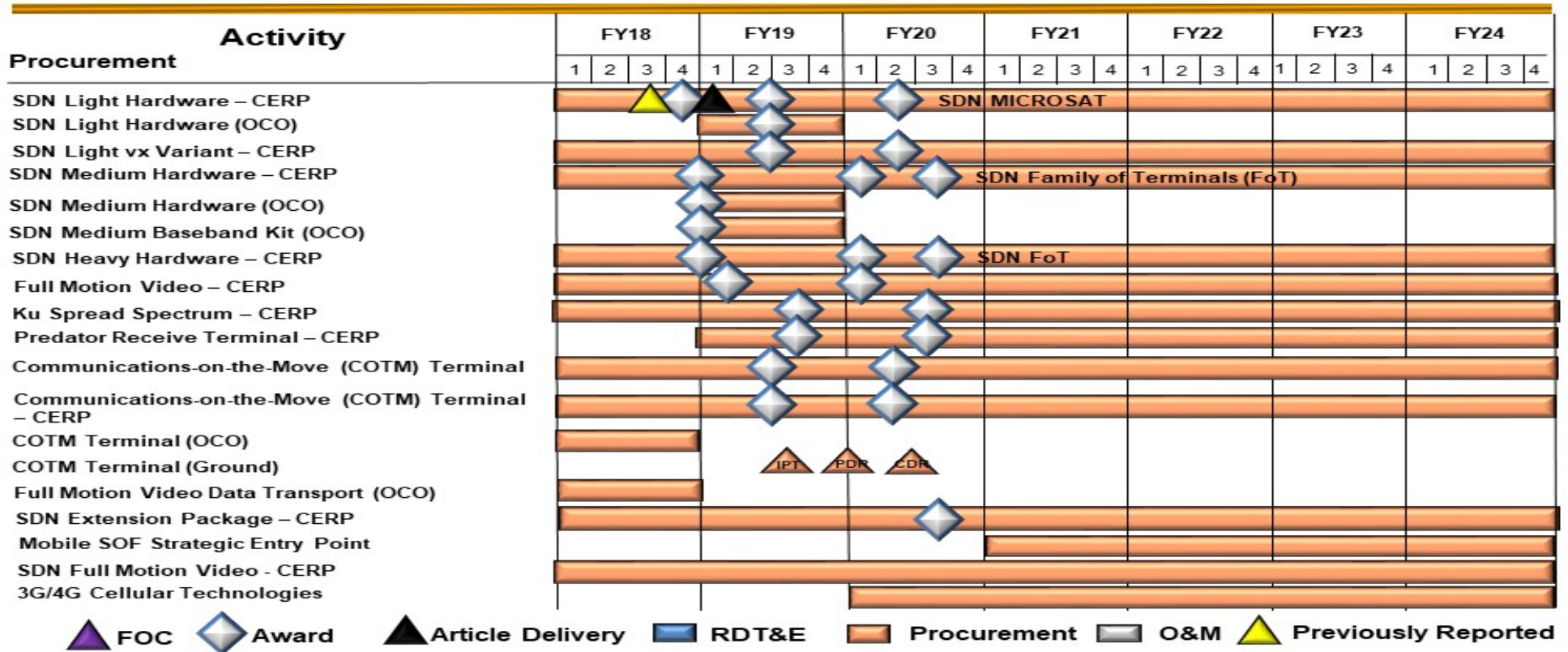


▲ FOC
 ◆ Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S700 / <i>Communications Equipment and Electronics Systems</i>

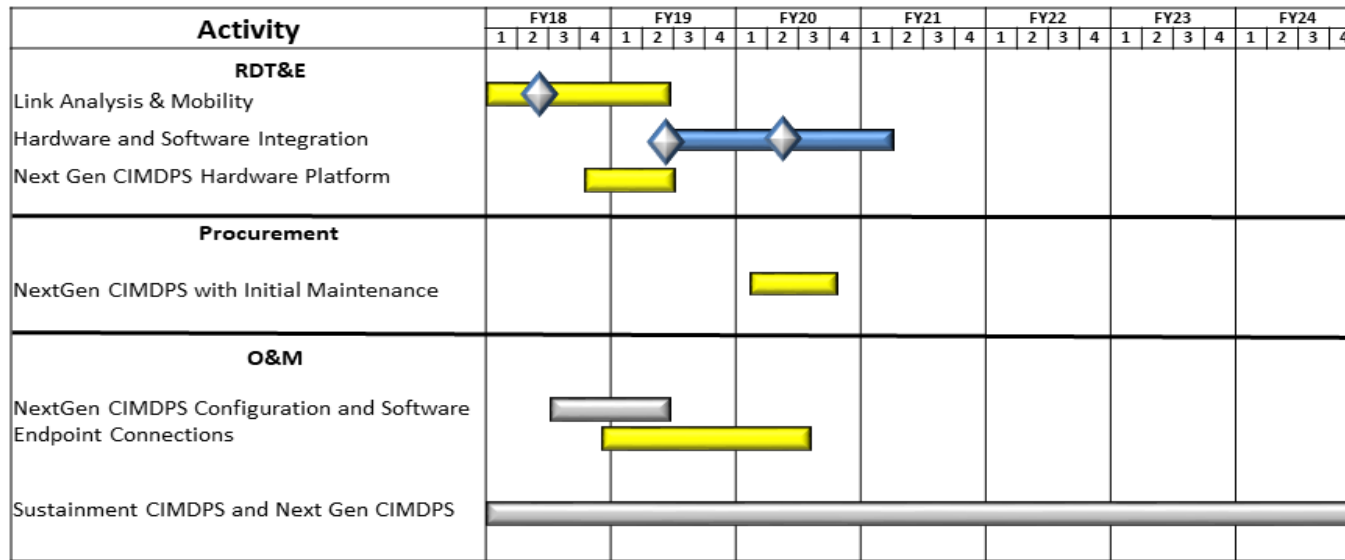
SDN Schedule (con't)



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S700 / <i>Communications Equipment and Electronics Systems</i>

Civil Information Management Data Processing System Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

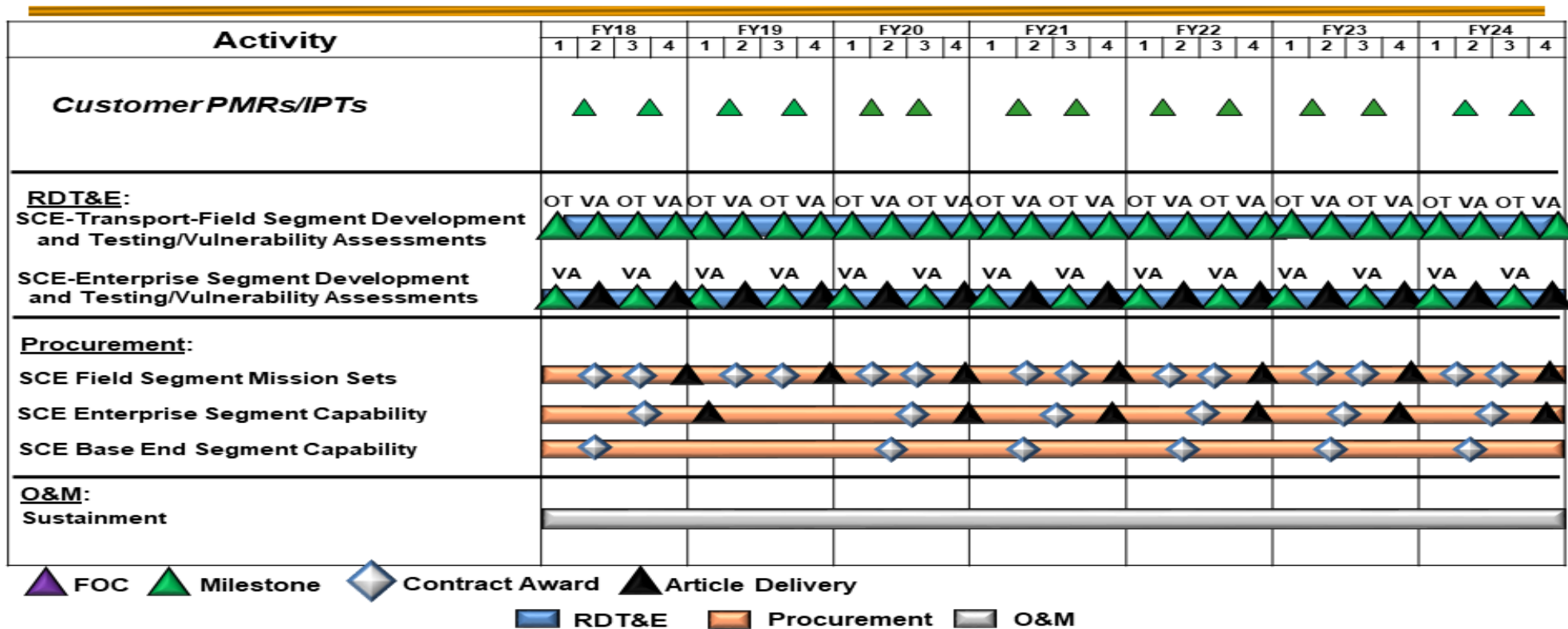
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S700 / Communications Equipment and
Electronics Systems

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S700 / <i>Communications Equipment and Electronics Systems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>SOF Deployable Node (SDN)</i>				
Communications-on-the-Move (COTM) Assessment & Testing	1	2018	4	2024
Assess Reduction in Size, Weight, and Power (SWaP)	2	2018	4	2020
SDN Wireless Network Integration & Testing	1	2018	4	2020
Mobile Technology Integration & Testing	3	2018	4	2021
Evaluate System Resiliency in Degraded Communications Environment	2	2018	4	2022
Next Generation High Throughput Satellite Market Research	2	2018	4	2024
<i>CIVIL INFORMATION MANAGEMENT (CIM)</i>				
Hardware and Software Integration	2	2019	1	2021
<i>Special Communications (SPCOM) Enterprise Program</i>				
Transport - Field Segment Kit Development	1	2018	4	2024
Enterprise Segment Services Development	1	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S710 / <i>Tactical Systems Development</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S710: <i>Tactical Systems Development</i>	4.400	2.327	4.240	3.313	-	3.313	3.344	3.105	3.170	3.244	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for development, testing, and integration of specialized automation equipment to meet the unique requirements of Special Operations Forces (SOF). Specialized automation equipment will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. These operations are generally conducted in harsh environments, for unspecified periods and in locations requiring small unit autonomy. SOF must infiltrate by land, sea, and air to conduct unconventional warfare, direct action, or deep reconnaissance operations in denied areas against insurgent units, terrorists, or highly sophisticated threat forces. The requirement to operate in denied areas controlled by a sophisticated threat mandates that SOF systems remain technologically superior to threat forces to ensure mission success.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Tactical Local Area Network (TACLAN) Suites	2.327	4.240	3.313	-	3.313
Description: TACLAN provides SOF operational commanders and forward deployed forces advanced networking, automated data processing, storage, and display capabilities to support situational awareness, mission planning and execution, and command and control of forces. The TACLAN consists of Suites, Mission Planning Kits, Field Computing Devices, and tactical work stations.					
FY 2019 Plans: Continue integration and testing of Evolutionary Technology Insertion (ETI) for upgrading TACLAN Field computing devices and network suites. Continue development of secure mobile communications. Utilize outcomes of the secure mobile communications project to begin the development of edge computing.					
FY 2020 Base Plans: Continues integration and testing of evolutionary technology insertions. Specific technologies in assessments include secure wireless, secure data at rest, cross domain solutions, distributed cloud architecture, and edge computing. Continues the development, integration and assessment to improve tactical area networks that enable the operator on the battlefield.					
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease of -\$0.927M due to fewer testing requirements.					
Accomplishments/Planned Programs Subtotals	2.327	4.240	3.313	-	3.313

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command	Date: March 2019
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Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S710 / <i>Tactical Systems Development</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PROC/0204OTHER: <i>OTHER ITEMS <\$5M</i>	52.718	119.427	103.910	0.028	103.938	149.394	81.064	107.128	68.215	Continuing	Continuing

Remarks

D. Acquisition Strategy

The TACLAN evolutionary acquisition strategy includes the use of commercial and government agency sources, that will be leveraged for required certifications, functional and operational test, and acceptance support.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S710 / <i>Tactical Systems Development</i>
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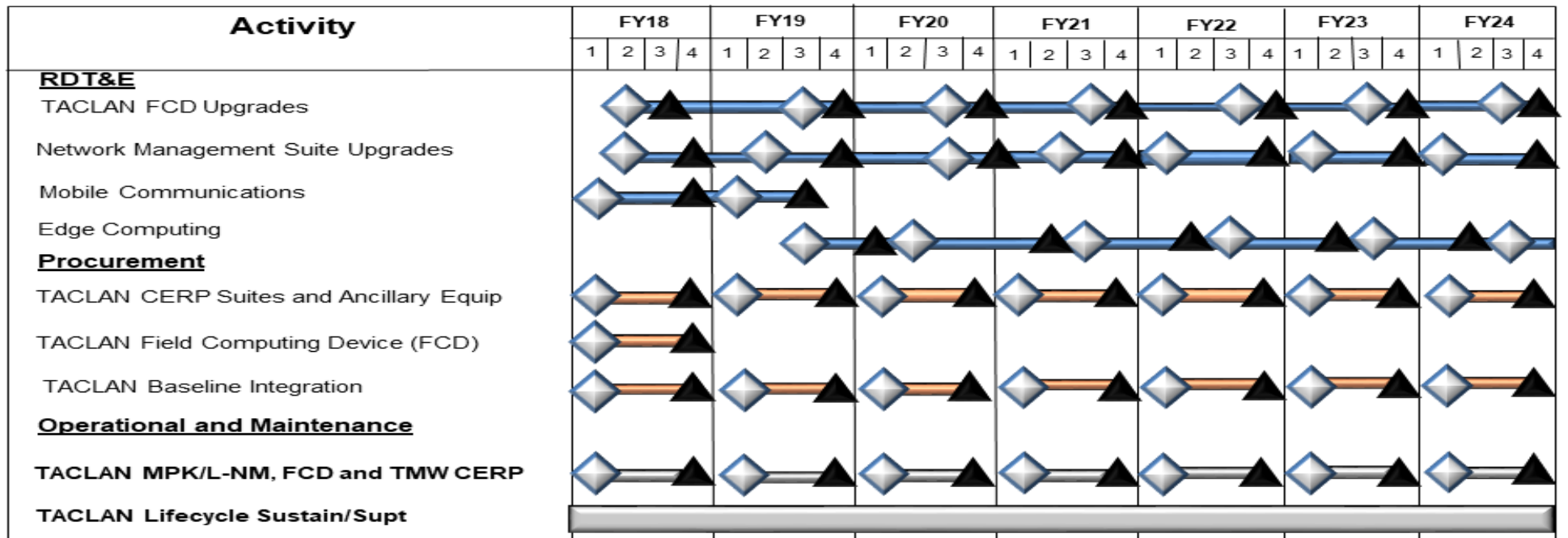
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TACLAN FCD Upgrades	Reqn	Raven Tek : Tampa, FL	1.300	0.300	Jan 2018	0.800	Jun 2019	1.500	Jun 2020	-		1.500	Continuing	Continuing	-
Network Management Suite Upgrades	Reqn	Raven Tek : Tampa, FL	1.600	0.500	Mar 2019	1.200	Mar 2019	1.263	Jul 2020	-		1.263	Continuing	Continuing	-
Mobile Communications	Reqn	Smartronix Inc. : Tampa, FL	1.500	1.527	Jan 2018	1.200	Jan 2019	-		-		-	Continuing	Continuing	-
Edge Computing	Reqn	Raven Tek : Tampa, FL	0.000	0.000		1.040	Jun 2019	0.550	Jan 2020	-		0.550	Continuing	Continuing	-
Subtotal			4.400	2.327		4.240		3.313		-		3.313	Continuing	Continuing	N/A
Project Cost Totals			4.400	2.327		4.240		3.313		-		3.313	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S710 / <i>Tactical Systems Development</i>

TACLAN Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S710 / <i>Tactical Systems Development</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Tactical Local Area Network (TACLAN) Suites</i>				
TACLAN FCD Upgrades	2	2018	4	2024
Network Management Suite Upgrades	2	2018	4	2024
Mobility Comms	1	2018	3	2019
Edge Computing	3	2019	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>				Project (Number/Name) S725 / <i>Tactical Radio Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
<i>S725: Tactical Radio Systems</i>	13.304	12.704	4.660	11.315	-	11.315	7.940	2.572	2.633	2.701	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project is for the development of all SOF tactical radio programs. Tactical Radios provide the critical Command, Control, Communications (C3) link between SOF Commanders and SOF Teams involved in operational missions and training exercises. They also provide interoperability with all Services, various agencies of the U.S. Government, Air Traffic Control, commercial agencies, and allied foreign forces. Tactical Radios rapidly and seamlessly establish and maintain mobile and fixed Command and Control (C2) communications between infiltrated/operational elements and higher echelon headquarters, allowing SOF to operate with any force combination in multiple environments.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SOF Tactical Communications (STC)	12.633	4.589	10.642	-	10.642
Description: STC consists of the next-generation SOF Communication System and replaces most of the currently fielded SOF suite of tactical radios. Capabilities include real time, Hostile and Friendly Force information; Line of Sight (LOS) and Beyond LOS (BLOS) Communications; and access to Situational Awareness in the form of Intelligence inputs, broadcasts, and networks.					
FY 2019 Plans: Continue development, integration and testing of new capabilities in tactical radio equipment. Enable modernization and testing of Cryptography and GPS technology in accordance with DOD modernization directives for a fleet of more than 33,000 tactical radios. Enable integration and testing of emerging High Frequency (HF) waveform, the Mobile User Objective Waveform, emerging Mobile Ad Hoc Network (MANET) waveforms, and the Link-16 Tactical Data Link (TDL) waveform.					
FY 2020 Base Plans: Continues development, integration and testing of new capabilities in tactical radio equipment. Enables modernization and testing of Hand Held Link-16 in the form of a Mission Module to be used with the PRC-163 handheld radio. Modernizes high frequency platforms from two systems into a single system that will provide standard, wide band, and Low Probability of Intercept/Detection (LPI/D) capabilities in a single Government owned form factor.					
FY 2019 to FY 2020 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) <i>S725 / Tactical Radio Systems</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Increase of \$6.053 million enables the initiation of two emerging capabilities in FY20 related to Link-16 and HF. These efforts significantly reduce the operational load of the operator by reducing the quantity and form factor of comm kits while significantly enhancing capabilities.					
Title: Blue Force Tracking (BFT)	0.071	0.071	0.673	-	0.673
Description: BFT is a family of devices used to remotely track and monitor SOF unit personnel. The capability enhances C2, threat warning, force protection, situational awareness, combat search and rescue, counter-fratricide, and battlefield visualization. This capability is unique to SOF because it requires the devices to be lightweight, portable, secure and a Low Probability of Intercept/Low Probability of Detection.					
FY 2019 Plans: Continue development and test of new capabilities in BFT equipment.					
FY 2020 Base Plans: Continues development and test of new capabilities in BFT equipment.					
FY 2019 to FY 2020 Increase/Decrease Statement: Increase \$0.602 million to allow for rapid prototyping and additional product development focused on denied environments.					
Accomplishments/Planned Programs Subtotals	12.704	4.660	11.315	-	11.315

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PROC/0204WARRIOR: <i>Warrior Systems <\$5M</i>	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing

Remarks

D. Acquisition Strategy

- STC is a Commercial-Off-The-Shelf/Non-Development Item program with evolutionary technology insertions (ETIs). Commercial and government agency sources will be leveraged for required certifications, functional and operational tests, and acceptance support.
- BFT is a fielded program with ETIs leveraging commercial and other government agency sources for required certifications, functional and operational tests, and technology updates.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) <i>S725 / Tactical Radio Systems</i>
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E. Performance Metrics

N/A.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) <i>S725 / Tactical Radio Systems</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SOF Tactical Communications Radio Development (STC)	MIPR	Various : Various	9.984	10.797	Jan 2018	4.211	Apr 2019	10.184	Jan 2020	-		10.184	Continuing	Continuing	-
Blue Force Tracking Development	MIPR	Various : Various	2.462	0.000	Nov 2017	-		0.598	Nov 2019	-		0.598	Continuing	Continuing	-
Subtotal			12.446	10.797		4.211		10.782		-		10.782	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
STC Testing	Option/ TBD	Various : Various	0.858	1.836	Jan 2018	0.378	Jan 2019	0.458	Jan 2020	-		0.458	Continuing	Continuing	-
Blue Force Tracking Testing	MIPR	Various : Variuos	-	0.071	Nov 2017	0.071	Jan 2019	0.075	Nov 2019	-		0.075	Continuing	Continuing	-
Subtotal			0.858	1.907		0.449		0.533		-		0.533	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
	Project Cost Totals		13.304	12.704	4.660	11.315	-	11.315	Continuing	Continuing

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

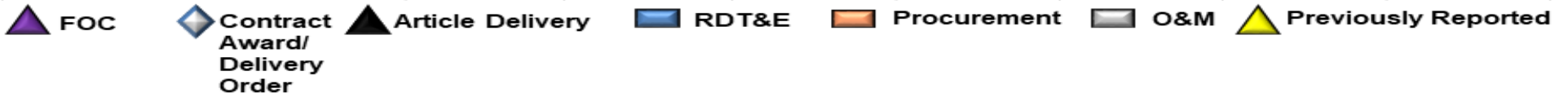
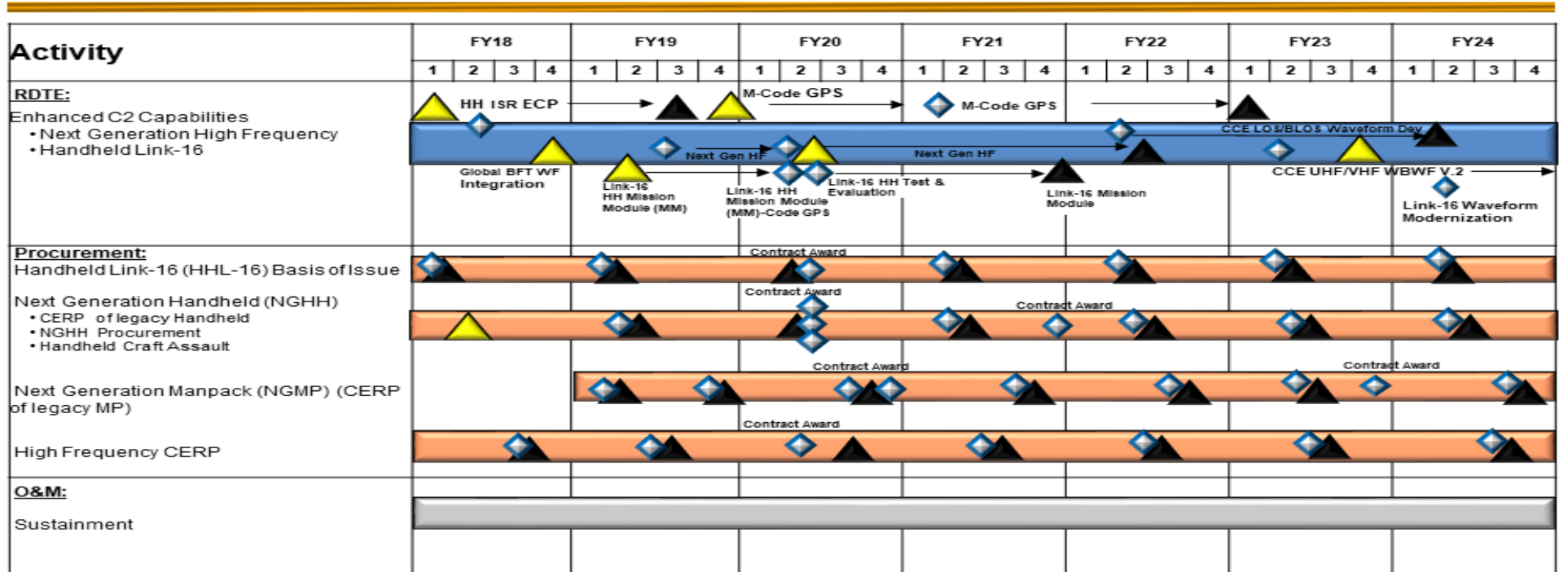
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / *Warrior Systems*

Project (Number/Name)
S725 / *Tactical Radio Systems*

STC/NGTC Schedule

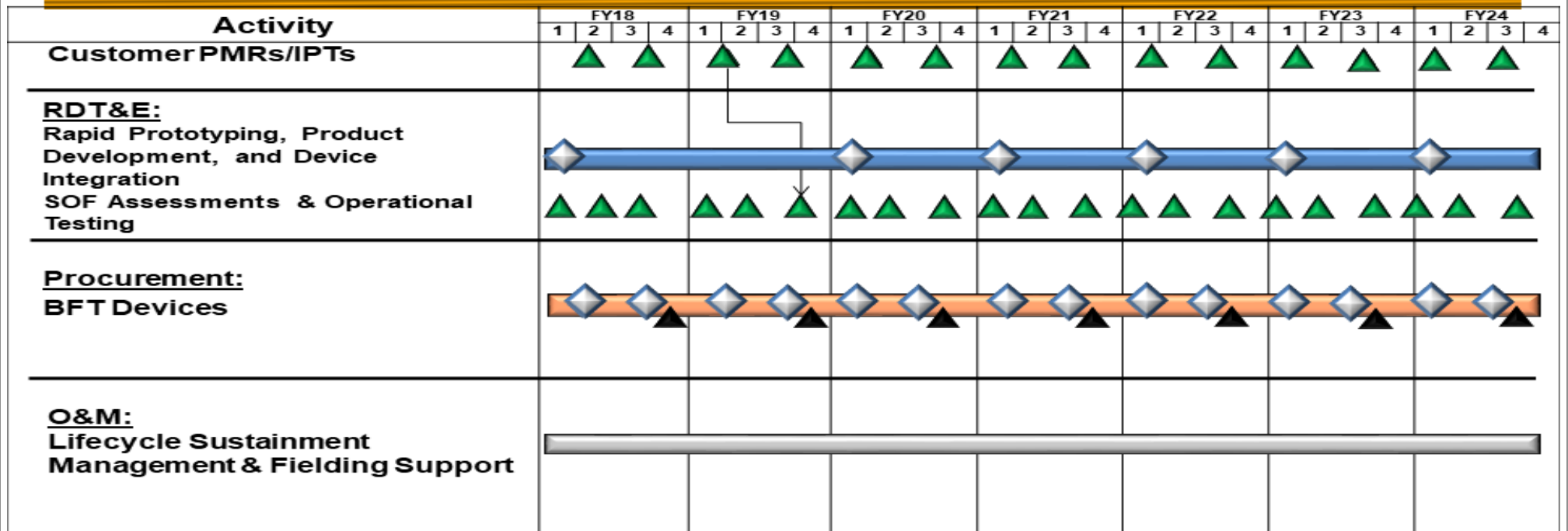


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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command Date: March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / Warrior Systems	Project (Number/Name) S725 / Tactical Radio Systems
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BFT Schedule



UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) <i>S725 / Tactical Radio Systems</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>SOF Tactical Communications Radio</i>				
Development	1	2018	4	2024
Test and Evaluation	2	2018	4	2024
<i>Blue Force Tracking</i>				
Rapid Prototyping	1	2018	4	2024
SOF Assessment & Operational Testing	1	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S800 / <i>Munitions Advanced Development</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S800: <i>Munitions Advanced Development</i>	44.666	16.852	27.770	10.741	-	10.741	2.869	3.840	8.339	8.533	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds advanced engineering, operational system development and qualification efforts related to specialized munitions and equipment to meet the unique requirements of SOF.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Munitions Advanced Development	0.512	0.436	0.588	-	0.588
Description: The Munitions Advanced Development program provides for Insensitive Munitions (IM) technology development and evaluations that allow SOF munitions to pass testing which includes bullet impact, sympathetic detonation, fast cook off, slow cook off and shaped charge test. Testing is in accordance with the United States Special Operations IM Testing Plan. Munitions product improvements are tested in accordance with command priorities.					
FY 2019 Plans: Continue proof of concept development and IM testing on various munitions. Continue full scale testing to satisfy safety requirements in Military Standard 2105C (Department of Defense Test and Method Standard: Hazard Assessment Test for Non-Nuclear Munitions, 26 Sep 2006).					
FY 2020 Base Plans: Continues proof of concept development and IM testing on various munitions. Continues full scale testing to satisfy safety requirements in Military Standard 2105C (Department of Defense Test and Method Standard: Hazard Assessment Test for Non-Nuclear Munitions, 26 Sep 2006).					
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.152 million is for full scale testing.					
Title: Stand-Off Precision Guided Munitions (SOPGM)	2.374	8.734	-	-	-
Description: SOPGM provides for the integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms. This project received a congressional add in FY 2018 and 2019.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S800 / <i>Munitions Advanced Development</i>
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>FY 2019 Plans: Continue integration and testing of precision guided munitions on SOF UAS platforms.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decrease of \$8.734 million due to completion of integration and transition to procurement.</p>					
<p>Title: Precision Strike Systems (PSS)</p> <p>Description: Guided Rocket Systems provides for the engineering, integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms.</p> <p>FY 2019 Plans: Initiates the engineering, integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms.</p> <p>FY 2020 Base Plans: Continue the engineering, integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$5.762M is to develop new systems to counter new threats.</p>	-	2.500	8.262	-	8.262
<p>Title: Aircraft Survivability Equipment (ASE)</p> <p>Description: The ASE program includes development of new systems, pre-planned product improvements/ upgrades of fielded survivability equipment, and continues development of flare countermeasures.</p>	2.409	-	-	-	-
<p>Title: Counter Unmanned Aerial System (C-UAS)</p> <p>Description: Develops a 40MM Air Bursting Grenade launched from a Grenade Machine Gun.</p> <p>FY 2019 Plans: This funding will support the development and evaluation of High Velocity 40mm High Explosive Air Bursting Ammunition to be used with grenade machine guns. Improving the air-Bursting capability of this currently fielded weapon system will provide kinetic Counter-Unmanned Aerial System (C-UAS) capabilities to the Warfighter.</p> <p>FY 2020 Base Plans:</p>	-	1.100	1.891	-	1.891

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019		
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S800 / <i>Munitions Advanced Development</i>			

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continue to support the development and evaluation of High Velocity 40mm High Explosive Air Bursting Ammunition to be used with grenade machine guns. Improve the air-Bursting capability of this currently fielded weapon system will provide kinetic Counter-Unmanned Aerial System (C-UAS) capabilities to the Warfighter. <i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Increase of \$0.791 million to continue support of development and evaluation efforts.					
Accomplishments/Planned Programs Subtotals	5.295	12.770	10.741	-	10.741

	FY 2018	FY 2019
Congressional Add: SOPGM	11.557	15.000
<i>FY 2018 Accomplishments:</i> Small Glide Munition (to include new low collateral damage warhead) development and integration onto UAS platforms.		
<i>FY 2019 Plans:</i> Continue integration and testing of Small Glide Munition on SOF UAS platforms.		
Congressional Adds Subtotals	11.557	15.000

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0203ORDN: <i>Ordnance Items <\$5M</i>	173.584	425.892	279.992	138.252	418.244	336.879	287.002	296.022	346.659	Continuing	Continuing

Remarks

D. Acquisition Strategy

Munitions Advanced Development: Munitions and packaging redesign shall take place within government laboratories, as well as in industry, depending on the munitions. IM solutions shall be tested on a small scale for proof of principle. Planned product improvements are tested at Army, Navy, and Air Force test centers leveraging mid-tier acquisition authorities and other transaction authorities (OTAs).

SOPGM: Integration and developmental testing of precision guided munitions will be conducted using government laboratories or industry partners depending on the munitions for various SOF platforms.

PSS: Integration and developmental testing of the launcher systems with follow-on government-led integration effort leveraging lessons learned from similar rapid integration efforts on other combat tested SOF platforms.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0400 / 7	PE 1160431BB / <i>Warrior Systems</i>	S800 / <i>Munitions Advanced Development</i>

ASE: Development of new systems, pre-planned product improvements/upgrades of fielded survivability equipment, and continue development of flare countermeasures.

C-UAS: Development and Evaluation of 40MM High Explosive Air Bursting Ammunition shall be conducted using government laboratories.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S800 / <i>Munitions Advanced Development</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Stand-off Precision Guided Munitions (SOPGM) MQ-9 LSDB/SDB II Weapon Mount Hardware Development & Integration	SS/ Various	General Atomics : NY	2.183	0.974	Jan 2018	6.594	Dec 2018	-		-		-	0.000	9.751	-
SOPGM MQ-9 LSDB Software Development & Integration	SS/ Various	Boeing : MO	0.300	1.400	Jan 2018	1.040	Feb 2019	-		-		-	0.000	2.740	-
SOPGM Small Glide Munition(SGM)/MQ-1C Integration Congressional Plus Up	C/Various	Dynetics : AL	-	6.633	Jul 2018	1.636	Jan 2019	-		-		-	0.000	8.269	-
SOPGM Small Glide Munition(SGM)/MQ-9 Integration Congressional Plus Up	C/Various	Dynetics : AL	-	-		6.973		-		-		-	0.000	6.973	-
Aircraft Survivability Equipment Development	Various	Various : Various	-	2.409	Jan 2018	-		-		-		-	0.000	2.409	-
Counter Unmanned Aerial System (CUAS)	C/Various	Various : Various	-	-		1.100	Feb 2019	1.891	Nov 2019	-		1.891	0.000	2.991	-
Precision Strike System (PSS)	C/Various	Various : Various	-	-		2.500	Feb 2019	8.262	Nov 2019	-		8.262	Continuing	Continuing	-
Prior Year	C/Various	Various : Various	34.132	-		-		-		-		-	0.000	34.132	-
Subtotal			36.615	11.416		19.843		10.153		-		10.153	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SOPGM SGM Support Congressional Plus Up	C/Various	Dynetics : AL	2.354	2.400	May 2018	3.115	May 2019	-		-		-	0.000	7.869	-
Prior Year	C/Various	Various : Various	1.100	-		-		-		-		-	0.000	1.100	-
Subtotal			3.454	2.400		3.115		-		-		-	0.000	8.969	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S800 / <i>Munitions Advanced Development</i>
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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SOPGM MQ-9 LSDB/SDB II Test	SS/TBD	Boeing : MO	-	-		0.694	May 2019	-		-		-	0.000	0.694	-
SOPGM MQ-9 LSDB/SDB II Test Overseas Contingency Operations (OCO)	SS/TBD	Boeing : MO	-	-		0.406	May 2019	-		-		-	0.000	0.406	-
SOPGM SGM Test Congressional Plus Up	C/Various	Dynetics : AL	2.474	2.524	Apr 2018	-		-		-		-	0.000	4.998	-
SOPGM SGM/MQ-1C Test Congressional Plus Up	C/Various	Dynetics : AL	-	-		1.638	May 2019	-		-		-	0.000	1.638	-
SOPGM Small Glide Munition(SGM)/MQ-9 Integration Congressional Plus Up	C/Various	Dynetics : AL	-	-		1.638	Dec 2019	-		-		-	0.000	1.638	-
Munitions - Insensitive Munitions (IM) Evaluation	C/FFP	US Air Force Air Armaments Center : Eglin, AFB, FL	0.056	0.058	Dec 2017	0.059	Dec 2018	0.060	Dec 2019	-		0.060	Continuing	Continuing	-
Munitions - IM Testing	Allot	ARDEC : Picatinny Arsenal, NJ	0.307	0.306	Dec 2017	0.227	Dec 2018	0.375	Dec 2019	-		0.375	Continuing	Continuing	-
Munitions Advanced Development - Obtain Munitions Test Articles	C/FFP	General Dynamics : Canada	0.141	0.148	Dec 2017	0.150	Dec 2018	0.153	Dec 2019	-		0.153	Continuing	Continuing	-
Prior Year	C/Various	Various : Various	1.619	-		-		-		-		-	0.000	1.619	-
Subtotal			4.597	3.036		4.812		0.588		-		0.588	Continuing	Continuing	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	44.666	16.852	27.770	10.741	-	10.741	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

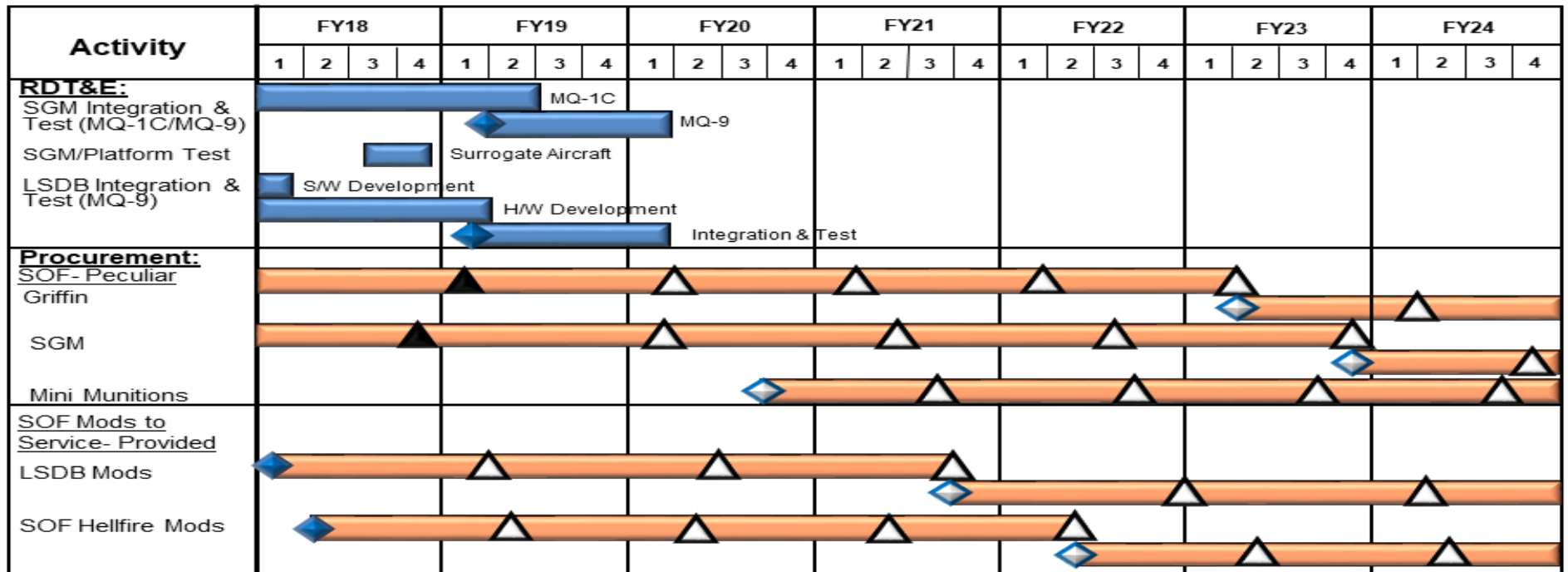
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / *Warrior Systems*

Project (Number/Name)
S800 / *Munitions Advanced Development*

SOPGM Schedule



*FY21-24 reflects baseline funding only

■ RDT&E
 ■ Procurement
 ◆ Contract Award
 ▲ Delivery Complete
 △ Projected Delivery Complete

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S800 / <i>Munitions Advanced Development</i>

Ordnance Items < \$5M Schedule

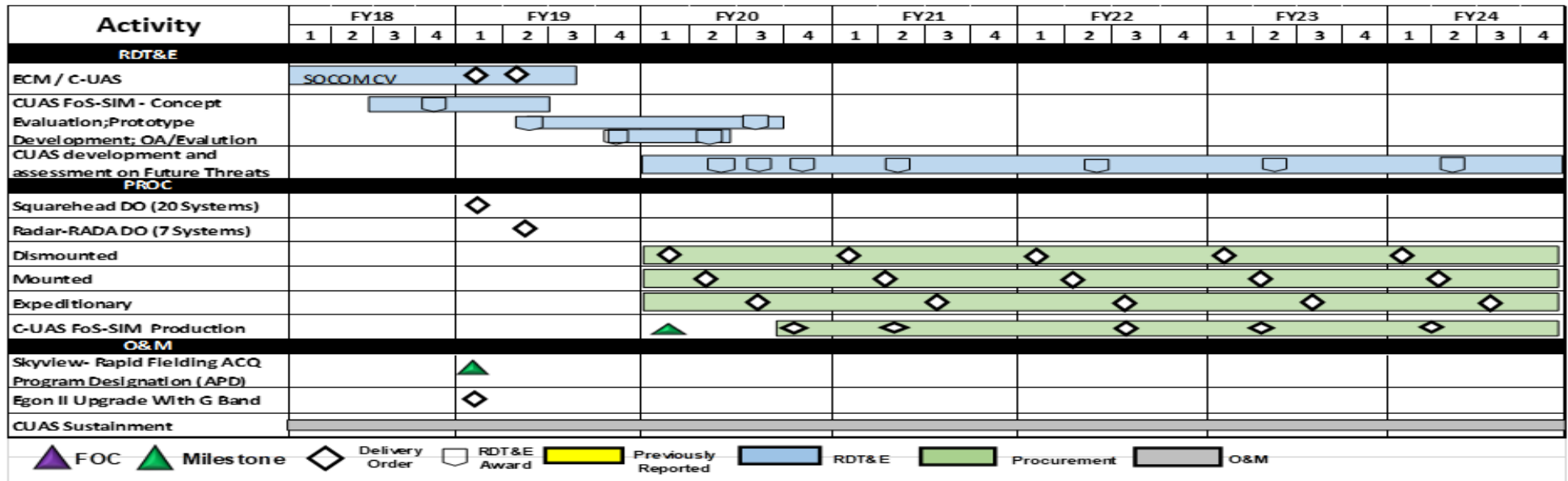
Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RDT&E																												
AMMO System Development (Small Caliber Bullets, 40 MM CUAS, Air Delivered, Demolition Breaching and Pyrotechnics, Shoulder Fired Munitions, Rockets, Guided Rockets and Precision Guided Munitions)	◻ ◻ ◻ ◻				◻ ◻ ◻ ◻				◻ ◻ ◻ ◻				◻ ◻ ◻ ◻				◻ ◻ ◻ ◻				◻ ◻ ◻ ◻				◻ ◻ ◻ ◻			
	CDD Family of LW SUM																											
AMMO Systems Testing	△ IM Report				△ IM Report				△ IM Report				△ IM Report				△ IM Report				△ IM Report							
Procurement																												
AMMO, (AIR DELIVERED MUNITIONS)	◊ DO				◊ DO				◊ DO				◊ DO				◊ DO				◊ DO				◊ DO			
AMMO, (SMALL CALIBER BULLETS)	◊ Contract Awd RT-Ammo				◊ Contract Awd ASR Ammo				◊ DO				◊ DO				◊ DO				◊ DO							
AMMO, (DEMOLITION, BREACHING, PYROTECHNICS, FLARES)	◊ DO				◊ Contract Awd Demo				◊ DO				◊ DO				◊ DO				◊ DO							
AMMO, (SHOULDER FIRED MUNITIONS, ROCKETS and GUIDED ROCKETS)	◊ DO				◊ DO				◊ DO				◊ DO				◊ DO				◊ DO							
O&M																												
AMMO Program Sustainment (Air Delivered, Small Caliber, Demo, Shoulder Fired)	◻																											

◊ Production Award
 ◻ RDT&E Award
 △ Major Event
 ◻ Previously Reported
 ◻ RDT&E
 ◻ Procurement
 ◻ O&M

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S800 / <i>Munitions Advanced Development</i>

CUAS Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S800 / <i>Munitions Advanced Development</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Stand-off Precision Guided Munitions (SOPGM) Small Glide Munition(SGM) Integration</i>				
MQ-1C Integration/Test	1	2018	3	2019
MQ-9 Integration/Test	2	2019	2	2020
Platform Test	3	2018	4	2018
<i>SOPGM LSDB/SDB II Integration & Test</i>				
Software Development	1	2018	1	2018
Weapon Mount Hardware Development	1	2018	2	2019
Interation & Test	1	2019	2	2020
<i>Munitions (Ordnance Items)</i>				
Evaluations of munitions test articles	1	2018	4	2024
Munitions testing	1	2018	4	2024
Obtain munitions test articles	1	2018	4	2024
<i>Counter Unmanned Aerial Systems (C-UAS)</i>				
Counter Unmanned Aerial Systems (C-UAS)	2	2019	1	2020
<i>Precision Strike System (PSS)</i>				
Precision Strike System (PSS)	2	2019	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160432BB / <i>Special Programs</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	29.463	2.300	2.479	21.805	-	21.805	18.469	17.729	22.610	22.937	Continuing	Continuing
S500E: <i>Special Programs</i>	29.463	2.300	2.479	21.805	-	21.805	18.469	17.729	22.610	22.937	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	1.978	2.479	2.478	-	2.478
Current President's Budget	2.300	2.479	21.805	-	21.805
Total Adjustments	0.322	0.000	19.327	-	19.327
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.394	-			
• SBIR/STTR Transfer	-0.072	-			
• Other Adjustments	-	-	19.327	-	19.327

Change Summary Explanation

Funding:

FY2018: Net increase of \$0.322 million is due to transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs (-\$0.072 million) and a reprogramming of \$0.394 million with details available under separate cover.

FY19: None.

FY2020: Increase of \$19.327 million is due to other adjustments available under separate cover.

Schedule: None.

Technical: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	20.081	33.576	44.970	37.377	5.000	42.377	39.154	36.252	38.152	40.058	Continuing	Continuing
S855: <i>Unmanned ISR</i>	20.081	33.576	44.970	37.377	5.000	42.377	39.154	36.252	38.152	40.058	Continuing	Continuing

A. Mission Description and Budget Item Justification

NOTE: Unmanned Intelligence, Surveillance, and Reconnaissance (ISR) includes the consolidation of Special Applications for Contingencies (SAFC) (previously Program Element (PE) 0304210BB); MQ-1 Unmanned Aerial Vehicle (UAV), (previously PE 0305219BB); MQ-8, (previously PE 0305231BB); RQ-11, UAV (previously PE 1105232BB); and RQ-7 UAV, (previously PE 1105233BB).

This program element is part of the Military Intelligence Program (MIP). Unmanned ISR rapidly develops and deploys special capabilities to perform Intelligence, Surveillance, and Reconnaissance (ISR) for deployed Special Operations Forces (SOF) using non-traditional means. USSOCOM has been designated as the DOD lead for planning, synchronizing, and as directed, executing global operations against terrorist networks and targets. USSOCOM requires the capability to find, fix, and finish time-sensitive high-value fixed and fleeting targets at the unit and team level without placing personnel and units in harm's way. These targets can often only be identified with patient collection of information and require rapid, decisive action during the short periods in which they present themselves. This PE addresses the primary areas of ISR and Targeting capabilities for SOF. This R-1 program element includes \$5.000 million of FY2020 enduring Overseas Contingency Operations funding.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	34.766	38.970	30.549	0.000	30.549
Current President's Budget	33.576	44.970	37.377	5.000	42.377
Total Adjustments	-1.190	6.000	6.828	5.000	11.828
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-6.190	-			
• Congressional Rescissions	-	-			
• Congressional Adds	5.000	6.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other	-	-	6.828	5.000	11.828

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: S855: *Unmanned ISR*

Congressional Add: *Anti-ice for Group 3 and above UAV's*

FY 2018	FY 2019
5.000	6.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

	FY 2018	FY 2019
Congressional Add Subtotals for Project: S855	5.000	6.000
Congressional Add Totals for all Projects	5.000	6.000

Change Summary Explanation

Funding:

FY 2018: Net decrease of -\$1.190 million due to congressional add for UAS anti-icing (\$5.000 million) and congressional directed program decrease to Special Applications for Contingencies (-\$6.190 million).

FY 2019: Increase of \$6.000 million due to congressional add for Group 3 and above UAS anti-icing.

FY 2020: Net increase of \$11.828 million for SOF-Peculiar unmanned ISR payloads (\$6.828M) and overseas contingency operations funding for development of various advanced payloads to support ISR payload requirements in support of SOF missions to include counterterrorism execution order missions (\$5.000M).

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>				Project (Number/Name) S855 / <i>Unmanned ISR</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S855: <i>Unmanned ISR</i>	20.081	33.576	44.970	37.377	5.000	42.377	39.154	36.252	38.152	40.058	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project is part of the Military Intelligence Program (MIP). It rapidly develops and deploys special capabilities to perform intelligence, surveillance, and reconnaissance (ISR) for deployed Special Operations Forces (SOF) using non-traditional means.

Group 1, 2, 3 and 4, Unmanned Aerial Systems (UAS) developmental efforts are to identify, develop, integrate, and test SOF-unique mission kits, mission payloads, air vehicle enhancements, and modifications to ground control stations. Based on stakeholder input and requirements, Special Applications for Contingencies (SAFC) develops and integrates UAS payloads to advance ISR capabilities that address dynamic and emergent operational needs of the SOF user. Efforts include improving imagery intelligence and electronic warfare payloads, capitalizing on developing technologies to reduce size, weight and power while addressing processing and data management challenges. This program also provides a mechanism for SOF user combat evaluation of emerging sensor technologies.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SAFC	23.309	20.679	22.276	-	22.276
<p>Description: Provides for efforts to develop and integrate Unmanned Aerial Systems (UAS) payloads and technologies, leveraging DOD middle tier acquisition (MTA) strategy and other rapid prototyping capacity, to rapidly develop and field ISR capabilities to address dynamic and emergent operational needs and vulnerabilities of the SOF user. Efforts include improving imagery intelligence and electronic warfare payloads, capitalizing on developing technologies to reduce size, weight and power while addressing processing and data management challenges. It also provides a mechanism for SOF user combat evaluation of emerging sensor technologies. SAFC applies focused Research & Development (R&D) for relatively low cost solutions to provide short lead-time contingency planning requirements where focused R&D will allow for test and evaluation of leading edge solutions to emergent problem sets.</p> <p>FY 2019 Plans: Continue development and combat evaluation of selected sensor delivery platforms and mounted or deliverable ISR capabilities for global contingencies including short-notice requirements. Continue evaluation of unique sensor technologies, persistent stare and quick reaction systems.</p> <p>FY 2020 Base Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>	Project (Number/Name) S855 / <i>Unmanned ISR</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Continues development and combat evaluation of selected sensor delivery platforms and mounted or deliverable ISR capabilities for global contingencies including short-notice requirements. Continues evaluation of unique sensor technologies, persistent stare and quick reaction systems.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$1.597 million is for additional payload development and platform enhancements.</p>					
<p>Title: Group 1 UAS</p> <p>Description: Group 1 UAS are small tactical systems, less than 20 pounds in weight. Provides for rapid development and prototyping efforts to identify, develop, integrate, and test SOF-unique mission kits. Leverages SAFC and conduct MTA strategies to rapidly develop and field capabilities.</p> <p>FY 2019 Plans: Continue integration and testing of SOF-unique mission kits, mission payloads, and modifications to the small tactical UAS and ground control station, to include but not limited to: improved capabilities for geo-location, collection of push-to-talk, communications, specialized tagging, tracking, and locating, and enhanced communications relay and work to miniaturize previously developed payloads.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: In FY20, all funding has been consolidated under the EOTACS program.</p>	0.355	0.329	-	-	-
<p>Title: Expeditionary Organic Tactical Airborne ISR Capability Set (EOTACS)</p> <p>Description: EOTACS systems are less than 55 pounds in weight and include fixed wing, Vertical Takeoff and Landing, and tethered platforms. Provides for rapid development and prototyping efforts to identify, develop, integrate, and test SOF-unique mission kits. Leverages SAFC to rapidly develop and field capabilities.</p> <p>FY 2020 Base Plans: Group 1 UAS funding is incorporated into the EOTACS program starting in FY20. Continues integration and testing of SOF-unique mission kits, mission payloads, and modifications to the small tactical UAS and ground control station, to include but not limited to: improved capabilities for geo-location, collection of push-to-talk, communications, specialized tagging, tracking, and locating, and enhanced communications relay and work to miniaturize previously developed payloads.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: In FY20, all Group 1 UAS funding has been consolidated under the EOTACS program.</p>	-	-	0.279	-	0.279
<p>Title: Group 2 MTUAS</p>	4.912	6.262	7.854	-	7.854

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>	Project (Number/Name) S855 / <i>Unmanned ISR</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
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Description: Group 2 MTUAS are medium tactical systems, between 21 pounds and 55 pounds in weight. Provides for development efforts utilizing a MTA strategy to rapidly identify, develop, integrate, and test SOF-unique mission kits.

FY 2019 Plans:
Continue integration and testing of SOF-unique mission capabilities for the medium tactical UAS, to include but not limited to: signals intelligence gathering, full motion video, and geo-location.

FY 2020 Base Plans:
Continues integration and testing of SOF-unique mission capabilities to meet new medium tactical UAS requirements, to include but not limited to: signals intelligence gathering, full motion video, geo-location, and decreased footprint.

FY 2019 to FY 2020 Increase/Decrease Statement:
Increase of \$1.592 million is for additional integration and testing of SOF-unique mission capabilities to meet new medium tactical UAS requirements.

Title: Group 3 UAS	-	5.000	0.000	5.000	5.000
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Description: Group 3 UAS are systems, between 55 pounds and 1320 pounds in weight. Provides for development efforts to identify, develop, integrate, and test SOF-unique mission kits.

FY 2019 Plans:
Develop various advanced payloads to support ISR payload requirements in support of SOF missions to include counterterrorism execution order missions. Current Service payloads are insufficient for precision application of SOF mission sets. (OCO Funding)

FY 2020 Base Plans:
N/A

FY 2020 OCO Plans:
Develops various advanced payloads to support ISR payload requirements in support of SOF missions to include counterterrorism execution order missions. Current Service payloads are insufficient for precision application of SOF mission sets.

FY 2019 to FY 2020 Increase/Decrease Statement:

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>	Project (Number/Name) S855 / <i>Unmanned ISR</i>
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
None.					
<p>Title: Group 4 UAS</p> <p>Description: Group 4 UAS are large systems that weigh greater than 1,320 pounds and fly higher than flight level 180. Provides for development efforts to identify, develop, integrate, and test SOF-unique mission kits.</p> <p>FY 2019 Plans: Develop and integrate Beyond Line of Sight (BLOS) wiring harnesses required to operate SOF-unique sensors, VORTEX encrypted data link capability, and Persistent Close Air Support (PCAS) collaborative engagement management capabilities on the SOF Gray Eagle Extended Range UAS. (OCO Funding)</p> <p>FY 2020 Base Plans: Develops, tests, and integrates SOF peculiar emerging technology mission kits, mission payloads, weapons, and modification on MQ-1C UAVs, Ground Control Stations (GCS) and training systems.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.268 million is for Grey Eagle Extended Range SOF Peculiar integration.</p>	-	6.700	6.968	-	6.968
Accomplishments/Planned Programs Subtotals	28.576	38.970	37.377	5.000	42.377

	FY 2018	FY 2019
<p>Congressional Add: Anti-ice for Group 3 and above UAV's</p> <p>FY 2018 Accomplishments: Developed anti-ice solutions for Group 3 and above UAV's</p> <p>FY 2019 Plans: Continue development of anti-ice solutions for Group 3 and above UAV's.</p>	5.000	6.000
Congressional Adds Subtotals	5.000	6.000

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0201UMNISR: <i>Unmanned ISR</i>	69.923	74.708	15.208	8.207	23.415	31.230	23.407	24.335	27.819	Continuing	Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>	Project (Number/Name) S855 / <i>Unmanned ISR</i>

D. Acquisition Strategy

SAFC acquisition strategy is evolutionary and spiral-based for technology insertion and low volume procurement. Leverages a Middle Tier Acquisition strategy to provide rapid development and fielding of dynamic and emergent operational needs. SAFC utilizes existing competed contract vehicles to the maximum extent possible for minor development and integration and modification of Government-Off-The-Shelf/Commercial-Off-The-Shelf equipment. It utilizes limited/full and open competition contracts for major developments.

The Group 1 UAS/EOTACS are evolutionary acquisition programs that deliver, integrate, and qualify SOF-unique mission kits, mission payloads, weapons, air vehicle enhancements, and ground control station upgrades. These capabilities are obtained through a thorough stakeholder's analysis in order to provide well and broadly defined capabilities. A well-defined stakeholder requirement facilitates rapid development and integration of capabilities, thus more rapidly providing capability to the field. Contracting methods depend on the type of development effort. Competitive source selection will be conducted as much as possible. Proprietary considerations may direct some effort to the Original Equipment Manufacturer (OEM).

Group 2 MTUAS are evolutionary acquisition programs that deliver, integrate, and qualify SOF-unique mission kits, mission payloads, weapons, air vehicle enhancements, training systems, and ground control station upgrades. These capabilities are obtained through a middle tier acquisition strategy that includes a thorough stakeholder's analysis to provide well and broadly defined capabilities. A well-defined stakeholder requirement facilitates rapid development and integration of capabilities, thus more rapidly providing capability to the field. Contracting methods depend on the type of development effort. Competitive source selection will be conducted as much as possible. Proprietary considerations may direct some effort to the OEM.

Group 3 UAS are evolutionary acquisition programs that deliver, integrate, and qualify SOF-unique mission kits, mission payloads, weapons, air vehicle enhancements, and ground control station upgrades. These capabilities are obtained through a thorough stakeholder's analysis in order to provide well and broadly defined capabilities. A well-defined stakeholder requirement facilitates rapid development and integration of capabilities, thus more rapidly providing capability to the field. Contracting methods depend on the type of development effort. Competitive source selection will be conducted as much as possible. Proprietary considerations may direct some effort to the OEM.

Group 4 UAS is an evolutionary acquisition program that develops, tests, and integrates SOF peculiar emerging technology mission kits, mission payloads, weapons, and modifications on MQ-1C UAVs, GCS, and training systems. Group 4 UAS provides rapid prototype activities and technology maturation events to increase situational awareness and lethality. Contract types include a mix of cost type and fixed price. Proprietary issues with the aircraft and GCS software as well as aircraft modification considerations dictate sole source contracts. Group 4 UAS leverages service common Contractor Logistics Support (CLS) and developmental activities and contracts for aircraft and ancillary equipment development, improvement, and sustainment.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / Unmanned ISR	Project (Number/Name) S855 / Unmanned ISR
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Special Applications for Contingencies (SAFC) Platform/Payload Development and Integration	MIPR	Smartronix Inc. : Hollywood, MD	-	2.603	Dec 2017	-		-		-		-	0.000	2.603	-
SAFC Platform/Payload Development and Integration	MIPR	Johns Hopkins University : Baltimore, MD	-	1.551	Dec 2017	0.500	Dec 2018	0.500	Dec 2019	-		0.500	Continuing	Continuing	-
SAFC Platform/Payload Development and Integration	MIPR	Cambridge International : Cambridge, MD	-	1.076	May 2018	10.641	May 2019	11.500	Nov 2019	-		11.500	Continuing	Continuing	-
SAFC Platform/Payload Development and Integration	MIPR	NEANY Atlantic Dive Supply : Virginia Beach, VA	-	0.708	Mar 2018	-		-		-		-	0.000	0.708	-
SAFC Heat Coat UAS Anti-Icing	MIPR	Cambridge International : Cambridge, MD	-	4.852	Jun 2018	5.822	Nov 2018	-		-		-	0.000	10.674	-
Classified Program	MIPR	Classified : Classified	2.382	3.000	Nov 2017	-		-		-		-	Continuing	Continuing	-
Group 1 Unmanned Aerial System (UAS)/ Expeditionary Organic Tactical Airborne ISR Capability Set (EOTACS) Payload Integration	C/IDIQ	Various : Various	0.124	0.355	Mar 2018	0.329	Mar 2019	0.279	Mar 2020	-		0.279	Continuing	Continuing	-
Group 2 UAS Platform/ Payloads Development and Integration	MIPR	Various : Various	1.627	4.126	Nov 2018	5.100	Jan 2019	6.020	Mar 2020	-		6.020	Continuing	Continuing	-
Group 3 UAS Platform/ Payload Development and Integration (OCO)	C/TBD	Various : Various	-	-		5.000	Mar 2019	0.000		5.000	Mar 2020	5.000	Continuing	Continuing	-
Group 4 UAS Platform/ Payloads Development and Integration	C/TBD	Various : Various	5.600	-		6.432	Mar 2019	6.681	Mar 2020	-		6.681	Continuing	Continuing	-
Prior Year Effort	Various	Various : Various	4.122	-		-		-		-		-	0.000	4.122	-
Subtotal			13.855	18.271		33.824		24.980		5.000		29.980	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / Unmanned ISR	Project (Number/Name) S855 / Unmanned ISR
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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SAFC Platform/Payload Integration	MIPR	Various : Various	0.600	0.682	Jan 2018	0.527	Jan 2019	0.600	Jan 2020	-		0.600	Continuing	Continuing	-
Group 2 UAS Platform/Payload Support	MIPR	Various : Various	0.617	0.201	Feb 2018	0.100	Feb 2019	0.050	Jan 2020	-		0.050	Continuing	Continuing	-
Subtotal			1.217	0.883		0.627		0.650		-		0.650	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SAFC Sensor Testing, Evaluation and Demonstration	MIPR	Smartertronix Inc. : Hollywood, MD	-	2.426	Mar 2018	-		-		-		-	0.000	2.426	-
SAFC Sensor Testing, Evaluation and Demonstration	MIPR	Johns Hopkins University : Baltimore, MD	-	3.723	Dec 2017	0.205	Dec 2018	0.230	Dec 2019	-		0.230	Continuing	Continuing	-
SAFC Sensor Testing, Evaluation and Demonstration	MIPR	Cambridge International : Cambridge, MD	-	6.139	May 2018	7.223	Nov 2018	7.831	Nov 2019	-		7.831	Continuing	Continuing	-
Group 2 UAS Platform/Payload Test and Evaluation	MIPR	Various : Various	0.825	0.126	Mar 2018	0.496	Feb 2019	1.004	Mar 2020	-		1.004	Continuing	Continuing	-
Group 4 UAS Test and Evaluation	Various	Various : Various Vendors During Integration	0.120	-		0.268	Mar 2019	0.287	Mar 2020	-		0.287	Continuing	Continuing	-
Prior Year	Various	Various : Various	2.374	-		-		-		-		-	0.000	2.374	-
Subtotal			3.319	12.414		8.192		9.352		-		9.352	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command	Date: March 2019
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Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>	Project (Number/Name) S855 / <i>Unmanned ISR</i>
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Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
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
SAFC Sensor Testing, Evaluation and Demonstration Management	MIPR	Various : Various	1.073	1.401	Mar 2018	1.583	Mar 2019	1.615	Mar 2020	-		1.615	Continuing	Continuing	-
SAFC Heat Coat UAS Anti-Icing Contract Administration	MIPR	Cambridge International : Cambridge, MD	-	0.148	Jun 2018	0.178	Nov 2018	-		-		-	0.000	0.326	-
Group 2 UAS Platform/ Payload Management	C/TBD	Various : Various	0.617	0.459	Jan 2018	0.566	Feb 2019	0.780	Mar 2020	-		0.780	Continuing	Continuing	-
Subtotal			1.690	2.008		2.327		2.395		-		2.395	Continuing	Continuing	N/A
Project Cost Totals			20.081	33.576		44.970		37.377		5.000		42.377	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

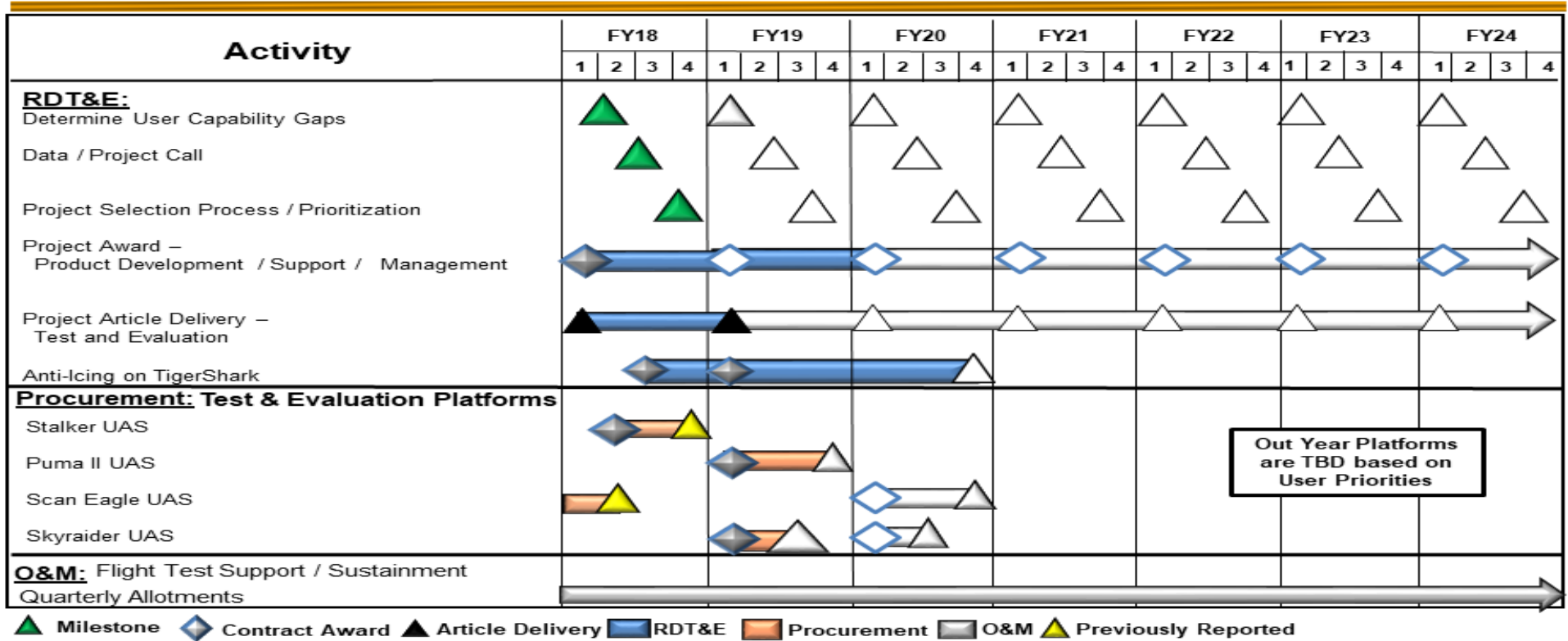
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160434BB / *Unmanned ISR*

Project (Number/Name)
S855 / *Unmanned ISR*

SAFC Schedule



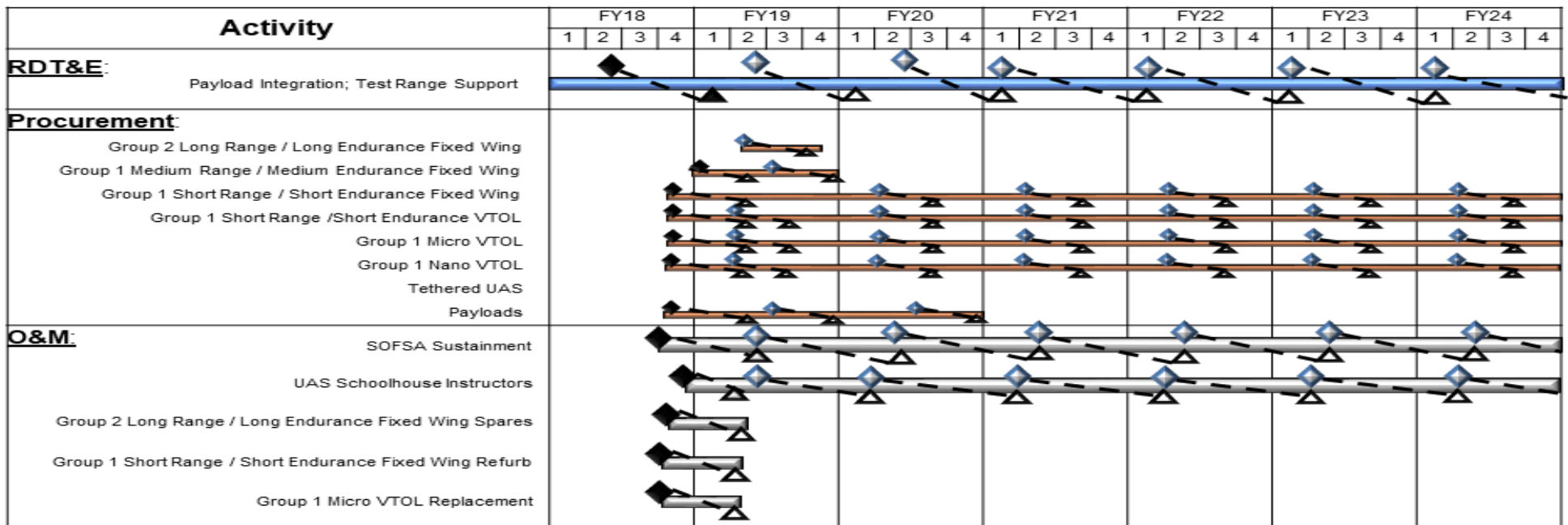
UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>	Project (Number/Name) S855 / <i>Unmanned ISR</i>
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Group 1 UAS/EOTACS Schedule

(Incorporates Group 1 Schedule for FY18-FY19)



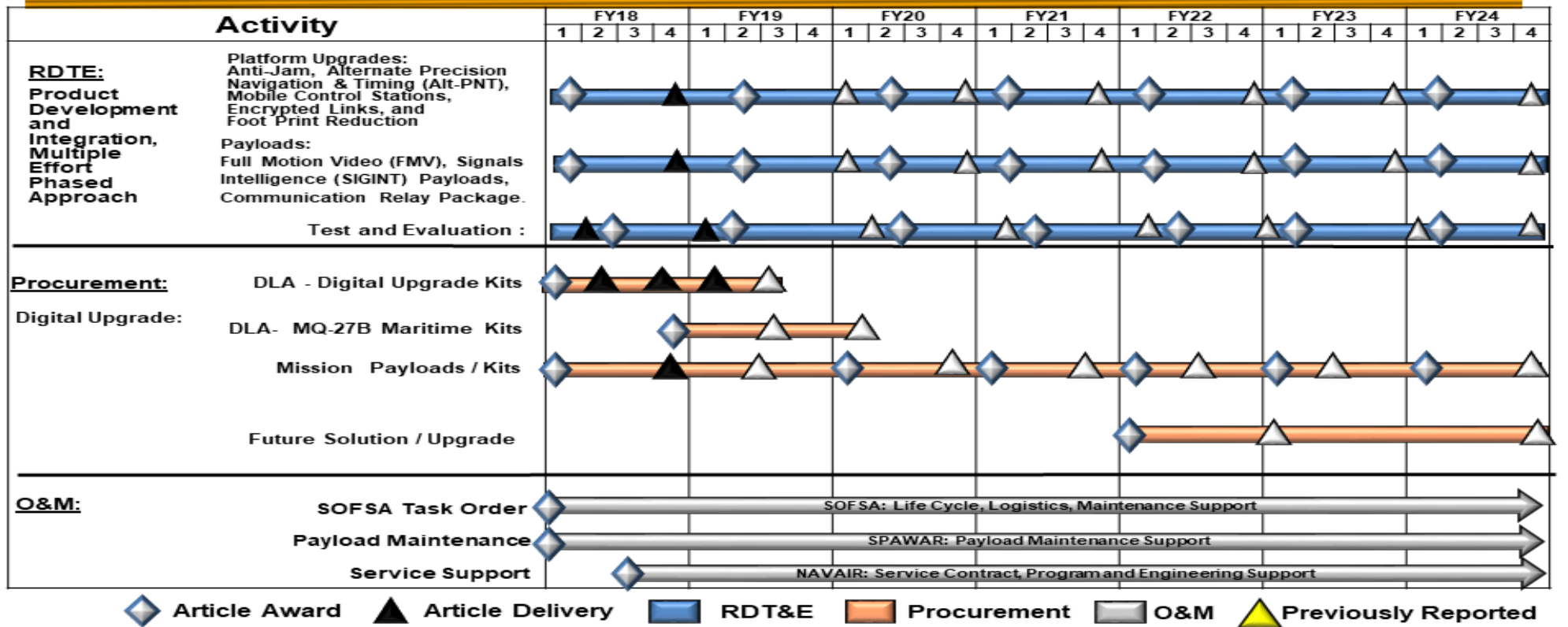
Article Award
 Article Delivery
 RDT&E
 Procurement
 O&M
 Previously Reported

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command Date: March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / Unmanned ISR	Project (Number/Name) S855 / Unmanned ISR
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Group 2 (MTUAS) Schedule

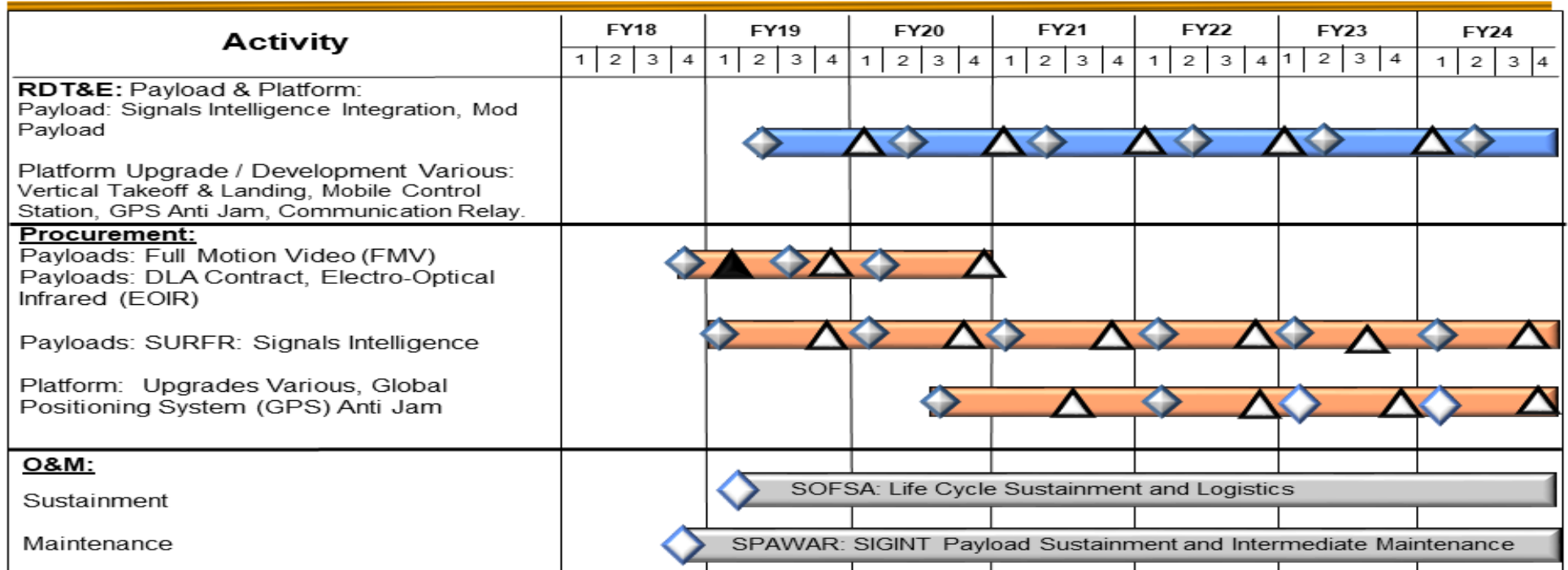


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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>	Project (Number/Name) S855 / <i>Unmanned ISR</i>
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G3UAS Schedule



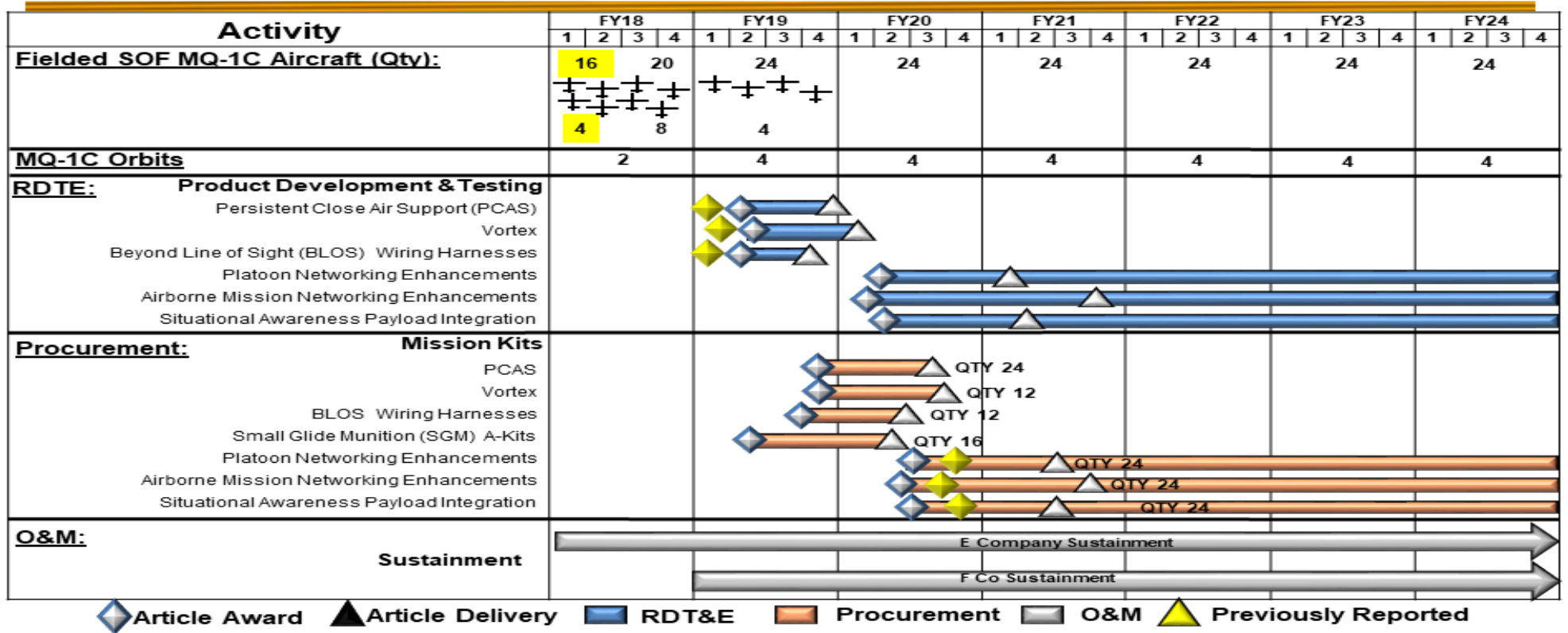
▲ Milestone
 ◆ Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>	Project (Number/Name) S855 / <i>Unmanned ISR</i>
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Group IV Unmanned ISR Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / <i>Unmanned ISR</i>	Project (Number/Name) S855 / <i>Unmanned ISR</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SAFC				
Product Development, Support, and Management	1	2018	4	2024
Test and Evaluation	1	2018	4	2024
Anti-Icing Development on TigerShark	3	2018	4	2020
Group 1 Unmanned Aerial System (UAS)/Expeditionary Organic Tactical Airborne ISR Capability Set (EOTACS)				
Payload Integration; Test Range Support	1	2018	4	2024
Group 2 UAS				
Platform/Payload Development and Integration	1	2018	4	2024
Platform/Payload Test & Evaluation	1	2018	4	2024
Group 3 UAS				
Platform/Payload Development and Integration	1	2019	4	2024
Group 4 UAS				
Persistent Close Air Support (PCAS) Integration	2	2019	4	2019
Vortex Integration	2	2019	1	2020
Beyond Line of Sight (BLOS) wiring harness integration	2	2019	4	2019
Platoon Networking Enhancements	2	2020	1	2021
Airborne Mission Networking Enhancements	1	2020	4	2021
Situational Awareness Sensor Integration	2	2020	2	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160480BB / <i>SOF Tactical Vehicles</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	37.735	2.483	1.846	11.150	-	11.150	9.263	4.191	5.221	4.820	Continuing	Continuing
S910: <i>SOF Tactical Vehicles</i>	37.735	2.483	1.846	11.150	-	11.150	9.263	4.191	5.221	4.820	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for the development and testing of a variety of incremental upgrades to Special Operations Forces (SOF) Vehicles and ancillary equipment. Current SOF tactical vehicles are categorized into Light, Medium, Heavy, and Commercial, and include the following: Light Tactical All-Terrain Vehicles (LTATV), Ground Mobility Vehicles (GMV 1.1), Mine Resistant Ambush Protected (MRAP) vehicles, and Non Standard Commercial Vehicles (NSCV). The SOF mission mandates that SOF vehicles remain technologically superior, operate in multiple environments and be able to meet any threat to provide a maximum degree of survivability.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	2.578	1.846	3.551	-	3.551
Current President's Budget	2.483	1.846	11.150	-	11.150
Total Adjustments	-0.095	0.000	7.599	-	7.599
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.095	-			
• Other Adjustments	-	-	7.599	-	7.599

Change Summary Explanation

Funding:

FY 2018: Decrease of -\$0.095 million is due to the transfer of funds to Small Business Innovative Research/Small Business Technology Research Transfer programs.

FY 2019: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160480BB / <i>SOF Tactical Vehicles</i>
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FY 2020: Increase of \$7.599 million is to incorporate technology insertion into the GMV 1.1 and NSCV programs. Specifically, funding increase in FY20 will allow for the integration and testing of designated Counter Unmanned Aerial Systems (CUAS)/Precision Strike systems on SOF tactical vehicle platforms; Electric GMV 1.1 design to include Engineering Change Proposals (ECPs) and testing; Purpose Built NSCV development from design into testing; and additional Technology Insertion Roadmap (TIR) efforts such as vehicle performance ECPs, armor upgrades, and lightweight vehicle/armor efforts.

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160480BB / <i>SOF Tactical Vehicles</i>				Project (Number/Name) S910 / <i>SOF Tactical Vehicles</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S910: <i>SOF Tactical Vehicles</i>	37.735	2.483	1.846	11.150	-	11.150	9.263	4.191	5.221	4.820	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Family of Special Operations Vehicles (FSOV) project develops, tests, and evaluates SOF Tactical Vehicles and associated modifications. FSOV engages in annual technology insertion efforts, to include rapid prototyping/fielding efforts targeted at ground vehicle capability enhancements across the mobility, survivability, payload, and durability spectrum. The Special Operations Forces (SOF) mission mandates that SOF vehicles remain technologically superior, operate in multiple environments and be able to meet any threat to provide a maximum degree of survivability. The current family of SOF tactical vehicles include: light mobility vehicles, medium mobility vehicles, non-standard commercial vehicles, and heavy mobility vehicles.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: FSOV	2.483	1.846	11.150	-	11.150
Description: Specific efforts include but are not limited to: GMV 1.1 effort which provides for a medium vehicle variant capable of meeting specific requirements of internal aircraft transport on the C/MH-47, engineering costs related to performance, endurance, safety testing, integration and logistical analysis of product samples, and ECPs associated with the NSCV, GMV 1.1, and the LTATV. These ECPs will address any identified safety, reliability, and performance concerns. Finally, funding will be used to support vehicle signature reduction and survivability improvement/lightweight efforts.					
FY 2019 Plans: Continue design/development and integration of ECPs that implement incremental upgrades and improve the design of the LTATV, GMV 1.1, and NSCV. Efforts will include next-generation cards based radio integration design and testing on the GMV 1.1 and NSCV. Complete safety, reliability, performance, and operational testing of multiple variants of NSCV from the new contract.					
FY 2020 Base Plans: Continues design/development and integration of ECPs that implement incremental upgrades and improve the design of the LTATV, GMV1.1, and NSCV. Continues efforts to design and test next generation hand-held & manpack radio (replaces card based radios) integration on the GMV1.1 and NSCV. Designs and tests an electric version of the GMV1.1 allowing a reduced audible signature on future missions with an additional goal of reducing the logistical footprint (less moving parts, no fuel and oils required, etc.). Develops a purpose built NSCV and move the design into testing. This effort will reduce future lifecycle costs and improve capability for SOF operators. Furthermore, FSOV will integrate and test designated Counter-UAS/Precision Strike systems on					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160480BB / <i>SOF Tactical Vehicles</i>	Project (Number/Name) S910 / <i>SOF Tactical Vehicles</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
vehicle platforms to ensure performance of both systems with minimal adverse impacts. Additional technology insertion efforts will be addressed such as ECPs, armor upgrades, and lightweight vehicle/armor efforts.					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Increase of \$9.304M is due to new technology insertion into the GMV 1.1 and NSCV programs. Specifically, funding increase in FY20 will allow for the integration and testing of designated Counter-UAS/Precision Strike systems onto SOF tactical vehicles; Hybrid/Electric GMV 1.1 design to include ECPs and testing; Purpose Built NSCV development from design into testing; and additional Technology Insertion Roadmap (TIR) efforts such as vehicle performance ECPs, armor upgrades, and lightweight vehicle/armor efforts.					
Accomplishments/Planned Programs Subtotals	2.483	1.846	11.150	-	11.150

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PROC/0204TACVEH: <i>Tactical Vehicles</i>	110.271	145.499	77.832	2.990	80.822	42.496	33.566	34.159	34.845	Continuing	Continuing

Remarks

D. Acquisition Strategy
Apply SOF-Peculiar modifications to service common or Commercial Off The Shelf (COTS) vehicles whenever possible. Otherwise, incorporate purpose-built, Non-Developmental Item, or modified COTS vehicles if/when service solution is unavailable.

E. Performance Metrics
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160480BB / <i>SOF Tactical Vehicles</i>	Project (Number/Name) S910 / <i>SOF Tactical Vehicles</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FSOV GMV 1.1 Capability Enhancements / ECP Development	Various	Various : Various	12.285	0.833	Sep 2018	0.336	Feb 2019	2.000	Mar 2020	-		2.000	Continuing	Continuing	-
FSOV NSCV Capability Enhancements / ECP Development	Various	Various : Various	0.867	0.289	Jul 2018	0.335	Apr 2019	3.250	Jan 2020	-		3.250	Continuing	Continuing	-
FSOV LTATV Capability Enhancements / ECP Development	Various	Various : Various	0.920	-		-		0.500	Nov 2019	-		0.500	Continuing	Continuing	-
FSOV GMV 1.1 and NSCV Survivability Enhancement/ Improvement Efforts	Various	Various : Various	0.033	0.938	Nov 2017	0.200	Jun 2019	1.250	Nov 2019	-		1.250	Continuing	Continuing	-
FSOV GMV 1.1 Capability Enhancements / ECP Development Overseas Contingency Operations (OCO)	Various	Various : Various	-	-		0.725	Jun 2019	-		-		-	0.000	0.725	-
Prior Year Funding	Various	Various : Various	0.385	-		-		-		-		-	0.000	0.385	-
Subtotal			14.490	2.060		1.596		7.000		-		7.000	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Funding	Various	Various : Various	5.522	-		-		-		-		-	0.000	5.522	-
Subtotal			5.522	-		-		-		-		-	0.000	5.522	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GMV 1.1 Test and Evaluation Validation	Various	Various : Various	0.339	-		-		2.000	Jun 2020	-		2.000	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160480BB / <i>SOF Tactical Vehicles</i>	Project (Number/Name) S910 / <i>SOF Tactical Vehicles</i>
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FSOV Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24			
	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
RDT&E																												
Product Development (GMV 1.1, LTATV, NSCV)	[RDT&E Schedule Profile: Product Development (GMV 1.1, LTATV, NSCV)]																											
Test & Evaluation (GMV 1.1, LTATV, NSCV)	[RDT&E Schedule Profile: Test & Evaluation (GMV 1.1, LTATV, NSCV)]																											
Procurement																												
GMV 1.1 (w/C4 A-Kit) Procure/Field	[Procurement Schedule Profile: GMV 1.1 (w/C4 A-Kit) Procure/Field]																											
NSCV (w/C4 A-Kit) Procure/Field	[Procurement Schedule Profile: NSCV (w/C4 A-Kit) Procure/Field]																											
O&M																												
GMV 1.0 Sustainment	[O&M Schedule Profile: GMV 1.0 Sustainment]																											
GMV 1.1 Sustainment	[O&M Schedule Profile: GMV 1.1 Sustainment]																											
LTATV Procure/Field/ Sustain	[O&M Schedule Profile: LTATV Procure/Field/ Sustain]																											
NSCV Sustainment	[O&M Schedule Profile: NSCV Sustainment]																											
MRAP Enduring Requirement (HST/APS) (280 USA SOC/WARCOM)	Sustained by the Services; SOF-P sustained by SOCOM																											
MRAP RSM/OIR/EA Sustainment (TPE sustained w/OCO)	Divest as Operational Environment Dictates																											

Production Award	RDT&E Award	Major Event	Previously Reported	RDT&E	Procurement	O&M	OCO
FOC - Full Operational Capability	FRP DO - Full Rate Production Delivery Order	GMV - Ground Mobility Vehicle	IOC - Initial Operational Capability	IOT&E - Initial Operational Test & Evaluation	IROAN - Inspect & Repair Only As Necessary	LTATV - Light Tactical All Terrain Vehicle	LRIP DO - Low Rate Initial Production Delivery Order
							MRAP - Mine Resistant Ambushed Protected
							MSC - Milestone C
							NSCV - Non Standard Commercial Vehicle
							SOF-P - Special Operation Force Peculiar

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160480BB / <i>SOF Tactical Vehicles</i>	Project (Number/Name) S910 / <i>SOF Tactical Vehicles</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Family of Special Operations Vehicles (FSOV)</i>				
Product Development (GMV 1.1, LTATV, NSCV)	1	2018	4	2024
Test & Evaluation (GMV 1.1, LTATV, NSCV)	1	2018	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	402.384	66.280	42.471	72.626	-	72.626	61.921	54.438	73.393	78.581	Continuing	Continuing
S0417: <i>Underwater Systems</i>	369.317	58.229	26.897	45.205	-	45.205	50.475	48.369	64.259	69.234	Continuing	Continuing
S1684: <i>Surface Craft</i>	33.067	8.051	15.574	27.421	-	27.421	11.446	6.069	9.134	9.347	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for engineering and manufacturing development (EMD) of Special Operations Forces (SOF) Surface and Undersea Mobility platforms. This program element also provides for pre-acquisition activities to quickly respond to new requirements for SOF surface and undersea mobility, looking at multiple alternatives to include cross-platform technical solutions, service-common solutions, Commercial-Off-The-Shelf technologies, and new development efforts. Middle-Tier Acquisition (2016 NDAA, Section 804) to accommodate rapid prototyping, may be utilized.

The Underwater Systems project provides for EMD of combat submersibles, SOF operator diving systems, underwater support systems, and underwater equipment. This project also provides for pre-acquisition activities (material solutions analysis, advanced component, prototype development, and exploitation of emerging technology opportunities to deliver enhanced capabilities) to respond to emergent requirements. These submersibles, equipment, and diving systems are used by SOF in the conduct of infiltration/extraction, personnel/material recovery, hydrographic/inland reconnaissance, beach obstacle clearance, underwater ship attack, and other missions. The capabilities of the submersible systems, diving systems, and unique equipment provide small, highly trained forces the ability to successfully engage the enemy and conduct clandestine operations associated with SOF maritime missions.

The Surface Craft project provides for EMD of medium and heavy surface combatant craft, combatant craft mission equipment, and pre-planned product improvement and technology insertion engineering changes to meet the unique requirements of SOF. This project element also provides for pre-acquisition activities (material solutions analysis, advanced component development and prototypes) to quickly respond to new requirements for maritime craft and subsystems. The craft capabilities and unique equipment provide small, highly trained forces the ability to successfully engage the enemy and conduct operations associated with SOF maritime missions.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	42.315	42.471	31.865	-	31.865
Current President's Budget	66.280	42.471	72.626	-	72.626
Total Adjustments	23.965	0.000	40.761	-	40.761
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	14.100	-			
• Congressional Directed Transfers	12.800	-			
• Reprogrammings	-0.402	-			
• SBIR/STTR Transfer	-2.533	-			
• Other Adjustments	-	-	40.761	-	40.761

Change Summary Explanation

Funding:

FY2018: Net increase of \$23.965 million is due to Congressional Add of \$14.100 million for the Dry Combat Submersible Program (DCS) depressurization pump, signature management, modeling and simulation, and submarine interoperability risk mitigation efforts, an increase of \$12.800 million for the congressional requested transfer into DCS for the completion of manufacturing and acceptance testing of DCS 1 vessel and development of Mid-Water Column Lock-In/Lock-out (MWC LI/LO). A decrease of -\$2.533 million to Small Business Innovation Research/Small Business Technology Transfer Programs, and a decrease of -\$0.402 million for higher command priorities.

FY 2019: None.

FY2020: Net Increase of \$40.761 million due to an increase of \$17.163 million to commence the Undersea Craft Mission Equipment (UCME), which supports Technology Insertion Roadmaps including technology development to support Assured Access and undersea clandestine insertion. An increase of \$5.350 million to support active ride control and digital radar for Combatant Craft Mission Equipment (CCME), an increase of \$13.537 million to continue the development, design, and integration of Maritime Precision Engagement (MPE), an increase of \$2.986 million for development of DCS Next, and an increase of \$1.725 million for development across undersea and surface programs.

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>				Project (Number/Name) S0417 / <i>Underwater Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S0417: <i>Underwater Systems</i>	369.317	58.229	26.897	45.205	-	45.205	50.475	48.369	64.259	69.234	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for engineering and manufacturing development of combat underwater submersibles, Special Operations Forces (SOF) operator diving systems, underwater support systems, and underwater equipment. This project also provides for pre-acquisition activities (materiel solutions analysis, advanced component development and prototypes) to respond to emergent requirements. Middle-Tier acquisitions to accommodate rapid prototyping may be utilized. These submersibles, equipment, and diving systems are used by SOF in the conduct of infiltration/extraction, personnel/material recovery, hydrographic/inland reconnaissance, beach obstacle clearance, underwater ship attack, and other missions. The capabilities of the submersible systems, diving systems, and unique equipment provides small, highly trained forces the ability to successfully engage the enemy and conduct clandestine operations associated with SOF maritime missions.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Shallow Water Combat Submersible (SWCS)	1.378	1.247	1.395
Description: This sub-project provides for the design, development, test, manufacturing and sustainment of one Engineering Development Model (EDM) and ten production units to replace the legacy MK 8 MOD 1 Seal Delivery Vehicle (SDV) system. SWCS is a free-flooding combat submersible mobility platform suitable for transporting and deploying SOF and their payloads for a variety of SOF missions. SWCS will be deployable from a Dry Deck Shelter (DDS), surface ships, and land. The SWCS system includes the SWCS vehicle and SWCS support Equipment, comprised of Mission Support Equipment (MSE), Pack-Up Kit (PUK), and Transportation and Handling (T&H). It also includes integration efforts with the current Dry Deck Shelter (DDS) and development of product improvements accomplished throughout the lifecycle of the system.			
FY 2019 Plans: Continue pre-planned product improvements (P3I) and complete Initial Operation Test and Evaluation (IOT&E) and commence Follow-on Operational Test & Evaluation (FOT&E). P3I enhancements include, but are not limited to, Chase Boat Situational Awareness (CBSA), diver thermal, and Hydro-Acoustic Information Link (HAIL) II.			
FY 2020 Plans: Continues P3I. P3I enhancements include, but are not limited to, Acoustic and Radio Frequency indicators & warning capabilities, Electro-Optical (EO)/Infrared (IR) capability, and Self recovery.			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.148 million is for additional enhancements.			
Title: Dry Combat Submersible (DCS)	40.309	15.024	19.209

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S0417 / <i>Underwater Systems</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
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Description: This sub-project provides for the advanced development, engineering, manufacturing, and testing efforts for a surface-launched, dry, diver lock-in/lock-out vessel capable of inserting and extracting SOF and/or payloads into denied areas. USSOCOM awarded an Engineering and Manufacturing Development (EMD) contract in FY 2016 to produce one production representative vessel, with options to produce two additional vessels. USSOCOM is testing one submersible prototype to validate test methodologies, commercial classification, and SOCOM safety certification processes and will continue to use the prototype to evaluate capability enhancing technologies and reduce risk in the DCS program. This project includes funding for enhanced warfighter capabilities such as Mid-Water Column Lock-In/Lock-Out, depressurization pump, and submarine interoperability. Funding begins in FY 2020 for an EMD effort for submarine interoperable DCS-Next vessel. This program was increased by FY 2018 congressional add.

FY 2019 Plans:
Continue the incorporation of engineering changes to increase the operational capability of DCS. Complete government acceptance testing and initiate developmental testing and operational testing on DCS #1.

FY 2020 Plans:
Continues the incorporation of engineering changes to increase the operational capability of DCS. Complete operational testing on DCS #1. Begin DCS-Next EMD efforts.

FY 2019 to FY 2020 Increase/Decrease Statement:
Increase of \$4.185 million is due to DCS-Next development (\$2.986 million) and execution of DCS #1 operational testing (\$1.199 million).

Title: Dry Deck Shelter (DDS) Modernization	12.800	8.564	5.278
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Description: This sub-project provides for the pre-planned product improvements, testing, and integration of specialized underwater systems to meet the unique requirements of SOF, and compatibility with the submarine fleet. The current DDS is a certified diving system which attaches to modified host submarines that provides for insertion of SOF forces and platforms. Funding supports product improvements to the current DDS, as well as associated diver equipment for in-service submarine support systems, unmanned underwater vehicles, and follow on development efforts for future SOF payloads.

FY 2019 Plans:
Continue product improvements necessary to extend useful life of the DDS, transitions from Submarine Ship Guided Missile Nuclear (SSGN) to Virginia Class host platform, and increases capacity to carry larger payloads.

FY 2020 Plans:

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019		
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S0417 / <i>Underwater Systems</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Continues product improvements necessary to extend useful life of the DDS, transitions from SSGN to Virginia Class host platform, and increases capacity to carry larger payloads. FY 2019 to FY 2020 Increase/Decrease Statement: Decrease of \$3.286 million is a result of completing the development of the Modernized DDS first article.				
Title: SOF Combat Diving Description: This sub-project is a Middle Tier of Acquisition designated program which provides for the development, testing, and rapid fielding and prototyping of SOF peculiar diving equipment providing the SOF combat diver the ability to engage the enemy and conduct operations. SOF Combat Diving will support the SDV, SWCS, and DCS with the conduct of infiltration/extraction, material recovery, underwater ship attack, beach clearance, and other missions. Technologies include, but are not limited to, commercial and developmental life support, maneuverability and propulsion, diver navigational accuracy and situation awareness, environmental protection, and communications between dive teams as well as between divers and external vessels/craft. FY 2019 Plans: Continue development, to include test and evaluation for environmental protection, navigation, communication, and propulsion. FY 2020 Plans: Continues development, to include test and evaluation for environmental protection, navigation, communication, and propulsion. FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$0.098 million is due to miscellaneous adjustments.		3.742	2.062	2.160
Title: Undersea Craft Mission Equipment (UCME) Description: UCME provides a rapid response capability to support SOF underwater craft and diver systems, subsystems, and their emerging requirements. UCME provides technology refresh efforts to correct system deficiencies, improve asset life, and enhance mission capability to leverage and exploit emerging technologies within the maritime Special Operations Forces undersea capability portfolio. FY 2020 Plans: Begin development of undersea survivability enhancements; underwater and maritime domain communications; enhanced situational awareness and Intelligence, Surveillance, and Reconnaissance (ISR); unique power and energy capabilities; other capability enhancements and enabling technologies for assured access and Undersea Clandestine Insertion (UCI), which supports the National Defense Strategy (NDS). Throughout FY2019 PEO-M will be identifying appropriate rapid acquisition pathways to include: streamlined Federal Acquisition Regulation (FAR) contracting with existing or planned Indefinite Delivery/ Indefinite Quantity (IDIQ), Basic Ordering Agreement, University Affiliated Research Center (UARC), and Federally Funded		0.000	-	17.163

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S0417 / <i>Underwater Systems</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Research and Development Centers (FFRDC) contracts; and use Non-FAR Based Acquisition Authorities and Other Transaction Authority agreements to allow immediate execution of FY20 funds when they become available.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Increase of \$17.163 million is to support undersea Technology Insertion Roadmaps and development of undersea survivability enhancements; underwater and maritime domain communications; enhanced situational awareness and ISR; unique power and energy capabilities; other capability enhancements and enabling technologies for assured access and UCI, which supports the National Defense Strategy (NDS).			
Accomplishments/Planned Programs Subtotals	58.229	26.897	45.205

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0210US: <i>Underwater Systems</i>	78.831	132.023	58.991	-	58.991	25.897	19.245	15.496	15.844	Continuing	Continuing

Remarks

D. Acquisition Strategy

- Middle-Tier Acquisition to accommodate rapid prototyping, may be utilized.
- SWCS used full and open competition with a down select to a single contractor. The full spectrum of contracting activities are being utilized for any integration and subsystem requirements, using existing contracts where appropriate, government agencies, and new contracts as necessary.
- DCS used full and open competition, resulting in the selection of a single prime contractor. A Fixed Price Incentive Firm Target contract for a production representative system was awarded in FY 2016 with options to procure one vessel in FY 2018 and one in FY 2019. DCS-Next is planned to be a full and open competition beginning in FY 2020 with market research.
- The DDS is currently in sustainment through a maintenance and service contract which was competitively sourced, and awarded for a 5-year period. The modernization and engineering/change efforts for the six DDS in inventory are executed utilizing the existing services contract.
- SOF Combat Diving is designated a Middle-Tier acquisition program which supports rapid prototyping and is executed using existing contracts, government agencies, and new contracts competitively selected as appropriate.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0400 / 7	PE 1160483BB / <i>Maritime Systems</i>	S0417 / <i>Underwater Systems</i>

• UCME will use streamlined FAR contracting with existing or planned IDIQ, Blanket Order Agreement (BOA), UARC, and FFRDC contracts and use Non-FAR Based Acquisition Authorities and Other Transaction Authority (OTA) agreements, where appropriate. UCME focuses on developing specific technology for maturity, marinization and compatibility for transition to SOF undersea craft. Integration and procurement are managed by the individual undersea craft Programs.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S0417 / <i>Underwater Systems</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Shallow Water Combat Submersible (SWCS) Engineering Changes	C/Variou	Various : Various	-	-		1.047	Feb 2019	1.191	Feb 2020	-		1.191	Continuing	Continuing	-
Dry Combat Submersible (DCS) Technologies Government Furnished Equipment	C/Variou	Various : Various	37.753	3.000	Nov 2017	0.100	Nov 2018	-		-		-	Continuing	Continuing	-
DCS Engineering & Manufacturing Development	C/FPIF	Lockheed Martin : Riviera Beach, FL	52.861	12.997	Nov 2017	3.107	Dec 2018	-		-		-	0.000	68.965	-
DCS Enhancements / P3I Changes	C/Variou	Various : Various	3.135	6.283	Mar 2018	1.998	Nov 2018	4.589	Nov 2019	-		4.589	Continuing	Continuing	-
DCS Depressurization Pump/Signature Management/Modeling and Simulation/Risk Mitigation (Congressional add)	C/Variou	Various : Various	-	14.100	Mar 2018	-		-		-		-	0.000	14.100	-
DCS Next	C/Variou	Various : Various	-	-		-		2.986	Feb 2020	-		2.986	Continuing	Continuing	-
Dry Deck Shelter (DDS) Modernization	C/CPFF	Oceaneering International Inc. Marine Services Division : Chesapeake, VA	14.549	12.450	Jan 2018	8.242	Jan 2019	4.950	Jan 2020	-		4.950	Continuing	Continuing	-
SOF Combat Diving-Unique Diving Technologies	Various	Various : Various	1.870	3.072	Nov 2017	1.379	Nov 2018	1.464	Nov 2019	-		1.464	Continuing	Continuing	-
Undersea Craft Mission Equipment (UCME) Survivability, Navigation, C4ISR/SA, Power & Energy enhancements and other assured access technologies	C/Variou	Various : Various	-	-		-		16.360	Mar 2020	-		16.360	Continuing	Continuing	-
Prior Year Funding	Various	Various : Various	202.681	-		-		-		-		-	0.000	202.681	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S0417 / <i>Underwater Systems</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			312.849	51.902		15.873		31.540		-		31.540	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Funding	Various	Various : Various	9.094	-		-		-		-		-	0.000	9.094	-
Subtotal			9.094	-		-		-		-		-	0.000	9.094	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SWCS	Various	COM OPTEVFOR / JHU-APL : Norfolk, VA / Laurel, MD	1.814	1.378	Nov 2017	0.200	Nov 2018	0.204	Nov 2019	-		0.204	Continuing	Continuing	-
DCS	C/Various	NAVSEA / CRANE : Crane, IN	10.306	1.525	Nov 2017	7.448	Nov 2018	9.254	Nov 2019	-		9.254	Continuing	Continuing	-
SOF Combat Diving	Various	Various : Various	0.630	0.500	Jun 2018	0.510	Mar 2019	0.520	Oct 2019	-		0.520	Continuing	Continuing	-
UCME	C/Various	Various : Various	-	-		-		0.275	Jun 2020	-		0.275	Continuing	Continuing	-
Prior Year Funding	Various	Various : Various	9.320	-		-		-		-		-	0.000	9.320	-
Subtotal			22.070	3.403		8.158		10.253		-		10.253	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DCS	Various	Booz Allen Hamilton : Tampa, FL	14.644	2.404	Nov 2017	2.371	Apr 2019	2.380	Apr 2020	-		2.380	Continuing	Continuing	-
DDS	Various	NAVSEA : Washington, DC	1.329	0.350	Jan 2018	0.322	Jan 2019	0.328	Jan 2020	-		0.328	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

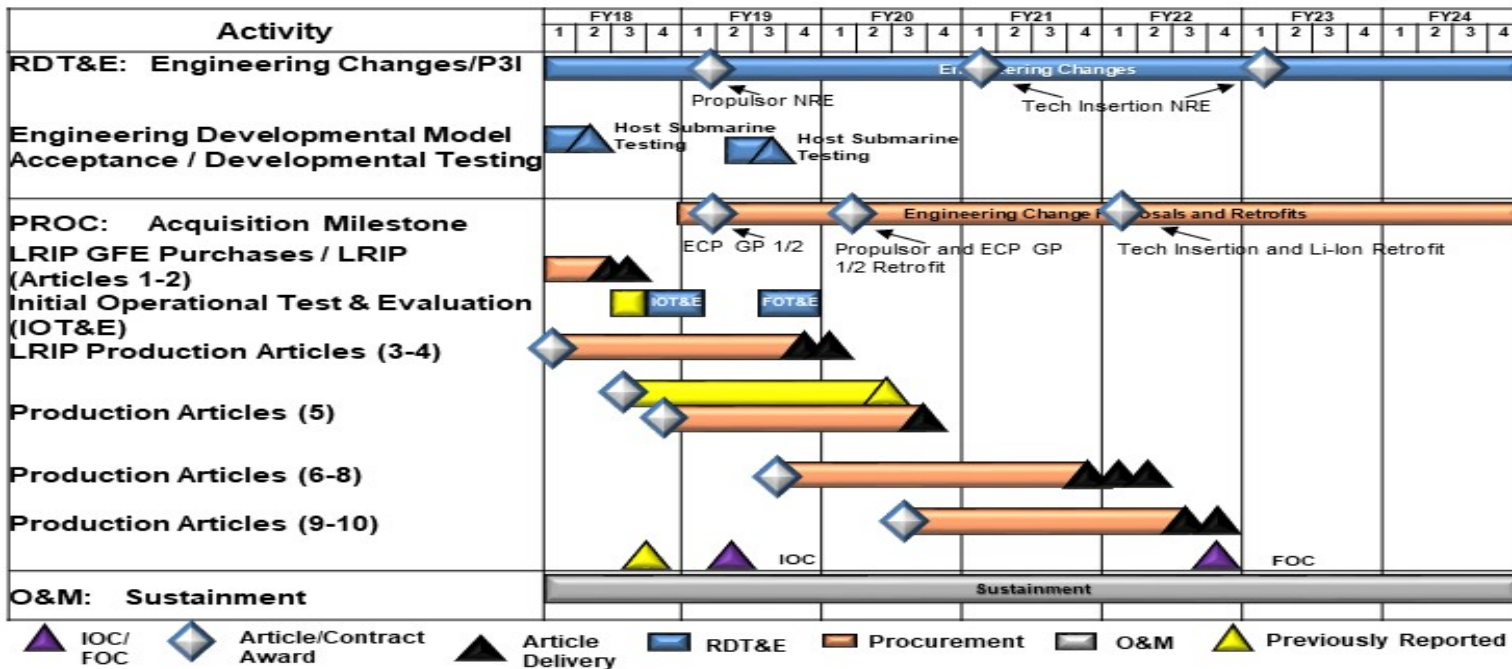
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S0417 / Underwater Systems

Shallow Water Combat Submersible Schedule

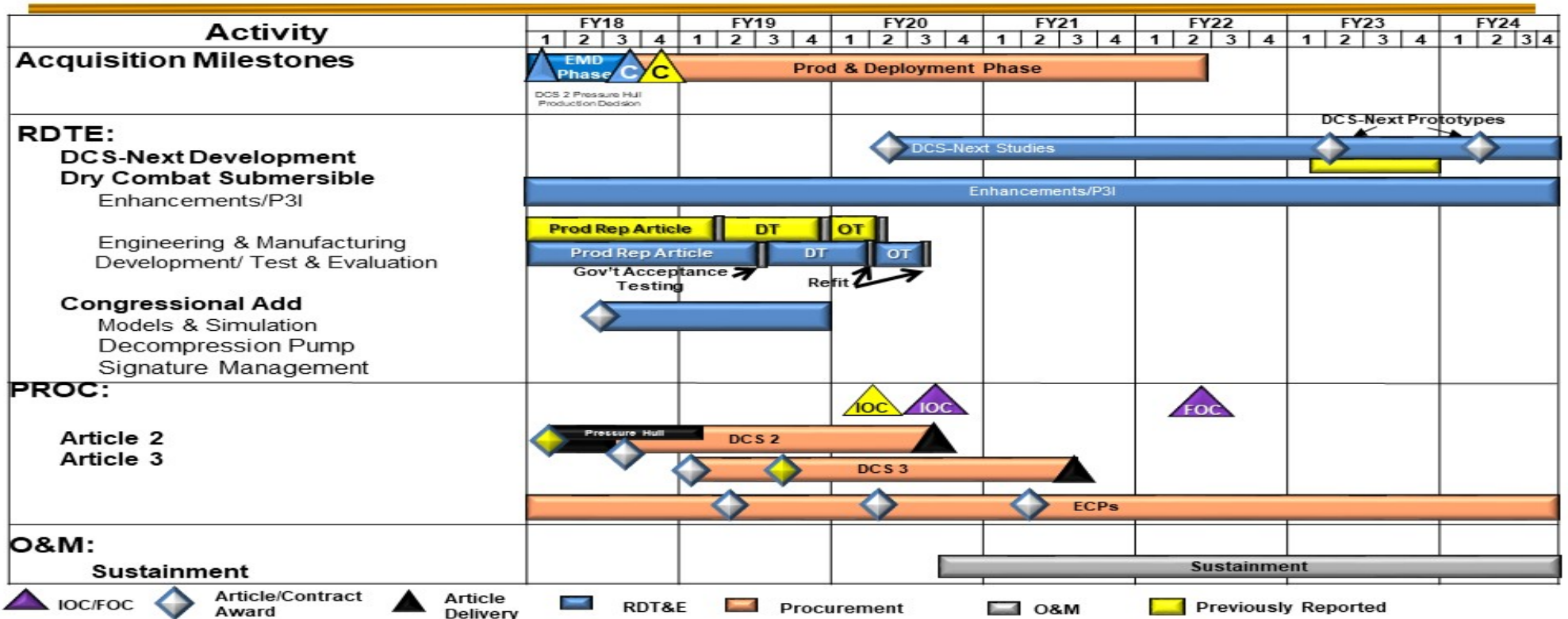


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S0417 / Underwater Systems

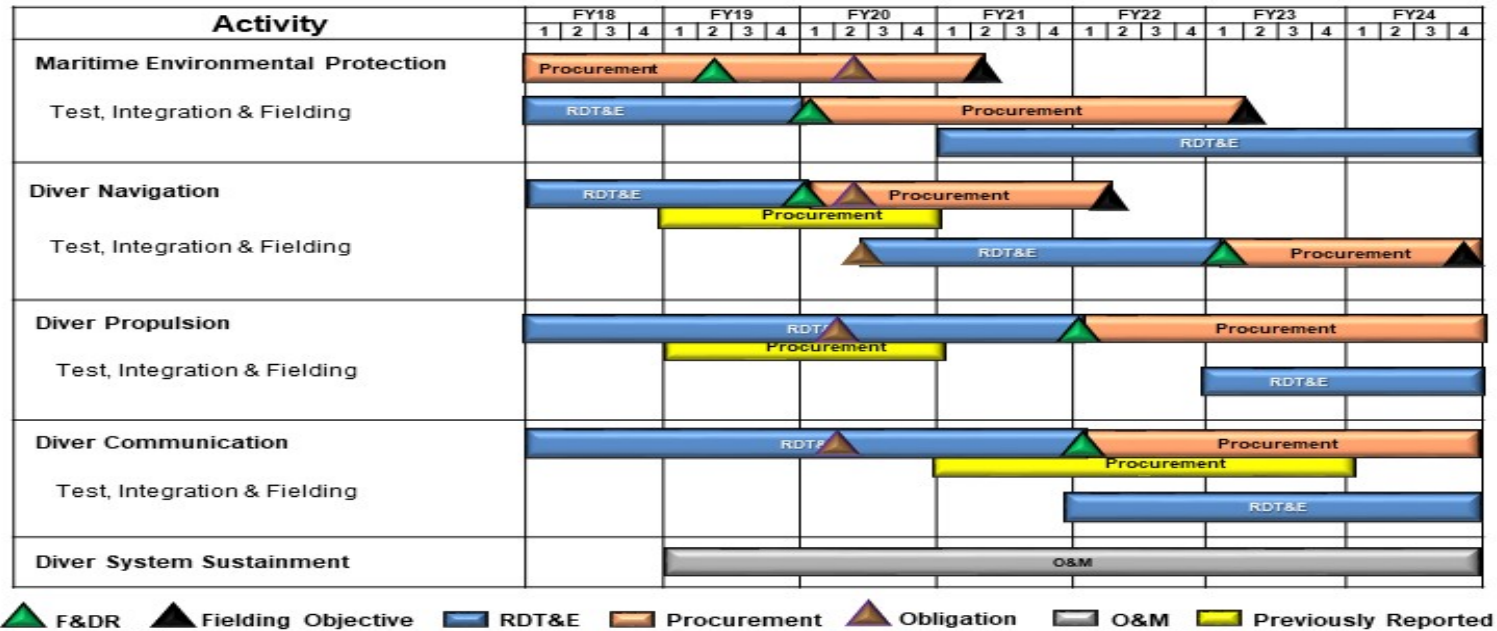
Dry Combat Submersible



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S0417 / <i>Underwater Systems</i>

SOF Combat Diving Schedule

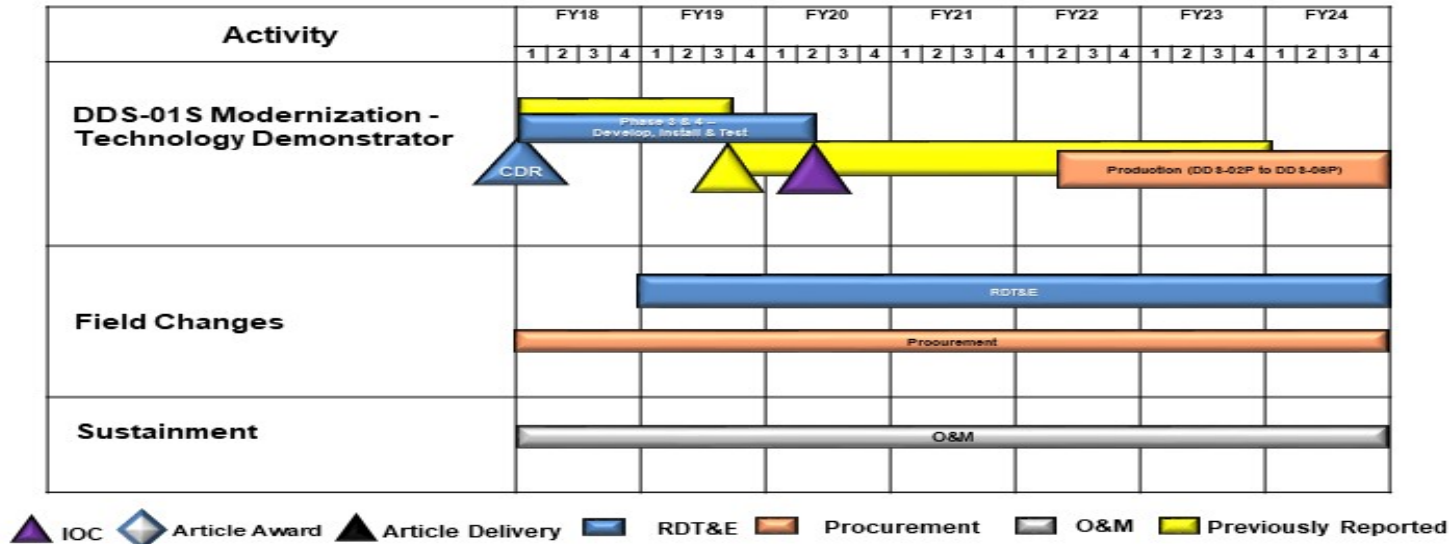


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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S0417 / <i>Underwater Systems</i>
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Dry Deck Shelter Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S0417 / Underwater Systems

UCME Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23				FY24							
	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				
Enhanced Maritime Navigation																																
Enhanced Maritime C4ISR/SA																																
SOF Maritime Survivability																																
SOF Maritime Power & Energy (P&E)																																
Other Assured Access Technologies																																

▲ IOC
 ◆ Article Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported
 ★ Transitioned/Completed

NOTE: ALL UCME Procurements will be accomplished in program lines

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S0417 / <i>Underwater Systems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Shallow Water Combat Submersible</i>				
Enhancements/ P3I	1	2018	4	2024
Engineering Development Model Acceptance	1	2018	2	2018
Developmental Test	2	2019	3	2019
<i>Dry Combat Submersibles</i>				
Engineering and Manufacturing Development Phase	1	2018	3	2018
Milestone C	3	2018	3	2018
DCS-Next	2	2020	4	2024
Enhancements/ P3I	1	2018	4	2024
Production Representative Article	1	2018	2	2019
Developmental Test and Evaluation	2	2019	1	2020
Operational Test and Evaluation	1	2020	3	2020
<i>Dry Deck Shelter Modernization</i>				
Phase 3 & 4 Development	1	2018	2	2020
Critical Design Review	1	2018	1	2018
Field Changes	1	2019	4	2024
<i>SOF Combat Diving</i>				
Maritime Environmental Protection Rapid Prototyping, Test, and Integration	1	2018	4	2024
Diver Navigation Rapid Prototyping, Test, and Integration	1	2018	1	2023
Diver Propulsion Rapid Prototyping, Test, and Integration	1	2018	4	2024
Diver Communication Rapid Prototyping, Test, and Integration	1	2018	4	2024
<i>Maritime Technology Transition & Exploitation (MTTE)</i>				
Enhanced Maritime Navigation	2	2020	4	2024

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S0417 / <i>Underwater Systems</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Enhanced Maritime C4ISR/SA	2	2020	3	2024
SOF Maritime Survivability	3	2020	4	2024
SOF Maritime Power & Energy (P&E)	3	2020	4	2024
Other Assured Access Technologies	2	2020	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command										Date: March 2019		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>				Project (Number/Name) S1684 / <i>Surface Craft</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S1684: <i>Surface Craft</i>	33.067	8.051	15.574	27.421	-	27.421	11.446	6.069	9.134	9.347	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for engineering and manufacturing development of medium and heavy surface combatant craft, combatant craft mission equipment, and pre-planned product improvement (P3I) and technology insertion engineering changes to meet the unique requirements of Special Operations Forces (SOF). This project also provides for pre-acquisition activities (materiel solutions analysis, advanced component development and prototypes) to quickly respond to new requirements for maritime craft and subsystems Middle-Tier acquisition to accommodate rapid prototyping, may be utilized. The craft capabilities and unique equipment provide small, highly trained forces the ability to successfully engage the enemy and conduct operations associated with SOF maritime missions.

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

	FY 2018	FY 2019	FY 2020
Title: Combatant Craft Medium (CCM) Mk 1	2.749	0.788	2.917
Description: This sub-project is a semi-enclosed multi-mission combatant craft for platoon-size maritime mobility in maritime denied environments. It is multi-mission capable, including Maritime Interdiction, Insert / Extract, and Visit, Board, Search, and Seizure (VBSS) Operations. CCM is Naval Special Warfare's (NSW) craft-of-choice for long-range, high-payload SOF mobility operations in denied environments up to high threat. CCM has NSW's best Iron Triangle: 40 knot (kt) speed; 4 crew + 19 passengers (pax) / 10,000 pound (lb) payload; and 600 nautical miles (nm) range. CCM Mk 1 payload capacity enables inclusion of shock mitigating seats, which is critical for ride quality, operator tactical readiness, and operator health. At 60 feet long, CCM is C-17 / C5 transportable and can launch/recover by well deck or shore based trailer.			
FY 2019 Plans: Continue integration of Combatant Craft Forward Looking Infrared (CCFLIR2), Tactical Operations Center Intercommunications System (TOCNET) Intercommunications System and Joint Threat Warning System (JTWS). Begins integration of Threat Awareness System (TAS).			
FY 2020 Plans: Continues integration of TAS. Begin survivability enhancements, MK 50 integration, and Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance, and Reconnaissance (C5ISR) upgrades.			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$2.129 million was transferred to more accurately reflect execution plan and continue integration of TAS.			
Title: Combatant Craft Heavy (CCH)	1.260	0.885	3.956
Description: This sub-project represents a family of solutions that provides platoon-size maritime surface mobility. The current CCH is the Sea, Air, Land Insertion, Observation, and Neutralization (SEALION) craft. SEALION is a fully-enclosed, climate-			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S1684 / <i>Surface Craft</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020
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<p>controlled, semi-submersible craft that operates in denied environments up to high-threat. SEALION is NSW's most versatile and survivable combatant craft and the craft-of-choice for sensitive maritime intelligence, surveillance, and reconnaissance missions. Iron Triangle: 40 kt speed; 7 crew + 12 pax / 3,300 lb payload; and 400 nm range. SEALION payload capacity enables inclusion of shock mitigating seats, which is critical for ride quality, operator tactical readiness, and operator health. At 77+ feet long, SEALION is C-17/C-5 transportable and can launch/recover by well deck or shore based mobile travel lift or crane.</p> <p>FY 2019 Plans: Complete CCFLIR2 integration, continues development and integration of upgraded satellite communication (SATCOM) antennas, development of CCH MK2, and integration of TAS.</p> <p>FY 2020 Plans: Continues development and integration of upgraded SATCOM antennas and begin design and development of tech data package for CCH MK2.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$3.071 million was transferred to more accurately reflect execution plan and begin design and development of tech data package for CCH MK2</p>			
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<p>Title: Combatant Craft Mission Equipment (CCME)</p> <p>Description: This sub-project provides a rapid response capability to support SOF combatant craft systems, subsystems, and their emerging requirements. CCME provides technology refresh efforts to correct system deficiencies, improve asset life, and enhance mission capability. Demonstrations and modifications may be made to support emerging capability enhancements such as, but not limited to, conformal antennas, identification friend-or-foe capabilities, enhanced communications, weapon integration, software refresh, and navigation subsystems in support of future missions. Solutions to these emerging requirements may be commercial-off-the-shelf leveraged from other government agencies, or new solutions.</p> <p>FY 2019 Plans: Continue evaluation of candidate solutions for technology development including shock mitigation, family of antennas, situational awareness, and Tactical Mission Networking. Begin evaluation of candidate solutions for enhanced Global Positioning System. Transitions Maritime Precision Engagement. Complete Link 16 Test and Integration.</p> <p>FY 2020 Plans: Continues evaluation of candidate solutions for technology development including shock mitigation, family of antennas, situational awareness, Tactical Mission Networking, and enhanced Global Positioning System. Begins evaluation of candidate</p>	0.592	1.125	6.490
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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S1684 / <i>Surface Craft</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020
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solutions for Digital Radar. Expands investment in enhanced survivability, navigation, Computers, Intelligence, Surveillance, and Reconnaissance Systems (C4ISR)/Situational Awareness (SA), power & energy, and other assured access technologies.

FY 2019 to FY 2020 Increase/Decrease Statement:

Increase of \$5.365 million is due to increased investment in enhanced survivability, navigation, C4ISR/SA, power & energy, and other assured access technologies.

Title: Combatant Craft Assault (CCA)

Description: This sub-project is a combatant craft for squad-size maritime mobility operations in maritime denied environments. CCA is NSW's best craft for VBSS in maritime denied environments up to and including medium threat. It is the craft-of-choice for maritime interdiction and boarding operations because of the open deck space, maneuverability, and interoperability with an Afloat Forward Staging Base. Iron Triangle: 40 kt speed; 3 crew + 12 pax / 5,000 lb payload; and 300 nm range. At 41 feet long, CCA is air transportable by C-130 / C-17 / C-5 and can launch/recover by crane, davit, well deck, or shore based trailer.

FY 2019 Plans:

Continue integration and testing of CCFLIR2 mast design and SSN-8 Tactical Computer System.

FY 2020 Plans:

Continues integration and testing of CCFLIR2 mast design and SSN-8 Tactical Computer System.

FY 2019 to FY 2020 Increase/Decrease Statement:

Increase of \$0.006 million is due to minor adjustments

	0.668	0.515	0.521
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Title: Threat Awareness System (TAS)

Articles:

	2.782	2.261	0.000
	-	1	-

Description: This sub-project provides SOF with an Electronic Intelligence capability for enhanced force protection of SOF in Maritime denied environments by allowing them to identify and avoid enemy detection capabilities. TAS will utilize technological advancements to gain significant improvements in capability such as miniaturization and marinization to enable seamless craft integration.

FY 2019 Plans:

Continue development and testing of TAS.

FY 2020 Plans:

Re-phasing into platforms for integration of TAS.

FY 2019 to FY 2020 Increase/Decrease Statement:

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S1684 / <i>Surface Craft</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020
Decrease of \$2.261 million is due to the transfer of funds into the applicable platforms and will transfer to JTWS program office.			
Title: Maritime Precision Engagement (MPE)	-	10.000	13.537
Description: This sub-project is a family of standoff, loitering, man-in-the-loop weapons systems deployed on combatant craft and capable of targeting individuals, groups, vehicles, high value targets, and small oceangoing craft with low collateral damage. The program consists of combatant craft alterations, launcher systems, and munitions.			
FY 2019 Plans: Begin design and development of the production representative article.			
FY 2020 Plans: Continues design and development of craft modifications, launcher systems production representative article, and operator control system. Efforts will include the final design, integration and testing of the MPE Engineering Design Module (EDM). This includes initial launcher system and munitions prototypes into the combatant craft medium. Additional work will be performed in the design and subsequent integration of similar MPE launcher capabilities into the Combatant Craft Heavy platform.			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of \$3.537 million is due to the continuation of craft modifications, launcher systems production representative article, and operator control system on CCM and adding additional designs for CCH.			
Accomplishments/Planned Programs Subtotals	8.051	15.574	27.421

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PROC/0204SCCS: <i>Combatant Craft Systems</i>	40.772	15.913	33.088	-	33.088	31.202	43.349	68.641	64.242	Continuing	Continuing

Remarks

N/A

D. Acquisition Strategy

- Middle-Tier acquisition to accommodate rapid prototyping, may be utilized
- CCM was a two-phase source selection process. Phase I involved a Small Business Set-Aside competition for two vendors to design, build and deliver test articles. Phase II selected a single vendor to provide a fully integrated baseline craft system for test and evaluation with options for production, engineering support, and contractor logistic support.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command	Date: March 2019
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Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0400 / 7	PE 1160483BB / <i>Maritime Systems</i>	S1684 / <i>Surface Craft</i>

- CCH SEALION I & II were transitioned from United States Navy advanced technology demonstrator craft to USSOCOM. Sustainment for SEALION I & II is conducted via Special Operations Forces Support Activity. SEALION III is Sole Source to the Original Equipment Manufacturer (OEM) in order to take advantage of previous Government investments in manufacturing infrastructure for SEALION I & II.

- CCME emphasizes on spearheading Technology Readiness Level (TRL) 6 technology for successful transition into SOF Combatant Craft. CCME accomplishes this by employing the full spectrum of contracting services, using existing contracts where appropriate, and leveraging from other Government agencies to include the Services and USSOCOM SOF AT&L Science & Technology Directorate. CCME focuses on developing the technology for maturity, marinization and compatibility, finally transitioning to the craft. Integration and procurement are managed by the individual Combatant Craft Programs.

- CCA will perform market research to determine the most effective procurement strategy to achieve a common configuration across the CCA fleet.

- TAS PM JTWS conducted a competitive Broad Agency Announcement (BAA) and selected the most viable candidate for a development effort in FY 2018/2019 to mature existing technologies. PM-SS will transfered funds to support integration across the family of Combatant Craft.

- MPE will employ Government engineering expertise and lessons learned to develop a common launch system for Naval Special Warfare combatant craft. Munitions selection will be a full and open competition to meet program requirements.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S1684 / <i>Surface Craft</i>
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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Combat Craft Medium (CCM)	C/Variou	Various : Various	12.291	2.749	Nov 2017	0.788	Nov 2018	2.917	Nov 2019	-		2.917	Continuing	Continuing	-
Combatant Craft Heavy (CCH)	C/Variou	Various : Various	4.934	1.260	Jan 2018	0.885	Jan 2019	3.956	Jan 2020	-		3.956	Continuing	Continuing	-
Combatant Craft Assault	C/Variou	NSWC-Carderock : Norfolk, VA	0.421	0.668	Nov 2017	0.515	Nov 2018	0.521	Nov 2019	-		0.521	Continuing	Continuing	-
Combat Craft Mission Equipment (CCME)	C/Variou	Various : Various	4.453	0.452	Nov 2017	0.888	Nov 2018	5.701	Nov 2019	-		5.701	Continuing	Continuing	-
Maritime Precision Engagement (MPE)	C/Variou	NSWC : Dahlgren, VA	-	-		9.800	Dec 2018	13.333	Dec 2019	-		13.333	Continuing	Continuing	-
Threat Awareness System (TAS)	C/Variou	Various : Crane, IN	-	2.782	Mar 2018	1.661	Mar 2019	-		-		-	0.000	4.443	-
Prior Year Costs	C/Variou	Various : Various	3.679	-		-		-		-		-	0.000	3.679	-
Subtotal			25.778	7.911		14.537		26.428		-		26.428	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CCME	C/Variou	Various : Various	1.358	0.140	Nov 2017	0.237	Nov 2018	0.239	Nov 2019	-		0.239	Continuing	Continuing	-
TAS	C/Variou	Various : Various	-	-		0.239	Mar 2019	-		-		-	0.000	0.239	-
Prior Year Costs	C/Variou	Various : Various	2.395	-		-		-		-		-	0.000	2.395	-
Subtotal			3.753	0.140		0.476		0.239		-		0.239	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CCME	C/Variou	Various : Various	-	-		-		0.550	Nov 2019	-		0.550	Continuing	Continuing	-
MPE	C/Variou	Various : Various	-	-		0.200	Dec 2018	0.204	Dec 2019	-		0.204	Continuing	Continuing	-
TAS	C/Variou	Various : Various	-	-		0.361	Mar 2019	-		-		-	0.000	0.361	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S1684 / <i>Surface Craft</i>
--	--	--

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Costs	C/Various	Various : Various	3.536	-		-		-		-		-	0.000	3.536	-
Subtotal			3.536	-		0.561		0.754		-		0.754	Continuing	Continuing	N/A
Project Cost Totals			33.067	8.051		15.574		27.421		-		27.421	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

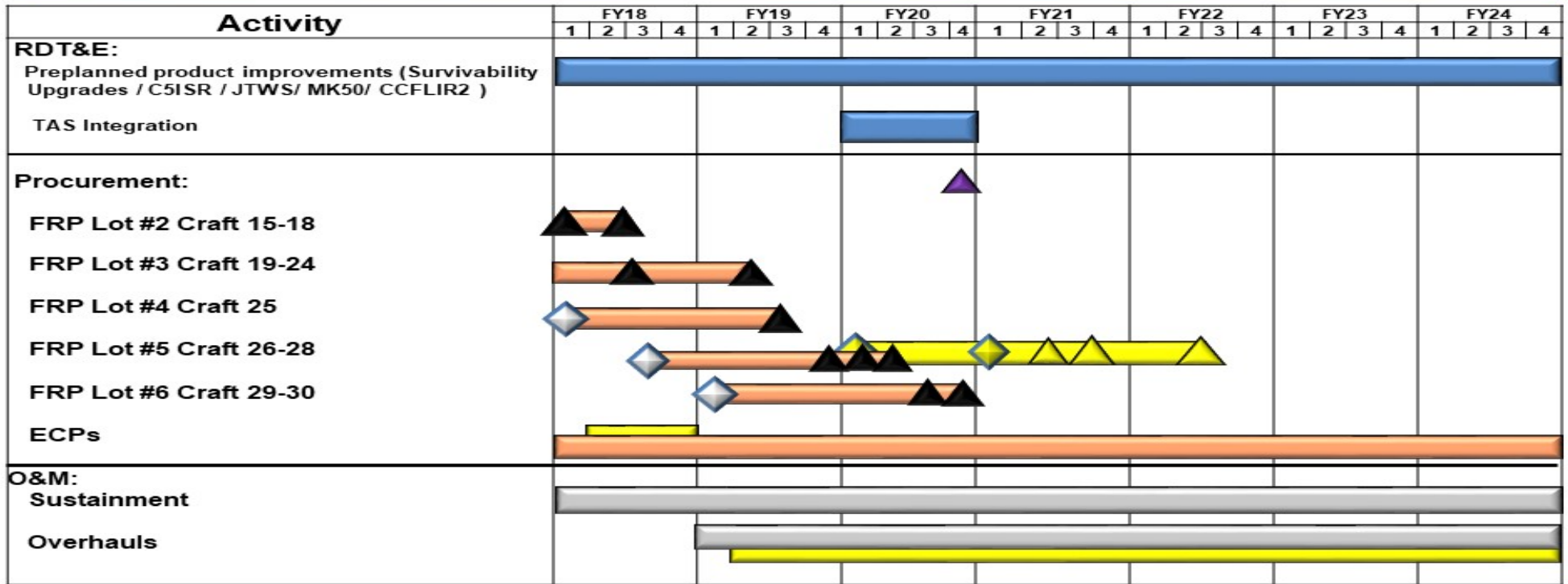
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S1684 / Surface Craft

Combatant Craft Medium Schedule



▲ FOC
 ◆ Article Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ■ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

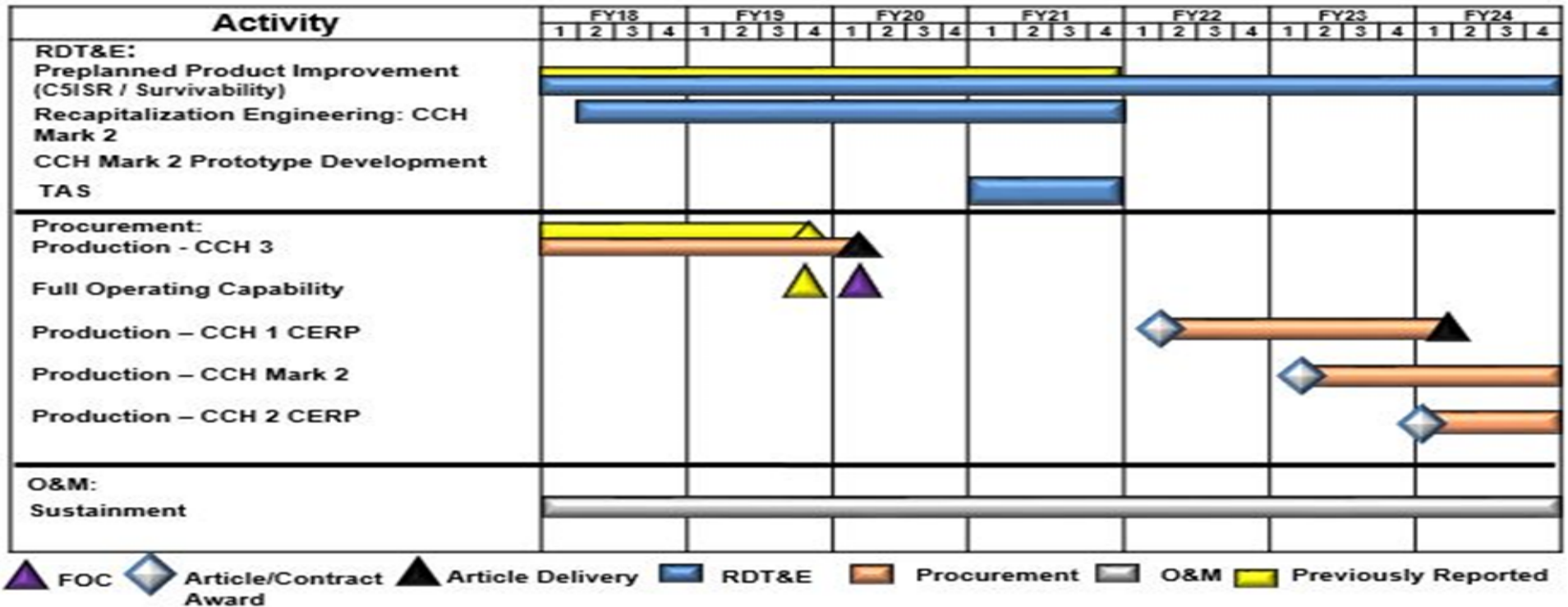
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S1684 / Surface Craft

Combatant Craft Heavy Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

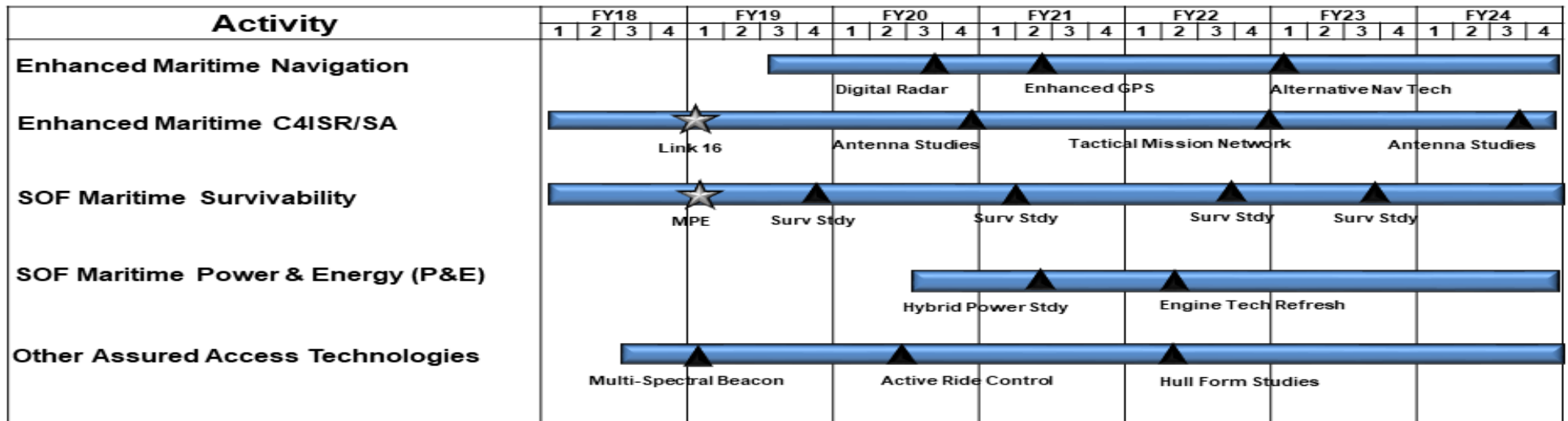
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S1684 / Surface Craft

CCME Schedule



▲ IOC
 ◆ Article Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported
 ★ Transitioned/Completed

NOTE: ALL CCME Procurements accomplished in program lines

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

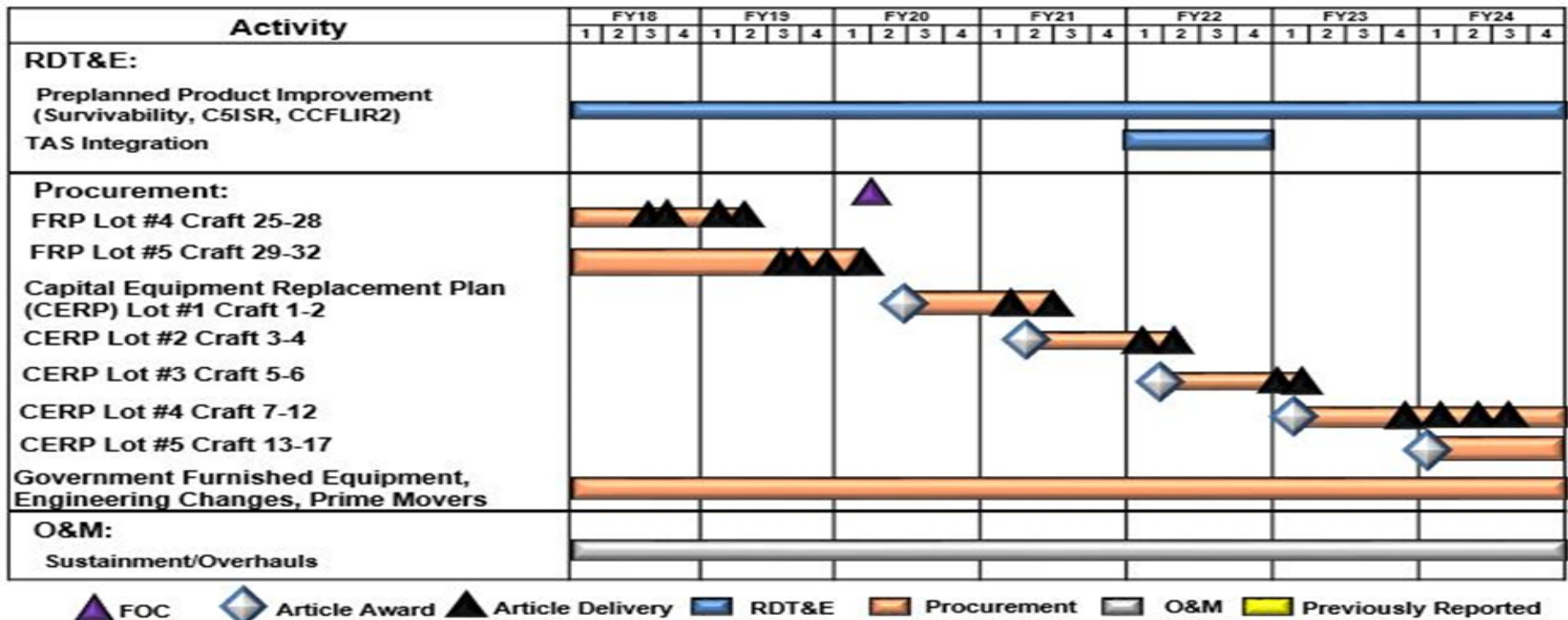
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S1684 / Surface Craft

Combatant Craft Assault Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S1684 / <i>Surface Craft</i>
--	--	--

Threat Awareness System Schedule

Activity	FY18				FY19				FY20				FY21				FY22				FY23			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RDT&E:																								
Milestones / Key Events																								
Development																								
Test & Evaluation																								
PROC:																								
LRIP # 1 (1-4)																								
O&M:																								
Sustainment																								

IOC
 Article Award
 Article Delivery
 RDT&E
 Procurement
 O&M
 Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command

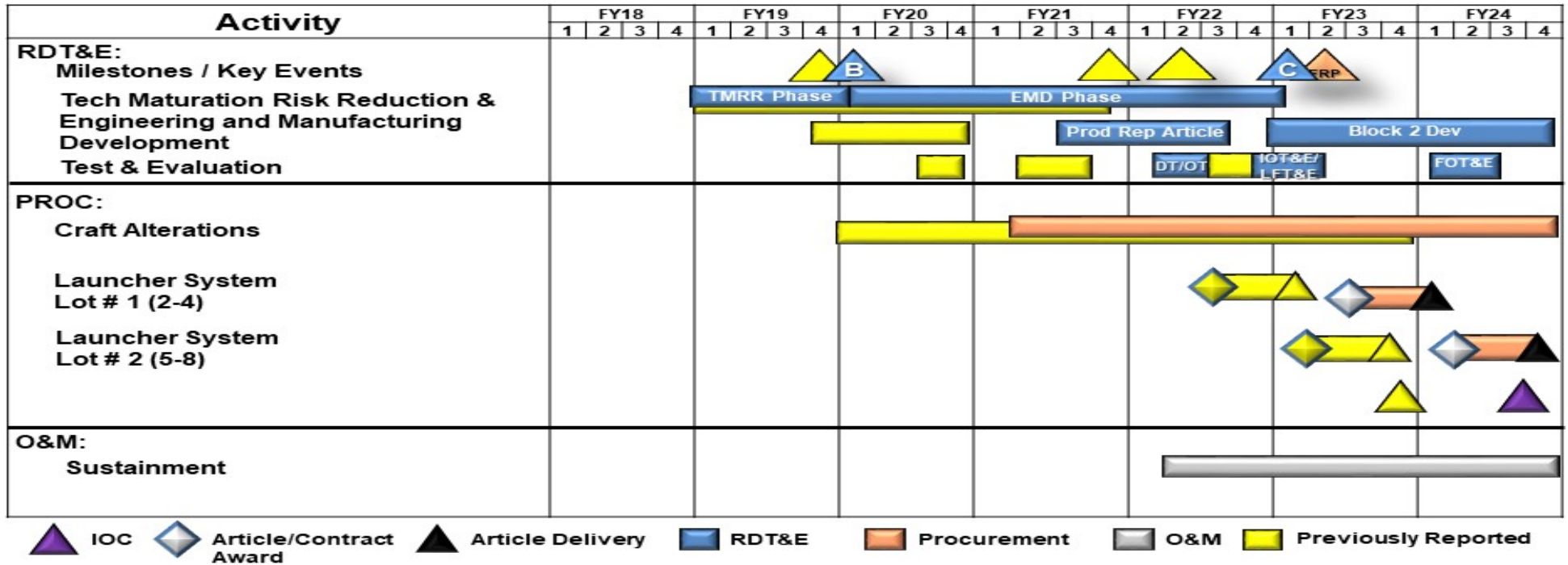
Date: March 2019

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S1684 / Surface Craft

Maritime Precision Engagement Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S1684 / <i>Surface Craft</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Combatant Craft Medium				
Weapons, Survivability, C5ISR, Combatant Craft Forward Looking Infrared (CCFLIR2), Joint Threat Warning System (JTWS), and MK50	1	2018	4	2024
Threat Awareness System (TAS)	1	2020	4	2020
Combatant Craft Heavy				
Preplanned Product Improvement (Weapons / C5ISR / Survivability)	1	2018	4	2024
Recapitalization Engineering: CCH MK2	2	2018	4	2021
TAS	1	2021	4	2021
Combatant Craft Mission Equipment				
Shock Enhancements/Active Ride Control	2	2018	3	2020
Situational Awareness Sensors/Antennas	2	2018	4	2020
Survivability Enhancement/Craft Paint Study	1	2018	4	2022
Threat Analysis	2	2021	4	2022
Obsolescence Analysis and Test (Tech Refresh)	1	2018	4	2024
Airborne Mission Network - Maritime	1	2019	4	2022
Survivability Studies	1	2018	3	2024
Link 16	1	2018	1	2019
Maritime Precision Engagement	1	2018	1	2019
Digital Radar	1	2020	4	2021
Enhanced Global Positioning System (GPS)	3	2019	2	2021
Combatant Craft Assault				
Preplanned Product Improvement (Survivability, Weapons, C5ISR, CCFLIR2)	1	2018	4	2024
TAS	1	2022	4	2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / <i>Maritime Systems</i>	Project (Number/Name) S1684 / <i>Surface Craft</i>
--	--	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Threat Awareness System</i>				
Milestone B	3	2018	3	2018
Development	1	2018	4	2019
Test and Evaluation	4	2019	1	2021
<i>Maritime Precision Engagement</i>				
Technology Maturation and Risk Reduction (TMRR)	1	2019	1	2020
Milestone B	1	2020	1	2020
Milestone C	1	2023	1	2023
Engineering and Manufacturing Development	1	2020	1	2023
Production Representative Article	3	2021	3	2022
Block 2 Dev	4	2022	4	2024
Test and Evaluation	1	2022	2	2023
FOT&E	1	2024	3	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160489BB / <i>Global Video Surveillance Activities</i>
---	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	53.817	4.661	4.780	5.363	-	5.363	5.471	5.584	5.699	5.832	Continuing	Continuing
S500C: <i>Global Video Surveillance Activities</i>	53.817	4.661	4.780	5.363	-	5.363	5.471	5.584	5.699	5.832	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element is part of the Military Intelligence Program. Details are provided under separate cover.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	4.661	4.780	5.388	-	5.388
Current President's Budget	4.661	4.780	5.363	-	5.363
Total Adjustments	0.000	0.000	-0.025	-	-0.025
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.025	-	-0.025

Change Summary Explanation

Funding:

FY2018: None.

FY2019: None.

FY2020: Decrease of \$0.025 million is due to minor adjustments.

Technical: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160490BB / <i>Operational Enhancements Intelligence</i>
---	---

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	98.027	12.067	12.176	12.962	-	12.962	16.270	15.723	16.000	16.322	Continuing	Continuing
S500D: <i>Operational Enhancements Intelligence</i>	98.027	12.067	12.176	12.962	-	12.962	16.270	15.723	16.000	16.322	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project is part of the Military Intelligence Program. This project is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary (\$ in Millions)

	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	12.049	12.176	13.573	-	13.573
Current President's Budget	12.067	12.176	12.962	-	12.962
Total Adjustments	0.018	0.000	-0.611	-	-0.611
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.018	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.611	-	-0.611

Change Summary Explanation

Funding:

FY2018: Details for reprogramming increase of \$0.018 million are available under separate cover.

FY2019: None.

FY2020: Decrease of \$0.611 million is due to transfer for higher command priorities.

Schedule: None.

Technical: None.

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



Washington Headquarters Service

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Research, Development, Test & Eval, DW	23,498	30,198		30,198
Total Research, Development, Test & Evaluation	23,498	30,198		30,198

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	1,000				1,000
Total Research, Development, Test & Evaluation	1,000				1,000

Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
<u>Summary Recap of Budget Activities</u>				
Advanced Technology Development	23,498	29,198		29,198
Management Support		1,000		1,000
Total Research, Development, Test & Evaluation	23,498	30,198		30,198
<u>Summary Recap of FYDP Programs</u>				
Research and Development	23,498	30,198		30,198
Total Research, Development, Test & Evaluation	23,498	30,198		30,198

Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development					
Management Support	1,000				1,000
Total Research, Development, Test & Evaluation	1,000				1,000
<u>Summary Recap of FYDP Programs</u>					
Research and Development					
Total Research, Development, Test & Evaluation	1,000				1,000

Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Advanced Technology Development	23,498	29,198		29,198
Management Support		1,000		1,000
Total Research, Development, Test & Evaluation	23,498	30,198		30,198
 Summary Recap of FYDP Programs				
Research and Development	23,498	30,198		30,198
Total Research, Development, Test & Evaluation	23,498	30,198		30,198

Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development					
Management Support	1,000				1,000
Total Research, Development, Test & Evaluation	1,000				1,000
<u>Summary Recap of FYDP Programs</u>					
Research and Development					
Total Research, Development, Test & Evaluation	1,000				1,000

Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

<u>Appropriation</u>	<u>FY 2018</u> <u>(Base + OCO)</u>	<u>FY 2019</u> <u>Base Enacted</u>	<u>FY 2019</u> <u>OCO Enacted</u>	<u>FY 2019</u> <u>Total Enacted</u>
Washington Headquarters Services	23,498	30,198		30,198
Total Research, Development, Test & Evaluation	23,498	30,198		30,198

Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Washington Headquarters Services	1,000				1,000
Total Research, Development, Test & Evaluation	1,000				1,000

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
39	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03	23,498	29,198		29,198	U
		Advanced Technology Development		23,498	29,198		29,198	
176	0606589D8W	Defense Digital Service (DDS) Development Support	06		1,000		1,000	U
		Management Support			1,000		1,000	
Total Research, Development, Test & Eval, DW				23,498	30,198		30,198	

Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
39	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03						U
		Advanced Technology Development							
176	0606589D8W	Defense Digital Service (DDS) Development Support	06	1,000				1,000	U
		Management Support		1,000				1,000	
Total Research, Development, Test & Eval, DW				1,000				1,000	

Washington Headquarters Services
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

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

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
39	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03	23,498	29,198		29,198	U
		Advanced Technology Development		23,498	29,198		29,198	
176	0606589D8W	Defense Digital Service (DDS) Development Support	06		1,000		1,000	U
		Management Support			1,000		1,000	
Total Washington Headquarters Services				23,498	30,198		30,198	

Washington Headquarters Services
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

12 Mar 2019

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

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
39	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03						U
		Advanced Technology Development							
176	0606589D8W	Defense Digital Service (DDS) Development Support	06	1,000				1,000	U
		Management Support		1,000				1,000	
Total Washington Headquarters Services				1,000				1,000	

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
39	03	0603342D8W	Defense Innovation Unit (DIU).....	Volume 5 - 1277

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
176	06	0606589D8W	Defense Digital Service (DDS).....	Volume 5 - 1283

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Defense Innovation Unit (DIU)	0603342D8W	39	03.....	Volume 5 - 1277

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Washington Headquarters Service **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603342D8W / <i>Defense Innovation Unit (DIU)</i>
---	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	23.498	29.198	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
434: <i>DIUx</i>	0.000	23.498	29.198	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Defense Innovation Unit Experimental (DIUx) was transferred from OSD (PE 0602230D8Z) to Washington Headquarters Services (WHS) (PE 0603342D8W). In July 2018, DIUx was realigned from WHS to the Office of the Under Secretary of Defense, Research and Engineering (OUSD(R&E)). In August 2018, DIUx was re-designated the Defense Innovation Unit (DIU) to signify a permanence of the program. Effective FY2020, DIU will transfer from WHS PE 0603342D8W to OSD PE 0603342D8Z with a functional realignment across the FYDP to OUSD(R&E).

The U.S. Department of Defense (DoD) relies on innovation to maintain our nation's ability to deter, and if need be, prevail in conflict. The DIU increases the Department's access to leading-edge technologies and talent that reside in the commercial sector, with the ultimate goal of accelerating innovation into the hands of the warfighter. Working across the country, and in collaboration with allied international partners, DIU is developing new ways of doing business, growing our defense industrial base to include "non-traditional" companies that had previously not collaborated with the military, working with traditional vendors in novel ways to increase efficiency, and challenging innovators to share their knowledge and expertise in support of our nation's defense.

A. Mission Description and Budget Item Justification

Defense Innovation Unit Experimental (DIUx) was established in April 2015 and DIUx 2.0 in May 2016.

DIUx mission is to accelerate innovation in the commercially-focused technology sector to the warfighter. Initially, DIUx was managed by the Under Secretary of Defense Acquisition, Technology and Logistics (OUSD(AT&L)) when it was established in July 2015. In May 2016, DIUx was placed under the control of the Secretary of Defense and administratively managed by WHS. In July 2018, DIUx was realigned from WHS to the OUSD(R&E), In August 2018, DIUx was re-designated the Defense Innovation Unit (DIU) to signify a permanence of the program. Effective FY2020, DIU will transfer from WHS PE 0603342D8W to OSD PE 0603342D8Z with a functional realignment to OUSD(R&E).

The DIU program will fund the development of novel leading-edge technologies emerging from high-tech companies that are not traditional defense contractors. An objective of this program is to obtain innovative technological advancements developed in the commercial sector and integrated into the DoD technological ecosystem.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Washington Headquarters Service **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603342D8W / <i>Defense Innovation Unit (DIU)</i>
---	--

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	29.594	29.364	29.398	0.000	29.398
Current President's Budget	23.498	29.198	0.000	0.000	0.000
Total Adjustments	-6.096	-0.166	-29.398	0.000	-29.398
• Congressional General Reductions	-6.000	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FFRDC (General Provisions)	-0.096	-0.166	0.000	-	0.000
• Transfer of DIU from WHS to USD(R&E)	-	-	-29.398	-	-29.398

Change Summary Explanation

Initially, DIUx was managed by the Under Secretary of Defense for Acquisition, Technology and Logistics (OUSD(AT&L)) when it was established in July 2015. In May 2016, DIUx was placed under the operational control of the Secretary of Defense and administratively managed by Washington Headquarters Services (WHS), with functional realignment of the resources across the FYDP to Washington Headquarters Services (WHS) beginning in FY 2018. In July 2018, DIUx was realigned from WHS to the Under Secretary of Defense, Research and Engineering (R&E)). In August 2018, DIUx was re-designated the Defense Innovation Unit (DIU). Effective FY 2020, DIU will transfer from WHS PE 0603342D8W to OSD PE 0603342D8Z with a functional realignment of resources across the FYDP to OUSD(R&E). In FY 2018, Congress reduced -\$6.000 million to the DIU RDT&E program.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Washington Headquarters Service **Date:** March 2019

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603342D8W / <i>Defense Innovation Unit (DIU)</i>	Project (Number/Name) 434 / <i>DIUx</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
434: <i>DIUx</i>	0.000	23.498	29.198	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

DIUx mission is to accelerate innovation to the warfighter by leveraging commercial technology innovations. Initially, this program was managed by the Under Secretary of Defense Acquisition, Technology, and Logistics (OUSD(AT&L)) with functional realignment of \$148.8 million across the FYDP to WHS beginning in FY 2018. In July 2018, DIUx was realigned from WHS to the Under Secretary of Defense, Research and Engineering (OUSD(R&E)). In August 2018, DIUx was re-designated the Defense Innovation Unit (DIU) to signify a permanence of the program. Effective FY 2020, DIU will transfer from WHS PE 0603342D8W to OSD PE 0603342D8Z with a functional realignment to OUSD(R&E). The DIU program will fund the development of novel leading-edge technologies emerging from high-tech companies that are not traditional defense contractors. An objective of this program is to obtain innovative technological advancements developed in the commercial sector and integrated into the DoD technological ecosystem. Incoming proposals will be assessed to ensure alignment with the DoD's strategic objectives to increase and strengthen our nation's security.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Title: Defense Innovation Unit - Experimental (DIU)</p> <p>Description: The U.S. Department of Defense (DoD) relies on innovation to maintain our nation's ability to deter, and if need be, prevail in conflict. With outposts in Mountain View, California, Cambridge, Massachusetts, and Austin, Texas, the DIU serves as a bridge between those in the U.S. Military executing our nation's highest priority problems with companies operating at the cutting edge of technology. DIU continuously experiments on methods to identify, contract, prototype, and transition novel innovations with commercial entities that would not otherwise do work with the DoD. The end goal is to accelerate the adoption and utilization of cutting-edge technology for the warfighter.</p> <p>FY 2019 Plans: DIU is one of the Secretary of Defense's priorities in advancing technology, especially artificial intelligence, to help the U.S. Military become more lethal and capable of defending the nation. DIU's objective is to rapidly solve the problems of our DoD customers and deploy those solutions. Accordingly, DIU requirements are driven by DoD customers in the Services, Defense Agencies, and Combatant Commands. DoD customers come to DIU with their most challenging and most compelling technological problems. DIU works to solve the challenges and issues for the Department in areas such as Artificial Intelligence and Machine Learning, Autonomy, Human Systems, Information Technology, and Space.</p> <p>FY 2020 Base Plans:</p>	23.498	29.198	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Washington Headquarters Service		Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603342D8W / <i>Defense Innovation Unit (DIU)</i>	Project (Number/Name) 434 / <i>DIUx</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Funds were transferred to PE 0603342D8Z. DIU continues its mission to identify and deliver cutting-edge commercial innovation to the Joint Force. DIU is rapidly prototyping and deploying innovative commercial technologies to fill critical capability gaps identified by DoD customers in the Services, Defense Agencies, and Combatant Commands. DIU works to solve challenges and issues for the Department in areas such as Artificial Intelligence and Machine Learning, Autonomy, Human Systems, Information Technology, and Space. In FY2020, DIU will add a new technology focus area of Power and Energy to develop and deliver technologies within the fields of Tactical Power, Operational Power, Directed Energy, and Hypersonics. DIU has plans to expand it's presence in Austin, TX to optimize outreach with innovative commercial sources and enhance collaboration with the newly established Army Futures Command.					
<i>FY 2020 OCO Plans:</i> N/A					
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The FY 2020 funds were transferred to PE 0603342D8Z. The increase of \$0.200 thousand will result in a minor re-balance of investments across the technology focus areas of Artificial Intelligence and Machine Learning, Autonomy, Human Systems, Information Technology, Space, and Power and Energy.					
Accomplishments/Planned Programs Subtotals	23.498	29.198	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PE 0901583D8W: O&M	10.690	11.384	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• PE 0901583D8Z: O&M	0.000	0.000	17.358	0.000	17.358	17.705	18.059	18.420	18.789	Continuing	Continuing

Remarks

DIU O&M mission support funding.

D. Acquisition Strategy

N/A

E. Performance Metrics

- Speed - average days to award a prototype project at the close of a solicitation compared to the traditional acquisition system.
- Cost Savings - estimated amount saved as a result of DIU-driven solutions.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Washington Headquarters Service **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0400 / 3	PE 0603342D8W / <i>Defense Innovation Unit (DIU)</i>	434 / <i>DIUx</i>

3. Scale - measures the success at transitioning successful projects or methodologies, and increasing the number / diversity of partnerships within the National Security Innovation Base.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Washington Headquarters Service **Date:** March 2019

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6:</i> <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0606589D8W / <i>Defense Digital Service (DDS)</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	1.000	1.000	-	1.000	1.000	1.000	1.000	1.020	Continuing	Continuing
281: <i>DDS</i>	0.000	0.000	1.000	1.000	-	1.000	1.000	1.000	1.000	1.020	Continuing	Continuing

Note

The Defense Digital Service (DDS) was launched in November 2015 and was formally chartered under DoD Directive 5105.87 in January 2017 in the Office of the Secretary of Defense (OSD) of the Department of Defense (DoD). Since that time, OSD has presented over 100 potential projects to DDS, some of which would benefit significantly from the enhanced prototyping capabilities of DDS. With appropriate funding, DDS leverage, its private sector expertise to fully support the build of a system prototype / proof-of-concept. RDT&E funding is required to support the DDS mission, which includes the ability to build software prototypes to prove out concepts for mission critical projects identified by the Department.

Ensuring that DDS has RDT&E capabilities will increase DoD's ability to leverage DDS's unique technical expertise to determine which private sector software development best practices and/or technology work best for the Department. Furthermore, the development and testing of DDS prototypes, and the insight gained, would significantly lower development costs and delivery times through traditional DoD methods.

A. Mission Description and Budget Item Justification

DDS was created to bring private sector software development best practices, talent, and technology to the Department's hardest software and technology problems. Since its launch in November 2015, DDS has project demands from OSD that have increased exponentially; some of those requests would benefit from robust prototyping / proof-of-concept capabilities by DDS teams. The former is dependent on RDT&E funding that supports the ability to acquire the most current technological solution and/or support from vendors well versed in the most advanced technological solutions.

The requested RDT&E funds will enable DDS to build prototypes and implement proof-of-concept tests for some key OSD projects. These projects will support missions in and out of theater, as well as long term goals of the department to modernize its offensive and defensive technological capabilities. DoD interest in leveraging DDS to operate in this area to solve hard and impossible problems is persistent. With appropriate funding, DDS can use the superior technical expertise of its staff, as well as ability to quickly deliver usable products to meet demand.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Washington Headquarters Service	Date: March 2019
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0606589D8W / <i>Defense Digital Service (DDS)</i>
--	--

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	1.000	1.000	-	1.000
Current President's Budget	0.000	1.000	1.000	-	1.000
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Washington Headquarters Service **Date:** March 2019

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0606589D8W / <i>Defense Digital Service (DDS)</i>	Project (Number/Name) 281 / <i>DDS</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
281: <i>DDS</i>	0.000	0.000	1.000	1.000	-	1.000	1.000	1.000	1.000	1.020	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Defense Digital Service (DDS) requests \$1 million in RDT&E, DW funding in FY2020 to build prototypes / proof-of-concepts for software and hardware development efforts. DDS will leverage its expertise in private industry best practices to develop prototypes that can be scaled to production to support the overall mission of DoD. This funding will help to ensure that DDS can capitalize on its unique ability to build, and/or advise customers on how to build, prototypes and proof-of-concepts using private sector best practices.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Defense Digital Service (DDS)	-	1.000	1.000
FY 2019 Plans:			
The U.S. Department of Defense (DoD) relies on innovation to maintain our nation's ability to deter, and if necessary, defeat its adversaries, whether in conventional or unconventional environments. With a team firmly rooted in the heart of the Pentagon, Defense Digital Service (DDS) serves as a nimble unit with the ability to quickly mobilize and tackle some the DoDs toughest technological challenges. DDS's approach leverages industry best practices to efficiently navigate policy, contracts, and tech blockers to reach working and scalable solutions to hardware and software problems. The ultimate goal of the team is to support DoD in finding and implementing relevant tech solutions to hard and/or impossible problems that when solved, increase the efficiency and effectiveness of the department in carrying out its mission to defend the United States and its domestic and overseas interests. Ultimately, the purpose and goal of the team is to ensure that solutions reach the hands of end users, including warfighters, in short timelines, so that compound problems from the existing problem sets do not persist.			
FY 2020 Plans:			
The U.S. Department of Defense (DoD) needs on innovation to maintain our nation's ability to deter, and if need be, prevail in physical and technological conflict. With a team firmly rooted in the heart of the Pentagon, Defense Digital Service (DDS) serves as a nimble unit with the ability to quickly mobilize and tackle some the DoDs toughest technological challenges. DDS's approach leverages industry best practices to efficiently navigate policy, contracts, and tech blockers to reach working and scalable solutions to hardware and software problems. The ultimate goal of the team is to support DoD in finding and implementing relevant tech solutions to hard and/or impossible problems that when solved, increase the efficiency and effectiveness of the department in carrying out its mission to defend the United States and its domestic and overseas interests. Ultimately, the			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Washington Headquarters Service		Date: March 2019
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0606589D8W / <i>Defense Digital Service (DDS)</i>	Project (Number/Name) 281 / <i>DDS</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
purpose and goal of the team is to ensure that solutions reach the hands of end users, including warfighters, in short timelines, so that compound problems from the existing problem sets do not persist.			
<i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> DDS Research and Development is one of the Secretary of Defense's top priorities with the intent of advancing and modernizing technology, especially software systems, critical to the successful implementation of a variety of department and warfighter missions. DDS requirements are driven by challenging technical problems identified by the Secretary of Defense where technology is failing the Department of Defense mission and could impede the lethality and effectiveness of the warfighter. These problems vary in scope and complexity, but at a minimum, when resolved, have a positive impact on the warfighter's mission and capabilities. The DDS involvement may be in the development of new code, product management, advising on code development processes and releases, and hacking or re-writing existing policies or processes that are antiquated or otherwise unnecessary. The DDS engages on highly troubled projects to quickly implement fixes that ultimately reduce schedule slip, increase security, lower costs, improve user experiences, and accelerate performance. Some examples of current projects include: replacing the MEPCOM Integrated Resources System; reimagining the user interface and associated databases for the Defense Property System; devising a hard and software solution to counter Unmanned Aircraft Systems (UAS) that attack warfighters in theater; and developing a novel, modern approach to network defense. The DDS team is comprised of digital experts with backgrounds in policy, contracts, design, and engineering who collectively use their private industry and federal government experience to identify solutions to problems and rapidly devise and implement solutions.			
Accomplishments/Planned Programs Subtotals	-	1.000	1.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• O&M: BA4, PE 0901589D8W	0.246	4.569	4.549	0.000	4.549	4.544	4.542	4.541	4.635	Continuing	Continuing
• O&M (OCO): BA4, PE 0901589D8W	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Remarks
Defense Digital Service will build, or manage the build, of prototypes and proof-of-concepts that will solve hard and impossible technological problems in DoD.

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

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**Department of Defense
Fiscal Year (FY) 2020 Budget Estimates**

March 2019



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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Operational Test & Eval, Defense	208,587	377,001		377,001
Total Research, Development, Test & Evaluation	208,587	377,001		377,001

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation -----	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Operational Test & Eval, Defense	221,200				221,200
Total Research, Development, Test & Evaluation	221,200				221,200

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Summary Recap of Budget Activities -----				
Management Support	208,587	377,001		377,001
Total Research, Development, Test & Evaluation	208,587	377,001		377,001
Summary Recap of FYDP Programs -----				
Research and Development	208,587	377,001		377,001
Total Research, Development, Test & Evaluation	208,587	377,001		377,001

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Department of Defense
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Management Support	221,200				221,200
Total Research, Development, Test & Evaluation	221,200				221,200
Summary Recap of FYDP Programs -----					
Research and Development	221,200				221,200
Total Research, Development, Test & Evaluation	221,200				221,200

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Summary Recap of Budget Activities -----				
Management Support	208,587	377,001		377,001
Total Research, Development, Test & Evaluation	208,587	377,001		377,001
Summary Recap of FYDP Programs -----				
Research and Development	208,587	377,001		377,001
Total Research, Development, Test & Evaluation	208,587	377,001		377,001

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Management Support	221,200				221,200
Total Research, Development, Test & Evaluation	221,200				221,200
Summary Recap of FYDP Programs -----					
Research and Development	221,200				221,200
Total Research, Development, Test & Evaluation	221,200				221,200

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation: 0460D Operational Test & Eval, Defense

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Se
1	0605118	OTE Operational Test and Evaluation	06	83,190	85,685		85,685	U
2	0605131	OTE Live Fire Test and Evaluation	06	58,950	64,332		64,332	U
3	0605814	OTE Operational Test Activities and Analyses	06	66,447	226,984		226,984	U
		Management Support		208,587	377,001		377,001	
Total Operational Test & Eval, Defense				208,587	377,001		377,001	

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Defense-Wide
 FY 2020 President's Budget
 Exhibit R-1 FY 2020 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

25 Feb 2019

Appropriation: 0460D Operational Test & Eval, Defense

Line No	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	Se
1	06051180	TE Operational Test and Evaluation	06	93,291				93,291	U
2	06051310	TE Live Fire Test and Evaluation	06	69,172				69,172	U
3	06058140	TE Operational Test Activities and Analyses	06	58,737				58,737	U
		Management Support		221,200				221,200	
Total Operational Test & Eval, Defense				221,200				221,200	

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Operational Test and Evaluation, Defense • Budget Estimates FY 2020 • RDT&E Program

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Operational Test and Evaluation, Defense **Date:** March 2019

Appropriation/Budget Activity 0460: <i>Operational Test and Evaluation, Defense I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605118OTE / <i>Operational Test and Evaluation (OT&E)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	80.772	83.190	85.685	93.291	-	93.291	94.929	90.681	89.577	91.582	Continuing	Continuing
000310: <i>OT&E</i>	80.772	83.190	85.685	93.291	-	93.291	94.929	90.681	89.577	91.582	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Director of Operational Test and Evaluation (DOT&E) was created by Congress in 1983. The Director is responsible under Title 10 for policy and procedures for all aspects of Operational Test and Evaluation (OT&E) within the Department of Defense (DoD). Particular focus is given to OT&E that supports major weapon system production decisions for acquisition programs included on the Office of Secretary of Defense Test and Evaluation Oversight List that is prepared and approved annually. Generally, there are about 300 programs on the oversight list including all Major Defense Acquisition Programs (MDAP) and Major Automated Information Systems (MAIS). MDAPs may not proceed beyond low-rate initial production (BLRIP) until OT&E of the program is complete. DOT&E is involved early in the planning phase of each program to ensure adequate testing is planned and executed. Key elements of DOT&E's oversight authority include:

- Approve component Test and Evaluation Master Plans (TEMPS).
- Approve component OT&E Test Plans (TPs).
- Oversee Military Department preparation and conduct of field operational tests; analysis and evaluation of the resultant test data; the assessment of the adequacy of the executed test and evaluation programs; and assessment of the operational effectiveness and suitability of the weapon systems.
- Report results of OT&E that supports BLRIP decisions to the Secretary of Defense and Congress, as well as providing an annual report summarizing all OT&E activities and the adequacy of test resources within DoD during the previous fiscal year.
- Review and make recommendations to the Secretary of Defense on all budgetary and financial matters related to OT&E, including operational test facilities, resources and ranges.

DOT&E also oversees and resources OT&E community efforts to plan and execute joint operational evaluations of information assurance and interoperability (IA and IOP) of fielded systems and networks during major Combatant Command (CCMD) and Service exercises, and reports the trends and findings in the annual report.

DOT&E is also involved in increasing the capacity to access realistically advanced cyber warfare capabilities to keep pace with heightened demand for their capabilities, advancing technologies and the growing cyber threat.

This Program Element includes funds to obtain Federally Funded Research and Development Center (FFRDC) support in performing the described tasks, travel funds to carry out oversight of the OT&E and IA and IOP programs, funds for Service teams performing information assurance and interoperability assessments during exercises, administrative support services, DFAS support, and engineering and technical support services related to the conduct of operational test and evaluation and exercise assessments.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Operational Test and Evaluation, Defense **Date:** March 2019

Appropriation/Budget Activity 0460: Operational Test and Evaluation, Defense / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0605118OTE / Operational Test and Evaluation (OT&E)
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	83.503	85.685	86.498	-	86.498
Current President's Budget	83.190	85.685	93.291	-	93.291
Total Adjustments	-0.313	0.000	6.793	-	6.793
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-0.313	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Pricing adjustment due to inflation	-	-	0.893	-	0.893
• Enhanced Cyber Red Teams	-	-	5.900	-	5.900

Change Summary Explanation

FY 2018 reduction of \$0.313 due to Congressional FFRDC reduction
 FY 2020 Pricing adjustment due to inflation
 FY 2020 Enhanced Cyber red Teams +\$5.9M

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense **Date:** March 2019

Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605118OTE / <i>Operational Test and Evaluation (OT&E)</i>	Project (Number/Name) 000310 / <i>OT&E</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
000310: <i>OT&E</i>	80.772	83.190	85.685	93.291	-	93.291	94.929	90.681	89.577	91.582	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Director of Operational Test and Evaluation (DOT&E) was created by Congress in 1983. The Director is responsible under Title 10 for policy and procedures for all aspects of Operational Test and Evaluation (OT&E) within the Department of Defense (DoD). Particular focus is given to OT&E that supports major weapon system production decisions for acquisition programs included on the Office of Secretary of Defense Test and Evaluation Oversight List that is prepared and approved annually. Generally, there are about 300 programs on the oversight list including all Major Defense Acquisition Programs (MDAP) and Major Automated Information Systems (MAIS). MDAPs may not proceed beyond low-rate initial production (BLRIP) until OT&E of the program is complete. DOT&E is involved early in the planning phase of each program to ensure adequate testing is planned and executed. Key elements of DOT&E's oversight authority include:

- The approval of component Test and Evaluation Master Plans (TEMPS).
- The approval of component OT&E Test Plans (TPs).
- Oversight of Military Department preparation and conduct of field operational tests; analysis and evaluation of the resultant test data; the assessment of the adequacy of the executed test and evaluation programs; and assessment of the operational effectiveness and suitability of the weapon systems.
- Reporting results of OT&E that support BLRIP decisions to the Secretary of Defense and Congress, as well as providing an annual report summarizing all OT&E activities and the adequacy of test resources within DoD during the previous fiscal year.
- The review and make recommendations to the Secretary of Defense on all budgetary and financial matters related to OT&E, including operational test facilities, resources and ranges.

DOT&E also oversees and resources OT&E community efforts to plan and execute joint operational evaluations of information assurance and interoperability (IA and IOP) of fielded systems and networks during major Combatant Command (CCMD) and Service exercises, and reports the trends and findings in the annual report.

DOT&E is also involved in increasing the capacity to access realistically advanced cyber warfighting capabilities to keep pace with heightened demand for those capabilities, advancing technologies and the growing cyber threat.

This Program Element includes funds to obtain Federally Funded Research and Development Center (FFRDC) support in performing the described tasks, travel funds to carry out oversight of the OT&E and IA and IOP programs, funds for Service teams performing information assurance and interoperability assessments during exercises, administrative support services, DFAS support, and engineering and technical support services related to the conduct of operational test and evaluation and exercise assessments.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605118OTE / <i>Operational Test and Evaluation (OT&E)</i>	Project (Number/Name) 000310 / <i>OT&E</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>Title: Operational Test and Evaluation</p> <p>FY 2019 Plans: Operational Test and Evaluation Oversight This effort is in direct support of the Director’s Title 10 responsibilities and is a continuing effort. Funding for FY 2019 provides Operational Test and Evaluation inputs for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary Reports for those programs designated for oversight by DOT&E and OUSD(A&S). Key elements of DOT&E oversight authority are identified in Calendar Year 2019 Office of the Secretary of Defense Test and Evaluation Oversight List.</p> <p>Cyber Evaluations DOT&E plans to sponsor approximately 25 Combatant Command (CCMD) and Service cybersecurity assessments and Cyber Readiness Campaigns (CRCs) events in FY 2019, each including “Find-Fix-Verify” efforts to facilitate the remediation of identified vulnerabilities and verify that solutions and mitigations improve warfighter mission assurance. DOT&E plans to continue working with the CCMDs and Services to develop multiyear plans for exercise cyber assessments and CRC events. These plans will focus on assessing the CCMD’s or Service’s ability to complete missions in a contested cyber environment. To support threat-representative assessments, and to facilitate improvement of DoD’s cybersecurity posture, DOT&E will continue efforts with U.S. Cyber Command to implement the Global Persistent Cyber Opposing Force (PCO) capability with authorities to perform year-round and long-duration assessments of all CCMDs and Services. Primary objectives for DOT&E’s assessments in FY 2019 include the portrayal of advanced nation-state cyber threats and the assessment of operational missions during realistic cyber attacks and any corresponding response actions to adversary attacks.</p> <p>DOT&E will assess Cyber Protection Teams and Cyber Mission Teams when they participate during PCO, CRC, or exercise events. DOT&E will continue to develop techniques to efficiently and effectively assess offensive cyber capabilities, conduct timely evaluations of these capabilities, and consider the development of a potential cyber variant of the Joint Munition Effectiveness Manual. DOT&E will fund joint assessments of Mode 5 Identification of Friend or Foe capabilities. DOT&E will transmit critical findings to DoD leadership along with recommended actions to improve DoD’s cybersecurity posture. FY 2019 evaluations will include trend analyses across prior year results, both within and across CCMDs.</p> <p>FY 2020 Plans: Operational Test and Evaluation Oversight This effort is in direct support of the Director’s Title 10 responsibilities and is a continuing effort. Funding for FY 2020 provides Operational Test and Evaluation inputs for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary Reports for those programs designated for oversight by DOT&E and OUSD(A&S). Key elements</p>	83.190	85.685	93.291

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605118OTE / <i>Operational Test and Evaluation (OT&E)</i>	Project (Number/Name) 000310 / <i>OT&E</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>of DOT&E oversight authority are identified in Calendar Year 2020 Office of the Secretary of Defense Test and Evaluation Oversight List.</p> <p>Cyber Evaluations DOT&E plans to sponsor approximately 25 CCMD and Service cybersecurity assessments and CRC events in FY 2020. Each assessment will continue to include "Find-Fix-Verify" efforts to facilitate the remediation of identified vulnerabilities and verify that solutions and mitigations improve warfighter mission assurance. DOT&E plans to continue working with the CCMDs and Services to develop multiyear plans for exercise cyber assessments and CRC events. These plans will focus on assessing the CCMD's or Service's ability to complete missions and be resilient in a contested cyber environment. DOT&E will perform year-round and long-duration assessments of all CCMDs and Services with Global PCO authorities. Objectives for DOT&E assessments in FY 2020 will include the portrayal of advanced nation-state cyber threats and the assessment of operational missions during realistic cyber attacks, with supporting offensive fires and cyber-range events included in the evaluation.</p> <p>DOT&E will assess Cyber Protection Teams and Cyber Mission Teams when they participate during PCO, CRC, or exercise events. DOT&E will continue assessments of offensive cyber capabilities, and continue to fund joint assessments of Mode 5 Identification of Friend or Foe capabilities in support of acquisition programs. DOT&E will transmit critical findings to DoD leadership along with recommended actions to improve DoD's cybersecurity posture. FY 2020 evaluations will include trend analyses across prior year results, both within and across CCMDs.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase from FY 2019 to FY 2020 of \$7.606 Million is due to enhancements for enhanced Cyber Red teams and yearly inflation increases of program cost.</p>			
Accomplishments/Planned Programs Subtotals	83.190	85.685	93.291

<p>C. Other Program Funding Summary (\$ in Millions) N/A</p> <p>Remarks</p> <p>D. Acquisition Strategy N/A</p> <p>E. Performance Metrics Performance Measure: Percentage of required operational test planning documents, assessments, and reports applicable to acquisition programs on the OSD Test and Evaluation Oversight List and other special interest programs/legacy systems that are completed and delivered to the appropriate decision makers on time.</p>
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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense **Date:** March 2019

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0460 / 6	PE 0605118OTE / <i>Operational Test and Evaluation (OT&E)</i>	000310 / <i>OT&E</i>

The on-time completion rate was computed on the basis of the number of required products that were submitted within established time standards relative to the total number of such products that fell due during the fiscal year. Products included in the measure include beyond low-rate initial production reports, Test Plans, and Test and Evaluation Master Plans for operational test and evaluation oversight as well as assessment plans, "quick look" reports, and final reports for the information assurance and interoperability testing associated with scheduled test events.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Operational Test and Evaluation, Defense **Date:** March 2019

Appropriation/Budget Activity 0460: <i>Operational Test and Evaluation, Defense / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605131OTE / <i>Live Fire Test and Evaluation (LFT&E)</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	48.316	58.950	64.332	69.172	-	69.172	72.043	71.191	73.396	74.434	Continuing	Continuing
000311: <i>LFT&E</i>	48.316	58.950	64.332	69.172	-	69.172	72.043	71.191	73.396	74.434	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element consists of three programs: Live Fire Test and Evaluation, Joint Aircraft Survivability Program (JASP), and Joint Technical Coordinating Group for Munitions Effectiveness (JTCCG/ME).

This Program Element directly supports the Congressional statutory requirements for oversight of Live Fire Test and Evaluation (LFT&E). The primary objective of LFT&E is to assure that the vulnerability and survivability of Department of Defense (DoD) crew-carrying platforms and the lethality of our conventional munitions are known and acceptable before entering full-rate production. LFT&E encompasses realistic tests involving actual United States (U.S.) and foreign threat hardware or, if not available, acceptable surrogate threat hardware. The objective is to identify and correct design deficiencies early in the development process. A completed LFT&E program and test report is required before programs proceed beyond low-rate initial production (BLRIP). LFT&E also includes realistic modeling and simulation (M&S) to examine survivability and lethality attributes not assessed during testing.

This Program Element also supports DoD's Joint Live Fire (JLF) Program and other LFT&E related initiatives. JLF was initiated in 1984 under an Office of the Secretary of Defense charter to test fielded front-line combat aircraft and armor systems for their vulnerabilities as well as fielded weapons, both U.S. and foreign, for their lethality against their respective targets. Funds are also used to support other initiatives related to quick reaction requests from theater and other areas of personnel survivability.

The Joint Aircraft Survivability Program is the DoD's focal point for joint service enhancement of military aircraft non-nuclear survivability. The JASP is chartered by the commanders of the USN Naval Air Systems Command, USA Aviation and Missile Command, and USAF Life Cycle Management Center to increase the affordability, readiness, and effectiveness of Tri-Service aircraft through joint coordination and development of survivability technologies, design tools and assessment methodologies. The JASP coordinates and conducts RDT&E to improve military aircraft survivability, develop and standardize aircraft survivability modeling and simulation (M&S), facilitate information exchange on aircraft survivability, and support aircraft survivability education for the DoD and U.S. aircraft community. Each chartering command provides a senior aircraft survivability expert for the JASP Principal Members Steering Group (PMSG), which guides the program and approves projects for funding. The JASP assesses and reports on combat damage incidents through the Joint Combat Assessment Team (JCAT) and is the Executive Agent for the Joint Live Fire Aircraft Systems Program managed by the Live Fire Test office of DOT&E.

The Joint Technical Coordinating Group for Munitions Effectiveness (JTCCG/ME) was chartered 50 years ago to serve as Department of Defense's (DoD's) focal point for munitions effectiveness information. The JTCCG/ME produces Joint Munitions Effectiveness Manuals (JMEMs) that are the sole source for all Joint Service Authenticated non-nuclear weapons effectiveness data and methodology for DoD. The JMEMs are the "how to" manuals for putting ordnance on target and as such, directly impacts combat readiness, effectiveness, and survivability. JMEMs are used by the Warfighters in operational weaponeering and collateral damage estimation calls in direct support of operations, mission planning, and training; by the DoD, Joint, and Service planners in force-on-force modeling, mission area analysis, requirements studies and weapon procurement planning; and by the service acquisition community in performance assessment, analysis of alternatives and survivability enhancement

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Operational Test and Evaluation, Defense	Date: March 2019
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Appropriation/Budget Activity 0460: <i>Operational Test and Evaluation, Defense / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605131OTE / <i>Live Fire Test and Evaluation (LFT&E)</i>
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studies. The JTCG/ME continually evolves weapons effectiveness and target vulnerability data, standards, methodologies, and processes based on the strategic environment for better munitions effectiveness evaluation and support to a more lethal force. JTCG/ME also increases efficiency by leveraging ongoing Department efforts and supporting the Department's intent to complement U.S. interest and capabilities by providing weaponizing and targeting capability to Coalition partners. The JMEM requirements and development processes are driven by operational lessons learned (Inherent Resolve, Resolute Support and Freedom Sentinel), Joint Staff Data Call and the needs of Combatant Commands (CCMDs), Services, Military Targeting Committee (MTC) guided by Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 5140.01, Munitions Requirements Process (MRP) - DoD Instruction (DoDI) 3000.04 and Operational Users Working Groups (OUWGs) input for specific weapon-target pairings and methodologies. Considerable effort goes into these User forums to establish Warfighter requirements for current and future JTCG/ME products, as well as continued training events and day-to-day support -- all with the goal of enabling greater force lethality, strengthening partner capabilities, and optimal use of resources.

This program element also includes funds to obtain Federally Funded Research and Development Center (FFRDC) expertise in performing analyses in support of described Live Fire Test and Evaluation tasks, as well as travel funds to carry out the LFT&E, JASP and JTCG/ME programs.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	59.500	64.332	58.781	-	58.781
Current President's Budget	58.950	64.332	69.172	-	69.172
Total Adjustments	-0.550	0.000	10.391	-	10.391
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-0.550	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Pricing adjustment due to inflation	-	-	-0.609	-	-0.609
• Joint Munitions Manual for Directed Energy and Electromagnetic Spectrum Fires	-	-	11.000	-	11.000

Change Summary Explanation

FY 2018 change due to congressional directed FFRDC reduction

FY 2020 change due to small changes in inflation

FY 2020 change due to Joint Munitions Manual for Directed Energy and Electromagnetic Spectrum Fires +\$11M

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense										Date: March 2019		
Appropriation/Budget Activity 0460 / 6					R-1 Program Element (Number/Name) PE 0605131OTE / <i>Live Fire Test and Evaluation (LFT&E)</i>				Project (Number/Name) 000311 / <i>LFT&E</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
000311: <i>LFT&E</i>	48.316	58.950	64.332	69.172	-	69.172	72.043	71.191	73.396	74.434	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element consists of three programs: Live Fire Test and Evaluation, Joint Aircraft Survivability Program (JASP) and Joint Technical Coordinating Group for Munitions Effectiveness (JTTCG/ME).

This Program Element directly supports the Congressional statutory requirements for oversight of Live Fire Test and Evaluation (LFT&E). The primary objective of LFT&E is to assure that the vulnerability and survivability of Department of Defense (DoD) crew-carrying platforms and the lethality of our conventional munitions are known and acceptable before entering full-rate production. LFT&E encompasses realistic tests involving actual United States (U.S.) and foreign threat hardware or, if not available, acceptable surrogate threat hardware. The objective is to identify and correct design deficiencies early in the development process. A completed LFT&E program and test report is required before programs proceed beyond low-rate initial production (BLRIP). LFT&E also includes realistic modeling and simulation (M&S) to examine survivability and lethality attributes not assessed during testing.

This Program Element also supports DoD's Joint Live Fire (JLF) Program and other LFT&E related initiatives. JLF was begun in 1984 under an Office of the Secretary of Defense (OSD) charter to test fielded front-line combat aircraft and armor systems for their vulnerabilities as well as fielded weapons, both U.S. and foreign, for their lethality against their respective targets. Funds are also used to support other initiatives related to quick reaction requests from theater and other areas of personnel survivability.

The Joint Aircraft Survivability Program is the DoD's focal point for joint service enhancement of military aircraft non-nuclear survivability. The JASP is chartered by the commanders of the USN Naval Air Systems Command, USA Aviation and Missile Command and USAF Life Cycle Management Center to coordinate and conduct RDT&E to improve military aircraft survivability, develop and standardize aircraft survivability modeling and simulation (M&S), facilitate information exchange on aircraft survivability and support aircraft survivability education for the DoD and U.S. aircraft community. Each chartering command provides a senior aircraft survivability expert for the JASP Principal Members Steering Group (PMSG), which guides the program and approves projects for funding. The JASP assesses and reports on combat damage incidents through the Joint Combat Assessment Team (JCAT), is the Executive Agent for the Joint Live Fire Aircraft Systems Program managed by the Live Fire Test office of DOT&E.

The Joint Logistics Commanders' Joint Technical Coordinating Group for Munitions Effectiveness (JTTCG/ME) was chartered more than 40 years ago to serve as DoD's focal point for munitions effectiveness information. This has taken the form of widely used Joint Munitions Effectiveness Manuals (JMEMs) which address all major non-nuclear U.S. weapons. JTTCG/ME authenticates weapons effectiveness data for use in training, systems acquisition, weapon procurement, and combat modeling and simulation. JMEMs are used by the Armed Forces of the U.S., NATO, and other allies to plan operational missions, support training and tactics development, and support force-level analyses. JTTCG/ME also develops and standardizes methodologies for evaluation of munitions effectiveness and maintains databases for target vulnerability, munitions lethality, and weapon system accuracy. The JMEM requirements and development processes continues to be driven by operational lessons

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense	Date: March 2019
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learned (Enduring Freedom, Iraqi Freedom, Odyssey Dawn and Inherent Resolve) and the needs of Combatant Commands (CCMDs), Services, Military Targeting Committee, and Operational Users Working Groups (OUWG) input for specific weapon-target pairings and methodologies.

This program element also includes funds to obtain Federally Funded Research and Development Center (FFRDC) expertise in performing analyses in support of described Live Fire Test and Evaluation tasks, as well as travel funds to carry out the LFT&E, JASP and JTCG/ME programs.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>Title: Live Fire Test and Evaluation</p> <p>FY 2019 Plans: JLF Programs and LFT&E Initiatives The FY 2019 JLF budget will support at least 28 projects (tentatively 9 new starts and 19 projects continuing from previous FYs). JLF projects have been focused to either (1) build a more lethal force, (2) strengthen alliances and attract new partners, or (3) reform the department for greater performance and affordability.</p> <p>Build a More Lethal Force In FY 2019, JLF will continue to investigate means to advance the survivability therefore lethality of our systems in expected theater of operations. As an example, JLF will assess the vulnerability of aircraft to fuel tank fires due to ullage ignition in order to explore methods to reduce aircraft losses while maintaining mission effectiveness. JLF will investigate the penetration of long yawed rods in order to support munition development such as the AIM-9X, ensuring the desired lethal effects are achieved when these weapons are employed. JLF will also improve test instrumentation to allow more accurate assessment of imposed forces and crew casualties during mine or improvised explosive device attacks. JLF will be performing assessments of flammable materiel commonly found in current Naval vessels during operations to better model and prevent fire initiation, as well as promote better design to contain the spread of fire and improve fire suppression techniques.</p> <p>Strengthen Alliances and Attract New Partners JLF is leveraging existing M&S tools and expanding their capabilities to expand evaluation of active protection systems that may be installed on a variety of U.S. platforms to defend against a variety of threats. This work will be performed particularly in conjunction with efforts of partner nations such as Israel. Furthermore, JLF will conduct a variety of underwater explosion tests and analyses of effects upon ship hulls. These tests will be using hardware from a decommissioned Canadian ship and test execution conducted in cooperation with both Canadian and European Union partners.</p> <p>Reform the Department for Greater Performance and Affordability In FY 2019, the JLF program is sponsoring work by the Massachusetts Institute of Technology and Air Force Institution of Technology to assess the merits of test program methodologies utilized across industry, academia, and government, with the goal of leveraging the merits of these communities toward evaluating lethality/survivability. JLF will produce frameworks to allow the</p>	58.950	64.332	69.172

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>DoD to better tailor Live Fire test rigor for a variety of program timelines, including a sensitivity analysis to determine what general qualities are most important to test before rapidly fielding hardware or software. In addition, JLF will better quantify the point of diminishing returns for major program of record Live Fire test programs in order to maximize return on investment. Finally, JLF efforts will allow the DoD to better model the combined effects of multiple complex systems in a multi-model threat environment (for example, combined air and ground threats combined with electronic attack and cyber attack), enhancing performance in battle as well as focusing DoD investment in new hardware technologies.</p> <p>JASP In FY 2019 the JASP will continue work on at least 23 multi-year RDT&E projects and initiate 11 new projects approved by the JASP Principal Members Steering Group and OSD/DOT&E. The JASP will develop measures to defeat Near-Peer Adversary Threat (N-PAT) radio-frequency and infrared guided threats coupled with quantifiable improvements in digital and hardware in the loop modeling and simulation capability and credibility. Improve aircraft force protection by increasing threat and flight environmental situational awareness, hostile fire identification, and degraded visual environment flight capabilities; advancing system hardening against ballistic and high energy laser threats; and improving aircraft crashworthiness. Improve aircraft survivability to fire by increasing the speed and efficiency of fire detection and suppression systems and the accuracy and confidence in prediction of threat initiated fires onboard aircraft. The Joint Combat Assessment Team (JCAT) will continue to support the Air Force, Army, Marine Corps and Navy by assessing combat damage incidents, training operators on threat effects and combat damage assessment, and reporting their findings to combatant commanders and the DoD science and technology and acquisition communities. The JASP will continue supporting aircraft survivability education and information exchange through internet sites (restricted access and classified), by publishing the Aircraft Survivability Journal, developing educational materials and conducting training for the DoD and their contractors. The JASP will initiate, continue and complete other projects as approved by the JASP Principal Members Steering Group and OSD/DOT&E.</p> <p>Joint Technical Coordinating Group for Munitions Effectiveness In FY 2019, JTCCG/ME will continue to develop, enhance, and standardize methodologies for evaluating munitions effectiveness. This includes target vulnerability characterization, munitions lethality, weapon system accuracy, and specific weapon-target pairings driven primarily from current operational lessons learned, Joint Staff Data Calls, and CCMDs' needs.</p> <p>JTCCG/ME will deploy and continue to enhance future versions of its major JTCCG/ME Joint Munitions Effectiveness Manual (JMEM) products, the JMEM Weaponing System (JWS), Joint Antiair Combat Effectiveness (J-ACE), Digital Precision Strike Suite (DPSS) Collateral Damage Estimation (DCiDE) tool, and the Digital Imagery Exploitation Engine (DIEE). JTCCG/ME will continue to progress and develop non-kinetic JMEM capability with Joint-Non-Kinetic Effects (J-NKE) Tool, as well as support specialized solutions to address operational needs to include direct analytical support to operations, Probability of kill (Pk) Lookup Tools, Collateral Damage Estimation (CDE) analysis and tables, and munitions weaponing guides. Since JTCCG/ME products</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>are User focused and requirements driven, JTCG/ME will continue to maintain and strengthen relationships with the Warfighter, operational users, and coalition partners to establish requirements for current and future products. Efforts will include forums, training, foreign military sales, and day-to-day operational support. The objective is to provide efficient and effective support to meet CCMD current and future needs for agility and greater lethality in a more dynamic combined operational environment.</p> <p>In FY 2019, JTCG/ME plans to:</p> <ul style="list-style-type: none"> -Sustain/support fielded JWS v2.3, with efforts including multiple training and user forums for the fielded product. -Finish and field JWS v2.3.1. which is an update to integrate a new display viewer compatible with evolving image formats (non-segmented imagery), to synchronize with the DIEE v2.1 viewer. -Develop JWS v2.4, which will provide enhanced data, Fast Integrated Structural Tool (FIST), and connectivity capabilities, while maximizing the final JWS v2.x product line. Specific highlights include interim enhanced database capabilities with updated data sets to include up to 13 new calculated targets and 70 refreshed targets. The enhanced database capabilities will allow for accelerated, out of production cycle weapons and target data updates, tailored product versions for releasability, and more effective, focused testing. Capabilities include Hard Target Void Sensing Fuze and trajectory model updates, as well as FIST v2.4 with several expanded methodologies for structural target response variables. These capabilities will enable more options to the weaponeer and improve the underlying phenomenology representation in JWS. -Continue development on the next JWS series, known as JWS v3.x. The JWS v3.x line leverages Endgame Framework (EF) as the underlying software architecture that will maximize modularity, flexibility of design, and reuse of standard capabilities across the community for greater performance and affordability. FY 2019 efforts and deliverables will include updated Capability Needs Statement response documentation, JWS v3.0 EF Implementation Plan, JMEM Effects Library (JEL) Capabilities Roadmap and Smart book, DIEE v2.x to Application Program Interface (API) Implementation Plan, enhanced JWS Product Management Structure, and continuing to coordinate with stakeholders. These efforts form the foundation of JWS v3.0 fielding in 2020. -Support current use and future development requirements by hosting and supporting JWS training sessions, Operational Users Working groups (OUWG), and User help desk support via the JMEM Product Information Access System (JPIAS) and JWS newsletter. Specifically, JTCG/ME will support approximately 30 JWS training sessions with about 500 students. The training sessions allow users to optimize use of JWS capabilities, while providing JTCG/ME with critical input on Warfighter use for future development. OUWGs are critical venues for receiving direct User feedback and development of future requirements from the operational community in regard to needed software enhancements and capabilities in support of air-to-surface and surface-to-surface weaponeering. In addition, direct forward support to Combatant Commanders/Task Forces will be provided to enable target materiel development, weaponeering, and CDE solution development. JTCG/ME will continue to chair OUWGs, with participation from USCENTCOM, USAFRICOM, USSTRATCOM, USPACOM, USSOCOM, the Services, the Defense Intelligence Agency (DIA), the Defense Threat Reduction Agency (DTRA), the Fires Center of Excellence, Service School Houses, the Marine Aviation Weapons/Tactics Squadron, Operations Support Squadrons, Intelligence Squadrons, and numerous other operational units. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>-Facilitate coalition interoperability and information exchange forums. JTCG/ME will deliver JWS version releases and standalone Pk Lookup tools to key coalition partners in support of current operations under Foreign Military Sales agreements. These deliveries increase efficiency by leveraging ongoing Department efforts and supporting the Department’s intent to complement U.S. interest and capabilities by providing weaponeering and targeting capability to Coalition partners, as well as improve the effectiveness of U.S. fires and targeting personnel working in combined environments. JTCG/ME will also hold information exchange forums via information exchange agreements (IEAs) with the United Kingdom and Republic of Korea. These exchanges facilitate collaboration on methodologies and efforts of mutual interest in the area of weapons effectiveness/collateral damage estimation.</p> <p>-Develop and enhance processes to supply target vulnerability data to operational and acquisition communities. The JTCG/ME conducts detailed vulnerability analysis to produce tri-service approved target vulnerability information (i.e., Target Geometric Model (TGM) development, Failure Analysis Logic Tree (FALT), Failure Mode, Effects, and Criticality Analysis (FMECA), etc). These data are used to feed the approved vulnerability models to generate the target data used on JMEMs. In addition, acquisition programs leverage JTCG/ME target vulnerability data to conduct detailed analysis of their new capabilities against threat targets. The leveraging of this information saves programs valuable time and resources, and ensures the acquisition community is using consistent and valid threat representation.</p> <p>-Support urgent operational needs for target vulnerability data with rapid response surrogation and development of Pk Lookup data for high priority weapons and targets. These specialized products directly assist CCMDs to meet the operational requirements of a dynamic environment as formal products are developed.</p> <p>-Continue to collect, approve, and supply weapons characteristics data and standards for the tri-service community to include soon to be fielded systems. These weapons are: Small Diameter Bomb (SDB) II; Small Guide Munition (SGM) GBU-69; Focused Lethality Munition (FLM) GBU-39; Joint Air-to-Ground Missile (JAGM); Joint Multiple Effects Warhead System (JMEWS); Advanced Anti-Radiation Guided Missile (AARGM); and High speed Anti-Radiation Missile (HARM).</p> <p>-Enhance weapons characterization processes and communication through the JTCG/ME Test Assistance Group (TAG). The TAG provides a forum that fuses science and art of weapon testing with subject matter experts from all the services and test ranges to review, adopt technologies and methods that reduce expense, time, anomalies, and expanded data collection. JTCG/ME archives and publishes these weapon characterization standards in updates to the JTCG/ME Weapon Test Procedures Manual (TPM) used by weapon test ranges. The TAG also facilitates partnerships and leveraging. These technologies and partnerships have the potential to reduce the number of weapon test articles required and remove labor-intensive activities from weapon testing.</p> <p>-Update and execute strategic roadmaps for underlying vulnerability and lethality models used as standards by the tri-service community to better support JWS 3.x development and Live Fire Testing and Evaluation (LFT&E). These roadmaps align JTCG/ME funded and related tasks by other services and programs to facilitate leveraging. In addition, the roadmaps provide a tool for future investment planning to support modeling and simulation validation and resolution of capability gaps. A key roadmap component included several interconnected model sensitivity studies. The goal of these studies is to understand the range of</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>potential model outputs, including stochastic variations in penetration and other processes, so that differences between test data and predictive models can be better understood. This will be used to guide live fire testing requirements for validation of the models for a program office's specific operational envelope. These studies will also provide data to support several model reaccreditations.</p> <p>-Develop and accredit Collateral Effects Radii (CER) Reference Tables in accordance with the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3160.01C, "No-Strike and the Collateral Damage Estimation (CDE) Methodology" for air-to-surface and surface-to-surface weapons, which are the basic data that support the CDE methodology. The JTCG/ME CER tables and CDE methodology are used in every planned kinetic strike in all Areas of Responsibility Operation (AORs) to meet Commanders' intent and to minimize civilian casualties. As such, it is critical to the Warfighters' ability to meet urgent operational needs. JTCG/ME implements the CER and CDE methodology within the DCiDE tool. DCiDE is an accredited and automated CDE tool that expedites and simplifies the CDE process. DCiDE enables JTCG/ME to continuously support the CJCSI 3160.01 series, DCiDE was the only automated CDE tool authorized for use in the USCENTCOM and USAFRICOM AORs.</p> <p>-Maintain and support DIEE v2.1, DIEE is an enterprise targeting solution that provides both seamless planning and linkage to various mission planning systems and tools in operational units. It is a "Government off the shelf" (GOTS) product for advanced target development that integrates Target Coordinate Mensuration (TCM), Collateral Damage Estimation (CDE), Weaponeeing, and data basing functions. DIEE was selected as the preferred operational solution of a 2018 Air Force Advanced Target Development (ATD) Software Fly-off based on 135 hours of hands-on time and 451 scored line items. The Chairman of the Joint Chiefs of Staff issued guidance stating that,"The Services, Combatant Commands, and Combat Support Agencies will upload and use DIEE v2.1 for automated CDE to comply with the updated methodology and reporting requirement." DIEE v2.1 includes user requested enhancements, more advanced JWS interface for weaponeeing capability, CJCSI 3160.01C compliant CER Reference Tables and DCiDE for CDE capability, and updated Common Geopositioning Services (CGS) for Precision Point Mensuration (PPM) capability.</p> <p>-Continue to develop future DIEE versions that will include CGS updates, 3-D viewer capability, direct Collateral Effects Library (CEL) interfacing, route tool user requested enhancements, battle damage assessment graphic production, and initial android tablet capabilities, while maintaining Warfighter support and future requirements through training and User forums.</p> <p>-Leverage CEL and other high fidelity techniques to deliver analysis packages for collateral damage mitigation, post-forensic, and force protect analyses packages to operational Users for high value targets in current operations (i.e., Operations Inherent Resolve, Operation Resolute Support, and Operation Freedom Sentinel). These efforts directly assist Combatant Commands to meet commander's intent and minimize collateral damage.</p> <p>-Continue the Enhanced Weaponeeing and Collateral Damage Estimation (CDE) Program, a multi-year test program focused on enhancing and validating JTCG/ME CDE tools. This program will support improvements in weaponeeing methodology to minimize risk to mission and risk to forces while not increasing risk of collateral damage by providing foundational data for the development of higher fidelity predictive tools. Specific efforts will generate buried ordnance characterization data based upon usage statistics from CCMD Expenditure reports, and AOR specific building debris data to enhance and validate current</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>weaponeering/collateral damage estimation methodologies required by Strike Approval Authorities to make their strike decision calls. FY 2019 efforts leverage seven FY 2018 testing events and multiple collaboration forums. FY 2019 tests will include four buried ordnance tests to evaluate the effects of burial and weapon class on warhead performance, crater ejecta, and collateral damage, and five building debris characterization tests.</p> <p>-Initiate the “Battle Damage Assessment (BDA) of Deliberate and Dynamic Strikes” analysis to directly support the solution offered by the Munition Strategic Portfolio Review to address the current state of the Department’s munitions stockpile. The effort is a multi-year task to analyze ongoing strikes required to update JWS to: (1) ensure effective and efficient munition expenditure rates and (2) mitigate the stockpile stress. The analysis approach will include: (1) establishing an analytical cell to provide a detailed and usable Department-level combat assessment of past, current, and future strikes/weapons employments, (2) establishing an archival database that captures the pre- and post-strike assessments of these engagements, in a format that will be called upon by the JWS to select strike packages with optimal and efficient munition expenditures, and (3) guiding tactics improvement for evolving environments and methodology development to improve weaponeering tools. Overall impact of effort will result in increased operational agility for the Combatant Commands in terms of weapons employment, as well as directly link current JMEM predictions to operational battlefield performance.</p> <p>-Sustain/support fielded J-ACE v5.3. Efforts will include multiple training and user forums for the fielded product. These forums are pivotal for J-ACE developers to understand requirements and align development with other external debrief and analytical capabilities that use J-ACE as the underlying analytical engine to underpin results. Many users leverage J-ACE’s API to link debrief and analysis tools at training and test ranges across the Joint community. The forums allows J-ACE external application developers to receive any updates and interact with J-ACE developer to refine requirements and plans.</p> <p>-Leverage a parallel J-ACE development strategy that will continue to develop J-ACE v5.x line to provide high priority data and capabilities to the User community, while developing J-ACE v6.x product line.</p> <p>-Finish and field J-ACE v5.3.1. J-ACE is used as a stand-alone product or through an application interface. Many users leverage J-ACE’s API to link debrief and analysis tools at training and test ranges across the joint community. J-ACE v5.3.1 is a software update release to provide a high priority requirement by the API user community for J-ACE v5.3 64-bit capability.</p> <p>-Finish J-ACE v5.4 development. J-ACE v5.4 will include updated Plug-and-Play weapons and aircraft data, updated countermeasures, and a new cross platform BROWSE module, which contains descriptive information for each player (weapon, aircraft). In addition, J-ACE v5.4 will include a new Endgame Manager (EM) module that simulates terminal effects of the weapon lethality and target vulnerability. The faster EM has improved speed of new fuze model and refined graphic display data generation, and includes more weapon lethality-target vulnerability data sets.</p> <p>-Continue J-ACE v6.x development. The J-ACE v6.0 will fully migrate Hybrid Interactive Visualization Engine (HIVE) framework capability as the underlying software architecture that will maximize modularity, provide flexibility for faster software development/modification, and reuse of standard capabilities across the aircraft survivability community. J-ACE v6.0 will include a new User Interface with state-of-art graphical displays including Virtual Reality (VR). J-ACE v6.0 will address improved target detection capability leveraging National Air and Space Intelligence Center (NASIC) Radio Frequency (RF) models. J-ACE v6.x includes</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>an initial Suppression of Enemy Air Defense/Destruction of Enemy Air Defense (SEAD/DEAD) Capability (Air-to-Surf Weapons Trajectory and Arrival). J-ACE v6.x will address longer development requirements to include rotary wing aircraft capability, expanded SEAD/DEAD capability, and increased electronic warfare and counter-measure capabilities.</p> <p>-Continue to develop J-NKE as the single source for operational Warfighters, analysts, targeteers, and planners to analyze offensive cyber capabilities and directed energy effectiveness. FY 2019 efforts will build upon FY 2018 initial program efforts.</p> <p>-Development of cyber effects estimation capabilities with a focus on refining the standardization of data required to address weapon characterization, target vulnerability, Operational Environment, and Uncertainty Metrics to support the development of the Cyber Operation Lethality and Effectiveness (COLE) tool. Continue to mature Cyber JMEM capabilities with continued execution of multiyear plan. Cyber FY 2019 capability development/deliverables include: (1) Development of Data Producer App (1.0) to support creation of J-NKE standard/compliant data, (2) COLE v0.1 with initial Operational Environment Model creation, weapon-target probabilistic attack (Probability of effect (Pe) calculation for individual targets/nodes w/minimal target characteristic uncertainties and initial probabilistic matching providing weapon/target pairing recommendations for select capabilities/uncertainties, (3) Draft Uncertainty Metric Model (UM2) standards document, (4) Draft Cyber Collateral Damage Estimation (CDE) methodology, (5) Revised Weapon, Target, OEM & Cyber Effectiveness Table (CET) standards (based on relevant feedback). Other FY 2019 efforts include maintaining User community interaction, as well as maturing linkages to USCYBERCOM and other key stakeholders, to ensure Combatant Command and Service Warfighter requirements and needs are articulated and understood. Continue Operational User Working Group meetings along with various face-to-face unit level meetings. FY 2019 efforts are the building blocks for maturing capabilities and fielding of Cyber JMEMs.</p> <p>-Continue to coordinate with a FY 2018/2019 Joint Test Project to leverage, enhance, and develop directed energy effects estimation and standardization tools. The FY 2018/2019 Joint Test Project, Joint Laser Systems Effectiveness (JLaSE), was approved as a conduit for warfighters to solve joint laser operational issues and provide a non-material solution to the warfighter. Efforts will take advantage of work completed by the Directed Energy Joint Transition Office (DE JTO) and various planned Use Cases (Surface-to-Air, Surface-to-Surface, Air-to-Surface) throughout the two year cycle. Focus will be on Service near term capabilities (~10 capabilities) that take advantage of the high-energy laser (HEL) weapons low cost per shot, deep magazine, precision engagement, and scalable effects.</p> <p>-Continue to mature DE effectiveness capabilities with execution of multiyear plan. FY 2019 efforts will build upon FY 2018 outcomes, while continuing the work and leveraging of the FY 2018/2019 Joint Test Project, JLaSE. Leveraging and cooperation between JTCG/ME and JLaSE will facilitate lessons learned, data standards, methodology standards, and working relations imperative in the fruition of a DE effectiveness, weaponeering, and CDE solution for the Warfighter. FY 2019 outcomes will include initial prototype and methodologies for DE effectiveness and collateral damage estimation. The eventual results of the multi-year tasking will provide Joint Fire Support Planners and Targeteers the Tactics, Techniques, and Procedures for Weaponeering and Collateral Damage Estimation, to adequately plan for and execute Directed Energy Laser Weapons in the joint battlespace.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>-The JLaSE effort will conclude in FY 2019. JTCG/ME is pursuing future out-year funding to continue the development of the DE effectiveness, weaponering, and CDE solution for the Warfighter, based on the successful JLaSE and JTCG/ME partnership in FY 2018 and FY 2019.</p> <p>FY 2020 Plans: Live Fire Test and Evaluation (LFT&E) of Major Department of Defense (DoD) Acquisition Programs The FY 2020 budget will enable the LFT&E Deputate to: (1) assess the adequacy of programs' test and evaluation plans and generate new test and evaluation policies, as needed; (2) review and analyze the test data to support an independent evaluation of the survivability/lethality of the systems in support of the development of OSD Live Fire Test and Evaluation reports to Congress; and (3) review major acquisition plans, reports, and requirement documents to inform system design and capability development.</p> <p>JLF Programs and LFT&E Initiatives The FY 2020 budget will support the planning and execution of tests of fielded systems not previously tested under the Live Fire Programs to support DOT&E and operator needs. New threats, missions, tactics, techniques and procedures (TTPs), and combat environments will create the need for these tests and an assessment of performance. JLF projects will be defined, planned, and executed to provide survivability and lethality data on currently fielded U.S. systems; improve modeling and simulation tools; develop vulnerability data libraries for emerging threats; and initiate responses to quick reaction requests from theater. Efforts will concentrate on ultimately delivering a more lethal force, developed in tandem with our alliances and other partner nations as appropriate. In addition, JLF will continue to pursue ways to reform test and evaluation practices to provide greater performance while maximizing both affordability and speed in support of rapid acquisition initiatives.</p> <p>JASP In FY 2020 the JASP will continue work on at least 19 multi-year RDT&E projects and initiate about 8 new projects approved by the JASP Principal Members Steering Group and OSD/DOT&E. The JASP will develop measures to defeat Near-Peer Adversary Threat (N-PAT) radio-frequency and infrared guided threats coupled with quantifiable improvements in digital and hardware in the loop modeling and simulation capability and credibility. Improve aircraft force protection by increasing threat and flight environmental situational awareness, hostile fire identification, and degraded visual environment flight capabilities; advancing system hardening against ballistic and high energy laser threats; and improving aircraft crashworthiness. Improve aircraft survivability to fire by increasing the speed and efficiency of fire detection and suppression systems and the accuracy and confidence in prediction of threat initiated fires onboard aircraft. The JCAT will continue to support the Air Force, Army, Marine Corps and Navy by assessing combat damage incidents, training operators on threat effects and combat damage assessment, and reporting their findings to combatant commanders and the DoD science and technology and acquisition communities. The JASP will continue supporting aircraft survivability education and</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>information exchange through internet sites (restricted access and classified), by publishing the Aircraft Survivability Journal, developing educational materials and conducting training for the DoD and their contractors. The JASP will initiate, continue and complete other projects as approved by the JASP Principal Members Steering Group and OSD/DOT&E.</p> <p>Joint Technical Coordinating Group for Munitions Effectiveness In FY 2020, JTCG/ME will continue to develop, enhance, and standardize methodologies for evaluating munitions effectiveness. This includes target vulnerability characterization, munitions lethality, weapon system accuracy, and specific weapon-target pairings driven primarily from current operational lessons learned, Joint Staff Data Calls, and CCMDs' needs.</p> <p>JTCG/ME will deploy and continue to enhance future versions of its major JTCG/ME JMEM products, the JWS, J-ACE, DCiDE tool, and the DIEE. JTCG/ME will continue to progress and develop non-kinetic JMEM capability, as well as support specialized solutions to address operational needs to include direct analytical support to operations, Pk Lookup Tools, CDE analysis and tables, and munitions weaponeering guides.</p> <p>Since JTCG/ME products are User focused and requirements driven, JTCG/ME will continue to maintain and strengthen relationships with the Warfighter, operational users, and coalition partners to establish requirements for current and future products. Efforts will include forums, training, foreign military sales, and day-to-day operational support. The objective is to provide efficient and effective support to meet CCMD current and future needs for agility and greater lethality in a more dynamic combined operational environment.</p> <p>In FY 2020, JTCG/ME plans to:</p> <ul style="list-style-type: none"> -Field and sustain JWS v2.4. Efforts will include multiple training and user forums for the fielded product. JWS v2.4 will be the final version of the JWS 2.x product line with the development and fielding of JWS 3.x. JWS v2.4 will include interim enhanced database capabilities with updated data sets, as well as ability to accelerate out of production cycle weapons and target data integration and tailor for releasability, thereby supporting force lethality and coalition partner capabilities. Capabilities will enable more options to the weaponeer and improve the underlying phenomenology representation to include FIST v2.4 with several expanded methodologies for structural target response variables. -Finish development of JWS v3.0. JWS v3.0 will be the first version of the JWS v3.x product line, which will have EF as the underlying software architecture. EF will maximize modularity, flexibility of design, and reuse of standard capabilities across the community for greater performance and affordability. JWS v3.0 will focus on fielding of JEL v1.0 capabilities using EF, with a focus on infrastructure and personnel target capability, to include implementation of a DIEE API. JWS v3.0 will also set the foundation of inclusion of CER Tables, collateral damage mitigation capability, and ground mobile targets in JWS v3.1. -Facilitate coalition interoperability and information exchange forums. JTCG/ME will continue to deliver JWS version releases and standalone Pk Lookup tools to key coalition partners in support of current operations under Foreign Military Sales (FMS) 			

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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>agreements, as well as migrate to new processes via the JWS v3.x EF concept. These FMS deliveries complement U.S. interest and capabilities by providing weaponeering and targeting capability to Coalition partners. JTCG/ME will also continue to hold information exchange forums via multiple IEAs. These exchanges facilitate collaboration on methodologies and efforts of mutual interest in the area of weapons effectiveness/collateral damage estimation.</p> <p>-Develop and enhance processes to supply target vulnerability data, weapons characterization data, weapons effectiveness methodology to operational and acquisition communities. The JTCG/ME develops and improves data and methodology used as tri-service standards. A focus of FY 2020 efforts is to migrate to data and methodology utilized through the JEL v1.0. JTCG/ME will continue to support and host technical working groups in targets, weapons, and methodology, as forums to share knowledge and build partnerships for greater leveraging, performance, and affordability. The CCMD Target Execution Group (CTEG) and Weapons Characterization Working Groups (WCWGs) are great examples of successful technical working groups. CTEG approves vulnerability models to generate the target data used on JMEMs. In addition, acquisition programs leverage the target vulnerability data to conduct detailed analysis of their new capabilities against threat targets. This leveraging saves programs valuable time and resources, and ensures the acquisition community is using consistent and valid threat representation. WCWGs collect and approve weapons lethality and delivery accuracy data and methodology for the tri-service community, as well as uses the TAG to review and build partnerships for viable weapons testing and simulation technologies. These technologies and partnerships have the potential to reduce the number of weapon test articles required and remove labor-intensive activities from weapon testing.</p> <p>-Update and execute strategic roadmaps for underlying vulnerability and lethality models used as standards by the tri-service community to better support JWS 3.x development and LFT&E. These roadmaps align JTCG/ME funded and related tasks by other services and programs to facilitate leveraging. In addition, the roadmaps provide a tool for future investment planning to support modeling and simulation validation and resolution of capability gaps.</p> <p>-Develop and accredit CER Reference Tables in accordance with the latest CJCSI 3160.01, "No-Strike and the CDE Methodology" for air-to-surface and surface-to-surface weapons, which are the basic data that support the CDE methodology implemented in DCIDE and DIEE.</p> <p>-Maintain and support fielded DIEE v2.x versions. DIEE is an enterprise targeting solution that provides both seamless planning and linkage to various mission planning systems and tools in operational units. It is a GOTS product for advanced target development that integrates TCM, CDE, Weaponeering, and data basing functions.</p> <p>-Develop and field future DIEE versions that will include CGS updates, 3-D viewer capability, direct CEL interfacing, route tool user requested enhancements, battle damage assessment graphic production, and initial android tablet capabilities, while maintaining Warfighter support and future requirements through training and User forums.</p> <p>-Support and deliver analysis packages for collateral damage mitigation, post-forensic, and force protect analyses packages to operational Users for high value targets in current operations. These efforts directly assist Combatant Commands to meet commander's intent and minimize collateral damage.</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>- Continue the Enhanced Weaponing and CDE Program, a multi-year test program focused on enhancing and validating JTCG/ME CDE tools. This program will support improvements in weaponing methodology to minimize risk to mission and risk to forces, while not increasing risk of collateral damage by providing foundational data for the development of higher fidelity predictive tools. Specific efforts will generate buried ordnance characterization data based upon usage statistics from CCMD Expenditure reports, and AOR specific building debris data to enhance and validate current weaponing/collateral damage estimation methodologies required by Strike Approval Authorities for strike decisions. FY 2020 efforts will leverage nine FY 2019 testing events and multiple collaboration forums. FY 2020 efforts will include approximately four buried ordnance and five building debris characterization tests, as well as analyzing and transitioning data and findings from previous tests to weaponing and CDE tools.</p> <p>-Continue to execute multi-year plan for the “BDA of Deliberate and Dynamic Strikes“ analysis task to directly support the solution offered by the Munition Strategic Portfolio Review to address the current state of the Department’s munitions stockpile. The effort will analyze ongoing strikes required to update JWS to: (1) ensure effective and efficient munition expenditure rates and (2) mitigate the stockpile stress. The analysis approach will include: (1) establishing an analytical cell to provide a detailed and usable Department-level combat assessment of past, current, and future strikes/weapons employments, (2) establishing an archival database that captures the pre- and post-strike assessments of these engagements, in a format that will be called upon by the JWS to select strike packages with optimal and efficient munition expenditures, and (3) guiding tactics improvement for evolving environments and methodology development to improve weaponing tools. Overall impact of multi-year efforts will result in increased operational agility for the Combatant Commands in terms of weapons employment, as well as link current JMEM predictions to operational battlefield performance.</p> <p>-Sustain/support fielded versions of J-ACE, which includes multiple training and user forums for the fielded product. These forums are pivotal for J-ACE developers to understand requirements and align development with other external debrief and analytical capabilities that use J-ACE as the underlying analytical engine to underpin results.</p> <p>-Field J-ACE v5.4, which will include updated Plug-and-Play weapons and aircraft data, updated countermeasures, and a new cross platform BROWSE module, which contains descriptive information for each player (weapon, aircraft). In addition, J-ACE v5.4 will include a new EM module that simulates terminal effects of the weapon lethality and target vulnerability. The much faster EM has improved speed of new fuze model and refined graphic display data generation; and includes more weapon lethality-target vulnerability data sets.</p> <p>-Finish J-ACE v6.0, which is the first of the J-ACE v6.x product line. J-ACE v6.x will use HIVE framework capability as the underlying software architecture that will maximize modularity, provide flexibility for faster software development/modification, and reuse of standard capabilities across the aircraft survivability community. J-ACE v6.0 will include a new modern look-and-feel User Interface with state-of-art graphical displays including Virtual Reality. J-ACE v6.0 will address improved target detection capability leveraging NASIC RF models. J-ACE v6.x includes an initial SEAD/DEAD Air-to-Surf Weapons Trajectory and Arrival). Further J-ACE v6.x versions will address longer development requirements to include rotary wing aircraft capability, expanded SEAD/DEAD capability, and increased electronic warfare and counter-measure capabilities.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>-Continue to develop J-NKE as the single source for operational Warfighters, analysts, targeteers, and planners to analyze offensive cyber capabilities and directed energy effectiveness. FY 2020 efforts will build upon FY 2019 program efforts.</p> <p>-Develop/enhance cyber effects estimation capabilities in the COLE Tool. Planned FY 2020 capability development/deliverables include: (1) Completion of COLE v1.0 that will include OEM ingestion/generation, avenues of approach through adversary cyberspace modeling, calculate capability estimates and Pe based on desired damage criteria, advanced uncertainty modeling (Monte Carlo, etc.), and initial capability to interface/integrate with other JTTCG/ME toolsets, (2) Finalized initial Uncertainty Metric Model (UM2) standards document, and (3) Finalized initial Cyber CDE methodology. Along with development efforts, JTTCG/ME will continue to maintain User community and other key stakeholders' interaction to ensure Combatant Command and Service Warfighter requirements and needs are articulated and understood, as well as Continue Operational User Working Group meetings along with various face-to-face unit level meetings.</p> <p>-The Joint Test Project, JLaSE, will conclude in FY 2019. JLaSE is a conduit for warfighters to solve joint laser operational issues and provide a non-material solution to the warfighter. Two year efforts will leverage DE JTO and various planned Use Cases (Surface-to-Air, Surface-to-Surface, Air-to-Surface) focusing Service near term capabilities (~10 capabilities) in HEL weapons. JTTCG/ME is pursuing out-year funding to continue and finish the development of the DE effectiveness, weaponeering, and CDE solution for the Warfighter, based on the successful JLaSE and JTTCG/ME partnership in FY 2018 and FY 2019.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The increase from FY 2019 to FY 2020 of \$4.840 Million is consistent with increases due to Joint Munitions Effectiveness Manuals for Directed Energy and Electromagnetic Spectrum Fires, inflation, and planned program decreases in enhanced weaponeering and Joint Laser Systems Effectiveness (JLaSE) projects.</p>			
Accomplishments/Planned Programs Subtotals	58.950	64.332	69.172

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

(U) Performance Measure: Percentage of required live fire test planning documents, assessments, munition effectiveness manuals, and reports applicable to acquisition programs on the OSD Test and Evaluation Oversight List and other special interest programs/legacy systems that are completed and delivered to the appropriate decision makers on time. Percentage of required products, such as test planning documents, munitions effectiveness manuals, tactic-techniques and reports that are developed and delivered to program managers and customers on time.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Operational Test and Evaluation, Defense **Date:** March 2019

Appropriation/Budget Activity 0460: <i>Operational Test and Evaluation, Defense / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605814OTE / <i>Operational Test Activities and Analyses</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	59.566	66.447	226.984	58.737	-	58.737	59.028	60.928	51.027	52.184	Continuing	Continuing
000920: <i>OTA&A</i>	59.566	66.447	226.984	58.737	-	58.737	59.028	60.928	51.027	52.184	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Operational Test Activities and Analyses (OTA&A) programs are continuing efforts that provide management and oversight of test and evaluation functions and expertise to the Department of Defense (DoD). The OTA&A programs consist of three activities: Joint Test and Evaluation (JT&E); Threat Systems (TS); and Center for Countermeasures (CCM).

Joint Test and Evaluation projects are test and evaluation activities conducted in a joint military environment that develop process improvements. These multi-Service projects, chartered by the Office of the Secretary of Defense and coordinated with the Joint Staff, appropriate combatant commanders, and the Services, provide non-material solutions that improve: joint interoperability of Service systems, technical and operational concepts, joint operational issues, development and validation of joint test methodologies, and test data for validating models, simulations, and test beds. New projects are also encouraged to align their efforts to supporting the 2018 National Defense Strategy. The JT&E projects address relevant joint war fighting issues in a joint test and evaluation environment by developing and providing new tactics, techniques, and procedures to improve joint capabilities and methodologies.

Threat Systems, based on a memorandum of agreement between the Director, Operational Test and Evaluation (DOT&E) and the Defense Intelligence Agency, provides DOT&E support in the areas of threat resource analysis, intelligence support and threat systems investments. As DOT&E's agent, Threat Systems provides threat resource analyses on the availability, capabilities and limitations of threat representations (threat simulators, targets, models, U.S. surrogates, and foreign materiel) and analysis of test resources used for operational testing to support DOT&E's assessment of the adequacy of testing for those programs designated for oversight by DOT&E and the Office of the Under Secretary of Defense Acquisition and Sustainment (OUSD (A&S)). Threat Systems provides DOT&E action officers and other DOT&E activities with program specific threat intelligence support. Threat Systems also funds management, oversight, and the actual development of common-use threat specifications for threat simulators, threat representative targets, and digital threat models used for test and evaluation.

The Center, a Joint Service Countermeasure (CM) Test & Evaluation (T&E) Activity, directs, coordinates, supports, and conducts independent countermeasure/counter-countermeasure (CCM) T&E activities of U.S. and foreign weapon systems, subsystems, sensors, and related components. The Center accomplishes this work in support of DOT&E, Deputy Assistant Secretary of Defense (DASD) for Developmental Test and Evaluation (DT&E), weapon system developers, and the Services. The Center's testing and analyses directly supports operational effectiveness and suitability evaluations of CM/CCM systems, such as missile warning and aircraft survivability equipment (ASE), used on rotary-wing and fixed-wing aircraft. The Center develops unique CM/CCM test equipment to support testing in operationally realistic environments. The Center determines the effectiveness of precision-guided weapon (PGW) systems and subsystems when operating in an environment degraded by CMs. Analysis and recommendations on CM/CCM effectiveness are provided to Service Program Offices, DOT&E, DASD (DT&E), and the Services. The Center also supports Service member exercises, training, and pre-deployment activities with expertise on CM/CCM technology and capabilities.

This Program Element includes funds to obtain Federally Funded Research and Development support and travel funds.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Operational Test and Evaluation, Defense **Date:** March 2019

Appropriation/Budget Activity 0460: Operational Test and Evaluation, Defense / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0605814OTE / Operational Test Activities and Analyses
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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	67.897	70.992	59.650	-	59.650
Current President's Budget	66.447	226.984	58.737	-	58.737
Total Adjustments	-1.450	155.992	-0.913	-	-0.913
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-1.450	-4.008			
• Congressional Rescissions	-	-			
• Congressional Adds	-	160.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Pricing adjustment due to inflation	-	-	-0.913	-	-0.913

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 000920: OTA&A

Congressional Add: Program Increase for T&E Infrastructure +\$150M

Congressional Add: Advanced Satellite Navigation Receiver +\$10M

Congressional Add Subtotals for Project: 000920

Congressional Add Totals for all Projects

	FY 2018	FY 2019
	-	150.000
	-	10.000
Congressional Add Subtotals for Project: 000920	-	160.000
Congressional Add Totals for all Projects	-	160.000

Change Summary Explanation

- FY 2018 Congressional reduction for FFRDC -\$1.450
- FY 2019 Congressional add for Program Increase for T&E Infrastructure +\$150M
- FY 2019 Congressional add for Advanced Satellite Navigation Receiver +\$10M
- FY 2019 Congressional reduction for FFRDC -\$4.008M
- FY 2020 Pricing adjustment due to inflation

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense **Date:** March 2019

Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605814OTE / <i>Operational Test Activities and Analyses</i>	Project (Number/Name) 000920 / <i>OTA&A</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
000920: <i>OTA&A</i>	59.566	66.447	226.984	58.737	-	58.737	59.028	60.928	51.027	52.184	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Operational Test Activities and Analyses (OTA&A) programs are continuing efforts that provide management and oversight of test and evaluation functions and expertise to the Department of Defense (DoD). The OTA&A programs consist of three activities: Joint Test and Evaluation (JT&E); Threat Systems (TS); and, the Center for Countermeasures (CCM).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Operational Test Activities and Analyses	66.447	66.984	58.737
FY 2019 Plans:			
<p>Joint Test and Evaluation (JT&E)</p> <p>In FY 2019, JT&E will close one project that started in FY 2016 and two projects that started in FY 2017. The first is the Joint Counterair Integration Joint Test, which closed in November 2018. It developed and tested techniques, tactics, and procedures (TTP) for counterair shooter and command and control operators to effectively integrate joint defensive counterair resources in a contested, degraded, and operationally limited environment to protect defended assets from expected threats. The second project is the Joint Cyber Insider Threat Joint Test, which closed November 2018. It developed and tested procedures to proactively detect and respond to cyber insider threats before they have an adverse impact on military operations. The last project expected to close in FY 2019 is the Joint Interoperability for Medical Transport Missions Joint Test, which is anticipated to close in September 2019. It is developing, testing, and evaluating TTP that enable access to medical information existing in various systems across the DoD and procedures for using that information in the patient movement coordination and validation process. Two projects that started in FY 2018 will continue through FY 2019. Four new feasibility studies are expected to be conducted in FY 2019 of which two will be selected to conduct joint tests.</p>			
<p>Threat Systems</p> <p>In FY 2019, Threat Systems will continue test planning working group participation and perform technical analyses to identify threat shortfalls; conduct special studies and provide current intelligence support tailored to specific U.S. weapon systems acquisitions based on the availability of funding. Threat Systems will:</p> <ul style="list-style-type: none"> - Continue to support the US warfighter by providing threat intelligence relevant to emerging threats such as artificial intelligence (AI), autonomy, robotics, machine learning (ML), quantum computing, lasers, nanotechnology, chemical and biological, directed energy, hypersonic and biotechnology to ensure operational and developmental testing occurs against realistic threat 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605814OTE / <i>Operational Test Activities and Analyses</i>	Project (Number/Name) 000920 / <i>OTA&A</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>representations, including (but not limited to) threats from both revisionist powers such as China and Russia, threats from rogue regimes such as North Korea and Iran, and threats from non-state actors.</p> <ul style="list-style-type: none"> - Continue to provide intelligence support to DOT&E staff to address specific questions on threat systems affecting programs on the OSD T&E Oversight list and provide briefings and special intelligence reports when necessary. - Continue to conduct threat intelligence investigations that support use of innovative technologies in the areas of AI, autonomy, robotics, ML, quantum computing, lasers, nanotechnology, chemical and biological, directed energy, hypersonic and biotechnology being developed by nation states to improve threat representation in the contested domain of air, land, sea, space and cyberspace. - Continue identifying initiatives to improve cyberspace threat representation and prediction, cyber-economic threats to DoD systems, and scalable cyberspace threat test environments that can interface with cyber test networks. - Continue identifying initiatives to conduct offensive cyber operations (OCO) and defensive cyber operations (DCO) without significantly impacting critical operational capabilities. - Continue initiatives to improve satellite and space threat representations. - Continue to sustain and manage threat modelling and simulation (M&S) to support test and evaluation by overseeing and coordinating intelligence community developed threat models, performing threat model anomaly resolution resolving differences from live fire testing, integrating threat models into T&E facilities and distributing performance and signature models to T&E users. - Continue to represent DOT&E at foreign material exchanges, inter-agency coordinating groups, and non-proliferation groups to raise awareness of T&E needs for foreign materiel, coordinate service requirements, and de-conflict and prioritize foreign materiel requirements for T&E. - Continue providing DOT&E representative support at the Threat Steering Group (TSG) in the transitioning of the System Threat Assessment Reports (STARS) to the new Validated Online Lifecycle Threat (VOLT) Report process. - Continue to represent DOT&E interests on Acquisition/Intelligence/ Requirement Task Force (AIRTF) and Executive Steering Group (AIRESG) and provide access to the Intelligence Mission Data Management Analysis & Reporting System (IMARS). - Manage Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) efforts supporting programs on the OSD Oversight T&E List by conducting intelligence “deep dives” to produce intelligence in sufficient detail to develop new threat test assets. - Review validation reports to independently ensure the correct threat data and critical parameters are presented in the report to assess the threat representations’ capabilities to replicate a real world threat system. - Represent DOT&E at the Intelligence Mission Data Oversight Board responsible for development, production and sharing issues affecting the intelligence data supporting weapons systems acquisition. - Oversee legacy DOT&E investments and continue management and oversight of legacy and new Test Resource Management Center-funded threat system investments. - Continue ITEAMS efforts leading to the development of new threat systems for T&E. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605814OTE / <i>Operational Test Activities and Analyses</i>	Project (Number/Name) 000920 / <i>OTA&A</i>

B. Accomplishments/Planned Programs (\$ in Millions)

- Continue reviewing Services' Threat Systems investments to prevent any duplication of effort and encourage cost savings by the sharing or multi-service use of newly developed threat representations to T&E.

- Continue to foster rapid technological advancements in the areas of threat representation for T&E and threat test resources by incorporating innovative technologies from the intelligence community into threat test assets to provide improved test fidelity and performance at lower cost

Threat Systems will continue its efforts to maintain a standard set of threat performance models. These activities help DOT&E carry out its Title 10 responsibilities to assess test adequacy and determine whether testing is realistic and suitable, and promotes common solutions to Service threat representation needs.

The Center

The Center's core mission to support T&E of aircraft survivability equipment (ASE) directly leads to a 'more lethal force' by enabling the survivability of aircraft in a threat environment. Survivability enables mission success. The Center expects to conduct, analyze, and report on more than 40 tests, with 31 requests for test support already under consideration or planned. Most testing will focus on aircraft survivability, with a focus on Joint Urgent Operational Needs Statement (JUONS) and Urgent Universal Needs Statement (UUNS), warning and targeting systems, warfighter training events, and precision guided weapons. The Center will provide the programs with an independent assessment of our data/findings for CM/CCM evaluations. The Center will continue to emphasize support of the DOT&E enterprise, with a clear focus on Title 10 oversight, aircraft survivability, and warfighter training events. Furthermore, the Center will continue to provide CM expertise in pre-deployment events and training, as well as CM/CCM-focused training, tactics and procedures (TTP) development. Our support will be distributed across all the Services, as well as intelligence agencies and research and development activities. These activities will help to enhance and support the survivability of equipment, aircraft and personnel.

The Center will continue to build upon Improvement and Modernization (I&M) efforts from FY 2018 to improve T&E capabilities. Specifically the emitters for the missile plume simulators will be upgraded to increase threat fidelity. The Center is undertaking the Joint Standard Instrumentation Suite (JSIS) project to collect threat signature and fly out data to improve infrared-guided threat models. These models form the basis for a significant portion of ASE T&E. JSIS reached initial operational capability this year to start initial data collection at threat live fire events. The JSIS full operational capability development will begin this fiscal year.

In addition, the Center supports each Service's ASE programs with its unique test equipment, which reduces duplicate T&E capabilities. This benefit, along with the transportability of the Center's unique test equipment, provides DoD a cost savings that results in 'greater performance and affordability'. The Center will provide expertise to many organizations, including program offices and other T&E agencies.

FY 2018	FY 2019	FY 2020

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605814OTE / <i>Operational Test Activities and Analyses</i>	Project (Number/Name) 000920 / <i>OTA&A</i>

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
<p>Internationally, the Center will continue to "Strengthen Alliances and attract new partners" through collaborative international T&E efforts. The Center serves as the Steering Committee chair and actively participates in the Air Electronic Warfare Cooperative Test and Evaluation Project Arrangement with Australia, Canada, Great Britain and the U.S. Also, the Center supports international cooperative efforts through direct country-to-country T&E activities and continued involvement in the following groups: NATO SUB-GROUP/2 and NATO's Aerospace Capabilities Group 3 (Air Survivability)/Subgroup 2 (EW Self-Protection Measures for Joint Services Airborne Assets).</p> <p>Domestically, the Center will continue our involvement in the following panels, committees and working groups: Joint Expendable Countermeasure (JECM) Integrated Product Team, Multi Sensing Symposia (MSS) Joint Infrared Countermeasures (IRCM) Working Group, JASP, Foreign Material Exploitation Working Group, Foreign Material Program T&E Subcommittee, and Joint Countermeasures T&E Working Group (JCMT&E WG).</p> <p>FY 2020 Plans: Joint Test and Evaluation (JT&E) In FY 2020, JT&E plans to close one project that started in FY 2017 and one project that started in FY 2018. The first project is the Joint Laser Systems Effectiveness Joint Test, which is anticipated to close in December 2019. It is developing and testing tactics, techniques, and procedures (TTP) for Joint Targeting Cycle, Capabilities Analysis - Weaponizing and Collateral Damage Estimation to adequately plan for and execute directed energy laser weapons in the joint battlespace. The second project is the Multi (Enhanced) Domain Unified Situational Awareness Joint Test, which is anticipated to close in May 2020. It is developing and testing TTP for combatant command planners to identify, input, and migrate information from unclassified situational awareness tools (such as the unclassified common operational picture) to the classified domain (on the Global Command and Control System - Joint) in order to provide enhanced situational awareness to the commander. Two new projects will start in FY 2019 and continue through FY 2020. Four new feasibility studies are expected to be conducted in FY 2020 of which two will be selected to conduct joint tests.</p> <p>Threat Systems In FY 2020, Threat Systems will continue test planning working group participation and perform technical analyses to identify threat shortfalls; conduct special studies and provide current intelligence support tailored to specific U.S. weapon systems acquisitions based on the availability of funding. Threat Systems will: - Continue to support the US warfighter by providing threat intelligence relevant to emerging threats such as artificial intelligence (AI), autonomy, robotics, directed energy, hypersonic and biotechnology to ensure operational and developmental testing occurs against realistic threat representations, including (but not limited to) threats from both revisionist powers such as China and Russia, threats from rogue regimes such as North Korea and Iran, and threats from non-state actors.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605814OTE / <i>Operational Test Activities and Analyses</i>	Project (Number/Name) 000920 / <i>OTA&A</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<ul style="list-style-type: none"> - Continue to provide intelligence support to DOT&E staff to address specific questions on threat systems affecting programs on the OSD T&E Oversight list and provide briefings and special intelligence reports when necessary. - Continue to conduct threat intelligence investigations that support use of innovative technologies in the areas of artificial intelligence (AI), autonomy, robotics, machine learning (ML), quantum computing, lasers, nanotechnology, chemical and biological, directed energy, hypersonic and biotechnology being developed by nation states to improve threat representation in the contested domain of air, land, sea, space and cyberspace. - Continue identifying initiatives to improve cyberspace threat representation and prediction, cyber-economic threats to DoD systems, and scalable cyberspace threat test environments that can interface with cyber test networks. - Continue identifying initiatives to conduct offensive cyber operations (OCO) and defensive cyber operations (DCO) without significantly impacting critical operational capabilities. - Continue initiatives to improve satellite and space threat representations. - Continue to sustain and manage threat M&S to support test and evaluation by overseeing and coordinating intelligence community developed threat models, performing threat model anomaly resolution resolving differences from live fire testing, integrating threat models into T&E facilities and distributing performance and signature models to T&E users. - Continue to represent DOT&E at foreign material exchanges, inter-agency coordinating groups, and non-proliferation groups to raise awareness of T&E needs for foreign materiel, coordinate service requirements, and de-conflict and prioritize foreign materiel requirements for T&E. - Continue providing DOT&E representative support at the Threat Steering Group (TSG) in the transitioning of the System Threat Assessment Reports (STARS) to the new Validated Online Lifecycle Threat (VOLT) Report process. - Continue to represent DOT&E interests on Acquisition/Intelligence/ Requirement Task Force (AIRTF) and Executive Steering Group (AIRESG) and provide access to the Intelligence Mission Data Management Analysis & Reporting System (IMARS). - Manage Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) efforts supporting programs on the OSD Oversight T&E List by conducting intelligence “deep dives” to produce intelligence in sufficient detail to develop new threat test assets. - Review validation reports to independently ensure the correct threat data and critical parameters are presented in the report to assess the threat representations’ capabilities to replicate a real world threat system. - Represent DOT&E at the Intelligence Mission Data Oversight Board responsible for development, production and sharing issues affecting the intelligence data supporting weapons systems acquisition. - Oversee legacy DOT&E investments and continue management and oversight of legacy and new Test Resource Management Center-funded threat system investments. - Continue ITEAMS efforts leading to the development of new threat systems for T&E. - Continue reviewing Services’ Threat Systems investments to prevent any duplication of effort and encourage cost savings by the sharing or multi-service use of newly developed threat representations to T&E. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense **Date:** March 2019

Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605814OTE / <i>Operational Test Activities and Analyses</i>	Project (Number/Name) 000920 / <i>OTA&A</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
<p>- Continue to foster rapid technological advancements in the areas of threat representation for T&E and threat test resources by incorporating innovative technologies from the intelligence community into threat test assets to provide improved test fidelity and performance at lower cost</p> <p>Threat Systems will continue its efforts to maintain a standard set of threat performance models. These activities help DOT&E carry out its Title 10 responsibilities to assess test adequacy and determine whether testing is realistic and suitable, and promotes common solutions to Service threat representation needs.</p> <p>The Center The Center will test, analyze, and report on more than 30 systems/platforms. Most testing will focus on aircraft survivability, with a focus JUONS and UUNS, warning and targeting systems, warfighter training events, and precision guided weapons. High priority programs will receive an independent assessment of our data/findings for CM/ CCM evaluations. The Center will continue to emphasize support of the DOT&E enterprise, with a clear focus on Title 10 oversight, aircraft survivability, and warfighter training events. Furthermore, the Center will continue to provide CM expertise in pre-deployment events and training, as well as CM/CCM-focused tactics, techniques, and procedures (TTP) development. Our support will be distributed across all the Services, as well as intelligence agencies and research and development activities. These activities will help to enhance and support the survivability of equipment, aircraft and personnel.</p> <p>The Center will continue to build upon I&M efforts from fiscal year 2019 to improve T&E capabilities. Specifically, the missile plume simulator smart emitter upgrades are expected to be completed by the end of FY 2020. The JSIS project will continue development with equipment being fielded as it becomes available.</p> <p>The Center will continue to support international T&E collaborative efforts. In addition, the Center will continue support of domestic panels, committees and working groups.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The decrease from FY 2019 to FY 2020 of \$168.247 Million is consistent with planned program decreases in Fifth Generation Aerial Targets and not planning for the continuation of the \$160M congressional adds for T&E Infrastructure and Advanced Satellite Navigation Receiver.</p>			
Accomplishments/Planned Programs Subtotals	66.447	66.984	58.737

<i>Congressional Add:</i> Program Increase for T&E Infrastructure +\$150M	FY 2018	FY 2019
	-	150.000

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Operational Test and Evaluation, Defense		Date: March 2019
Appropriation/Budget Activity 0460 / 6	R-1 Program Element (Number/Name) PE 0605814OTE / <i>Operational Test Activities and Analyses</i>	Project (Number/Name) 000920 / <i>OTA&A</i>

	FY 2018	FY 2019
FY 2019 Plans: DOT&E will develop critical test capabilities needed to test hypersonics, directed energy, advanced computing/big data analytics, artificial intelligence/machine learning, and autonomy/robotics		
Congressional Add: Advanced Satellite Navigation Receiver +\$10M	-	10.000
FY 2019 Plans: DOT&E will develop, conduct a requirements review, and formulate preliminary design of 6 Degrees of Freedom Time Space Position Information (TSPI) Advanced Satellite Navigation Receiver (ASNR) for dynamic TSPI collection by DOT&E labs, facilities, ranges, and partners including "Five Eyes" (FVEY) and North American Treaty Organization (NATO) partners.		
Congressional Adds Subtotals	-	160.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance Measure: Percentage of required products, such as test planning documents, tactics, techniques, procedures, threat characteristics, assessments, and reports that are developed and delivered to program managers and customers on time. The on-time completion rate was computed on the basis of the number of required products that were submitted within established time standards relative to the total number of such products that fell due during the fiscal year.

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