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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



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) 2021 Overseas Contingency Operations funding can be separated into the following categories:

- OCO for Direct War Costs (\$0): Direct War costs are those combat or direct combat support costs that will not continue to be expended once combat operations end at major contingency locations.
- OCO for Enduring Requirements (\$82,818,000): 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 (\$0): OCO for Base Requirements is funding to pay for base budget requirements that are financed in the OCO budget in order for the Department to comply with the Bipartisan Budget Act (BBA) of 2019.

Preparation of the Defense-Wide budget, excluding revolving funds, cost the Department of Defense a total of approximately \$1,220,000 in FY 2020.

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

10 Feb 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Research, Development, Test & Eval, DW	24,300,844	25,938,027		394,260	26,332,287
Operational Test & Eval, Defense	377,001	227,700			227,700
Total Research, Development, Test & Evaluation	24,677,845	26,165,727		394,260	26,559,987
<u>Other RDT&E Budget Activities Not Included in the Research, Development, Test and Evaluation Title</u>					
Office of the Inspector General	3,977	2,965			2,965
Defense Health Program	2,179,621	2,306,095			2,306,095
Chem Agents & Munitions Destruction	666,863	875,930			875,930
Total Not in Research, Development, Test & Evaluati	2,850,461	3,184,990			3,184,990

Department of Defense
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Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
-----	-----	-----	-----	-----	-----
Research, Development, Test & Eval, DW	24,280,891		82,818	82,818	24,363,709
Operational Test & Eval, Defense	210,090				210,090
Total Research, Development, Test & Evaluation	24,490,981		82,818	82,818	24,573,799
Other RDT&E Budget Activities Not Included in the Research, Development, Test and Evaluation Title					

Office of the Inspector General	1,098				1,098
Defense Health Program	562,465				562,465
Chem Agents & Munitions Destruction	782,193				782,193
Total Not in Research, Development, Test & Evaluati	1,345,756				1,345,756

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Summary Recap of Budget Activities	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Basic Research	777,142	828,300			828,300
Applied Research	1,873,730	1,994,528		1,677	1,996,205
Advanced Technology Development	3,660,195	3,906,848		74,758	3,981,606
Advanced Component Development & Prototypes	9,821,379	10,448,295		113,590	10,561,885
System Development & Demonstration	1,109,307	883,867			883,867
Management Support	2,156,531	1,838,837			1,838,837
Operational Systems Development	5,279,561	6,265,052		204,235	6,469,287
Software And Digital Technology Pilot Programs					
Total Research, Development, Test & Evaluation	24,677,845	26,165,727		394,260	26,559,987
 Summary Recap of FYDP Programs					
General Purpose Forces	90,905	85,912			85,912
Intelligence and Communications	842,966	1,031,122			1,031,122
Research and Development	18,768,229	19,365,985		190,025	19,556,010
Central Supply and Maintenance	4,761	6,611			6,611
Training Medical and Other	43,600	40,173			40,173
Administration and Associated Activities	34,479	33,155			33,155
Special Operations Forces	606,348	833,768		11,726	845,494
Space	132,966	277,456			277,456
Classified Programs	4,153,591	4,491,545		192,509	4,684,054
Total Research, Development, Test & Evaluation	24,677,845	26,165,727		394,260	26,559,987

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 (Dollars in Thousands)

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	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities					
-----	-----	-----	-----	-----	-----
Basic Research	760,386				760,386
Applied Research	1,976,390		3,699	3,699	1,980,089
Advanced Technology Development	3,588,876		23,149	23,149	3,612,025
Advanced Component Development & Prototypes	9,416,712		19,931	19,931	9,436,643
System Development & Demonstration	603,808				603,808
Management Support	1,507,482				1,507,482
Operational Systems Development	6,161,946		36,039	36,039	6,197,985
Software And Digital Technology Pilot Programs	475,381				475,381
Total Research, Development, Test & Evaluation	24,490,981		82,818	82,818	24,573,799
Summary Recap of FYDP Programs					
-----	-----	-----	-----	-----	-----
General Purpose Forces	69,009				69,009
Intelligence and Communications	997,390				997,390
Research and Development	17,492,921		46,779	46,779	17,539,700
Central Supply and Maintenance	10,740				10,740
Training Medical and Other	31,225				31,225
Administration and Associated Activities	30,040				30,040
Special Operations Forces	713,740		11,982	11,982	725,722
Space	357,867				357,867
Classified Programs	4,788,049		24,057	24,057	4,812,106
Total Research, Development, Test & Evaluation	24,490,981		82,818	82,818	24,573,799

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	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Non-RDT&E Title FYDP Programs</u>					
Research and Development	2,179,621	2,306,095			2,306,095
Central Supply and Maintenance	666,863	875,930			875,930
Administration and Associated Activities	3,977	2,965			2,965
Total Research, Development, Test & Evaluation	2,850,461	3,184,990			3,184,990

Department of Defense
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	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Non-RDT&E Title FYDP Programs</u>					
Research and Development	562,465				562,465
Central Supply and Maintenance	782,193				782,193
Administration and Associated Activities	1,098				1,098
Total Research, Development, Test & Evaluation	1,345,756				1,345,756

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Summary Recap of Budget Activities	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Basic Research	777,142	828,300			828,300
Applied Research	1,873,730	1,994,528		1,677	1,996,205
Advanced Technology Development	3,660,195	3,906,848		74,758	3,981,606
Advanced Component Development & Prototypes	9,821,379	10,448,295		113,590	10,561,885
System Development & Demonstration	1,109,307	883,867			883,867
Management Support	1,779,530	1,611,137			1,611,137
Operational Systems Development	5,279,561	6,265,052		204,235	6,469,287
Software And Digital Technology Pilot Programs					
Total Research, Development, Test & Evaluation	24,300,844	25,938,027		394,260	26,332,287
 Summary Recap of FYDP Programs					
General Purpose Forces	90,905	85,912			85,912
Intelligence and Communications	842,966	1,031,122			1,031,122
Research and Development	18,391,228	19,138,285		190,025	19,328,310
Central Supply and Maintenance	4,761	6,611			6,611
Training Medical and Other	43,600	40,173			40,173
Administration and Associated Activities	34,479	33,155			33,155
Special Operations Forces	606,348	833,768		11,726	845,494
Space	132,966	277,456			277,456
Classified Programs	4,153,591	4,491,545		192,509	4,684,054
Total Research, Development, Test & Evaluation	24,300,844	25,938,027		394,260	26,332,287

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Summary Recap of Budget Activities	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Basic Research	760,386				760,386
Applied Research	1,976,390		3,699	3,699	1,980,089
Advanced Technology Development	3,588,876		23,149	23,149	3,612,025
Advanced Component Development & Prototypes	9,416,712		19,931	19,931	9,436,643
System Development & Demonstration	603,808				603,808
Management Support	1,297,392				1,297,392
Operational Systems Development	6,161,946		36,039	36,039	6,197,985
Software And Digital Technology Pilot Programs	475,381				475,381
Total Research, Development, Test & Evaluation	24,280,891		82,818	82,818	24,363,709
 Summary Recap of FYDP Programs					
General Purpose Forces	69,009				69,009
Intelligence and Communications	997,390				997,390
Research and Development	17,282,831		46,779	46,779	17,329,610
Central Supply and Maintenance	10,740				10,740
Training Medical and Other	31,225				31,225
Administration and Associated Activities	30,040				30,040
Special Operations Forces	713,740		11,982	11,982	725,722
Space	357,867				357,867
Classified Programs	4,788,049		24,057	24,057	4,812,106
Total Research, Development, Test & Evaluation	24,280,891		82,818	82,818	24,363,709

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Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Chemical and Biological Defense Program	998,721	1,066,187			1,066,187
Defense Advanced Research Projects Agency	3,425,549	3,458,321			3,458,321
Defense Contract Audit Agency	2,600	1,600			1,600
Defense Contract Management Agency	2,090	3,495			3,495
Defense Counterintelligence & Security Agency					
Defense-Wide		3,000			3,000
Defense Human Resources Activity	24,290	36,843			36,843
Defense Intelligence Agency					
Defense Information Systems Agency	326,302	497,936			497,936
Defense Logistics Agency	332,136	315,202			315,202
Defense Security Cooperative Agency	7,734	14,257			14,257
Defense Technical Information Center	60,977	60,743			60,743
Defense Threat Reduction Agency	663,254	543,261		164,795	708,056
Missile Defense Agency	7,246,099	8,138,197			8,138,197
National Geospatial Intelligence Agency					
National Security Agency					
Office of Secretary of Defense	5,984,436	5,827,044		25,230	5,852,274
Space Development Agency		95,000			95,000
U.S., Special Operations Command	612,634	840,127		11,726	851,853
The Joint Staff	134,265	150,246			150,246

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Appropriation -----	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
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Chemical and Biological Defense Program	993,732				993,732
Defense Advanced Research Projects Agency	3,566,348				3,566,348
Defense Contract Audit Agency	2,198				2,198
Defense Contract Management Agency	1,441				1,441
Defense Counterintelligence & Security Agency					
Defense-Wide					
Defense Human Resources Activity	37,919				37,919
Defense Intelligence Agency					
Defense Information Systems Agency	396,750				396,750
Defense Logistics Agency	206,947				206,947
Defense Security Cooperative Agency	6,294				6,294
Defense Technical Information Center	62,206				62,206
Defense Threat Reduction Agency	576,997		27,491	27,491	604,488
Missile Defense Agency	7,169,641				7,169,641
National Geospatial Intelligence Agency					
National Security Agency					
Office of Secretary of Defense	4,772,874		19,288	19,288	4,792,162
Space Development Agency	288,416				288,416
U.S., Special Operations Command	719,806		11,982	11,982	731,788
The Joint Staff	118,451				118,451

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Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Washington Headquarters Services	30,198	1,000			1,000
Total Research, Development, Test & Evaluation	24,300,844	25,938,027		394,260	26,332,287

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Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
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Washington Headquarters Services	999				999
Total Research, Development, Test & Evaluation	24,280,891		82,818	82,818	24,363,709

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
1	0601000BR	DTRA Basic Research	01	36,148	26,000			26,000 U
2	0601101E	Defense Research Sciences	01	423,895	432,284			432,284 U
3	0601110D8Z	Basic Research Initiatives	01	55,195	70,874			70,874 U
4	0601117E	Basic Operational Medical Research Science	01	49,692	54,122			54,122 U
5	0601120D8Z	National Defense Education Program	01	132,743	144,074			144,074 U
6	0601228D8Z	Historically Black Colleges and Universities/Minority Institutions	01	38,568	52,708			52,708 U
7	0601384BP	Chemical and Biological Defense Program	01	40,901	48,238			48,238 U
		Basic Research		777,142	828,300			828,300
8	0602000D8Z	Joint Munitions Technology	02	19,067	19,306			19,306 U
9	0602115E	Biomedical Technology	02	94,423	92,771			92,771 U
10	0602134BR	Counter Improvised-Threat Advanced Studies	02				1,677	1,677 U
11	0602230D8Z	Defense Technology Innovation	02					U
12	0602234D8Z	Lincoln Laboratory Research Program	02	49,647	52,317			52,317 U
13	0602251D8Z	Applied Research for the Advancement of S&T Priorities	02	59,567	60,400			60,400 U
14	0602303E	Information & Communications Technology	02	401,453	428,556			428,556 U
15	0602383E	Biological Warfare Defense	02	31,951	34,588			34,588 U

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
1	0601000BR	DTRA Basic Research	01	14,617				14,617	U
2	0601101E	Defense Research Sciences	01	479,958				479,958	U
3	0601110D8Z	Basic Research Initiatives	01	35,565				35,565	U
4	0601117E	Basic Operational Medical Research Science	01	53,730				53,730	U
5	0601120D8Z	National Defense Education Program	01	100,241				100,241	U
6	0601228D8Z	Historically Black Colleges and Universities/Minority Institutions	01	30,975				30,975	U
7	0601384BP	Chemical and Biological Defense Program	01	45,300				45,300	U
		Basic Research		760,386				760,386	
8	0602000D8Z	Joint Munitions Technology	02	19,409				19,409	U
9	0602115E	Biomedical Technology	02	107,568				107,568	U
10	0602134BR	Counter Improvised-Threat Advanced Studies	02			3,699	3,699	3,699	U
11	0602230D8Z	Defense Technology Innovation	02	35,000				35,000	U
12	0602234D8Z	Lincoln Laboratory Research Program	02	41,080				41,080	U
13	0602251D8Z	Applied Research for the Advancement of S&T Priorities	02	60,722				60,722	U
14	0602303E	Information & Communications Technology	02	435,920				435,920	U
15	0602383E	Biological Warfare Defense	02	26,950				26,950	U

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c	
16	0602384BP	Chemical and Biological Defense Program	02	189,614	215,057			215,057	U
17	0602668D8Z	Cyber Security Research	02	14,594	25,118			25,118	U
18	0602702E	Tactical Technology	02	295,118	313,002			313,002	U
19	0602715E	Materials and Biological Technology	02	192,774	214,976			214,976	U
20	0602716E	Electronics Technology	02	331,905	317,192			317,192	U
21	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	150,040	174,096			174,096	U
22	0602751D8Z	Software Engineering Institute (SEI) Applied Research	02	8,942	9,580			9,580	U
23	1160401BB	SOF Technology Development	02	34,635	37,569			37,569	U
		Applied Research		1,873,730	1,994,528		1,677	1,996,205	
24	0603000D8Z	Joint Munitions Advanced Technology	03	25,462	25,779			25,779	U
25	0603121D8Z	SO/LIC Advanced Development	03		5,000			5,000	U
26	0603122D8Z	Combating Terrorism Technology Support	03	168,012	91,517		25,230	116,747	U
27	0603133D8Z	Foreign Comparative Testing	03	23,867	24,970			24,970	U
28	0603134BR	Counter Improvised-Threat Simulation	03	13,648			49,528	49,528	U
29	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	275,246	330,065			330,065	U

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Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
16	0602384BP	Chemical and Biological Defense Program	02	201,807				201,807	U
17	0602668D8Z	Cyber Security Research	02	15,255				15,255	U
18	0602702E	Tactical Technology	02	233,271				233,271	U
19	0602715E	Materials and Biological Technology	02	250,107				250,107	U
20	0602716E	Electronics Technology	02	322,693				322,693	U
21	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	174,571				174,571	U
22	0602751D8Z	Software Engineering Institute (SEI) Applied Research	02	9,573				9,573	U
23	1160401BB	SOF Technology Development	02	42,464				42,464	U
		Applied Research		1,976,390		3,699	3,699	1,980,089	
24	0603000D8Z	Joint Munitions Advanced Technology	03	22,920				22,920	U
25	0603121D8Z	SO/LIC Advanced Development	03	4,914				4,914	U
26	0603122D8Z	Combating Terrorism Technology Support	03	51,089		19,288	19,288	70,377	U
27	0603133D8Z	Foreign Comparative Testing	03	25,183				25,183	U
28	0603134BR	Counter Improvised-Threat Simulation	03			3,861	3,861	3,861	U
29	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	366,659				366,659	U

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c	
30	0603176C	Advanced Concepts and Performance Assessment	03	12,720	46,201			46,201	U
31	0603178C	Weapons Technology	03	13,400					U
32	0603180C	Advanced Research	03	42,100	27,674			27,674	U
33	0603225D8Z	Joint DoD-DoE Munitions Technology Development	03	17,941	18,773			18,773	U
34	0603286E	Advanced Aerospace Systems	03	287,907	279,741			279,741	U
35	0603287E	Space Programs and Technology	03	256,181	190,306			190,306	U
36	0603288D8Z	Analytic Assessments	03	17,768	18,429			18,429	U
37	0603289D8Z	Advanced Innovative Analysis and Concepts	03	36,344	37,645			37,645	U
38	0603291D8Z	Advanced Innovative Analysis and Concepts - MHA	03	13,286	14,668			14,668	U
39	0603294C	Common Kill Vehicle Technology	03	55,549	13,600			13,600	U
40	0603338D8Z	Defense Modernization and Prototyping	03						U
41	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03	29,198					U
42	0603342D8Z	Defense Innovation Unit (DIU)	03		29,398			29,398	U
43	0603375D8Z	Technology Innovation	03	25,856	30,000			30,000	U
44	0603384BP	Chemical and Biological Defense Program - Advanced Development	03	140,740	175,486			175,486	U
45	0603527D8Z	RETRACT LARCH	03	161,453	159,688			159,688	U

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30	0603176C	Advanced Concepts and Performance Assessment	03	14,910				14,910	U
31	0603178C	Weapons Technology	03						U
32	0603180C	Advanced Research	03	18,687				18,687	U
33	0603225D8Z	Joint DoD-DoE Munitions Technology Development	03	18,873				18,873	U
34	0603286E	Advanced Aerospace Systems	03	230,978				230,978	U
35	0603287E	Space Programs and Technology	03	158,439				158,439	U
36	0603288D8Z	Analytic Assessments	03	23,775				23,775	U
37	0603289D8Z	Advanced Innovative Analysis and Concepts	03	36,524				36,524	U
38	0603291D8Z	Advanced Innovative Analysis and Concepts - MHA	03	14,703				14,703	U
39	0603294C	Common Kill Vehicle Technology	03	11,058				11,058	U
40	0603338D8Z	Defense Modernization and Prototyping	03	133,375				133,375	U
41	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03						U
42	0603342D8Z	Defense Innovation Unit (DIU)	03	26,141				26,141	U
43	0603375D8Z	Technology Innovation	03	27,709				27,709	U
44	0603384BP	Chemical and Biological Defense Program - Advanced Development	03	188,001				188,001	U
45	0603527D8Z	RETRACT LARCH	03	130,283				130,283	U

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46	0603618D8Z	Joint Electronic Advanced Technology	03	12,680	12,063			12,063 U
47	0603648D8Z	Joint Capability Technology Demonstrations	03	102,494	89,859			89,859 U
48	0603662D8Z	Networked Communications Capabilities	03	12,291	2,858			2,858 U
49	0603680D8Z	Defense-Wide Manufacturing Science and Technology Program	03	171,749	197,397			197,397 U
50	0603680S	Manufacturing Technology Program	03	62,396	51,002			51,002 U
51	0603699D8Z	Emerging Capabilities Technology Development	03	59,350	109,411			109,411 U
52	0603712S	Generic Logistics R&D Technology Demonstrations	03	18,127	16,620			16,620 U
53	0603716D8Z	Strategic Environmental Research Program	03	75,485	66,157			66,157 U
54	0603720S	Microelectronics Technology Development and Support	03	192,926	200,530			200,530 U
55	0603727D8Z	Joint Warfighting Program	03	5,161	4,846			4,846 U
56	0603739E	Advanced Electronics Technologies	03	100,042	123,616			123,616 U
57	0603760E	Command, Control and Communications Systems	03	178,074	229,134			229,134 U
58	0603766E	Network-Centric Warfare Technology	03	413,948	507,424			507,424 U
59	0603767E	Sensor Technology	03	174,094	158,903			158,903 U
60	0603769D8Z	Distributed Learning Advanced Technology Development	03	13,414	22,446			22,446 U

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46	0603618D8Z	Joint Electronic Advanced Technology	03	15,164				15,164	U
47	0603648D8Z	Joint Capability Technology Demonstrations	03	85,452				85,452	U
48	0603662D8Z	Networked Communications Capabilities	03	5,882				5,882	U
49	0603680D8Z	Defense-Wide Manufacturing Science and Technology Program	03	93,817				93,817	U
50	0603680S	Manufacturing Technology Program	03	40,025				40,025	U
51	0603699D8Z	Emerging Capabilities Technology Development	03						U
52	0603712S	Generic Logistics R&D Technology Demonstrations	03	10,235				10,235	U
53	0603716D8Z	Strategic Environmental Research Program	03	53,862				53,862	U
54	0603720S	Microelectronics Technology Development and Support	03	124,049				124,049	U
55	0603727D8Z	Joint Warfighting Program	03	3,871				3,871	U
56	0603739E	Advanced Electronics Technologies	03	95,864				95,864	U
57	0603760E	Command, Control and Communications Systems	03	221,724				221,724	U
58	0603766E	Network-Centric Warfare Technology	03	661,158				661,158	U
59	0603767E	Sensor Technology	03	200,220				200,220	U
60	0603769D8Z	Distributed Learning Advanced Technology Development	03	6,765				6,765	U

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61	0603781D8Z	Software Engineering Institute	03	15,016	15,111			15,111 U
62	0603826D8Z	Quick Reaction Special Projects	03	57,004	35,647			35,647 U
63	0603833D8Z	Engineering Science & Technology	03	18,895	19,376			19,376 U
64	0603924D8Z	High Energy Laser Advanced Technology Program	03	71,819	80,723			80,723 U
65	0603941D8Z	Test & Evaluation Science & Technology	03	114,559	191,574			191,574 U
66	0603950D8Z	National Security Innovation Network	03		40,000			40,000 U
67	0604055D8Z	Operational Energy Capability Improvement	03	44,362	64,900			64,900 U
68	0303310D8Z	CWMD Systems	03	25,619	28,907			28,907 U
69	0303367D8Z	Spectrum Access Research and Development	03	27,002				U
70	1160402BB	SOF Advanced Technology Development	03	77,010	99,404			99,404 U
71	1206310SDA	Space Science and Technology Research and Development	03		20,000			20,000 U
	Advanced Technology Development			3,660,195	3,906,848		74,758	3,981,606
72	0603161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E ADC&P	04	27,123	42,695			42,695 U
73	0603600D8Z	WALKOFF	04	89,376	92,791			92,791 U
74	0603821D8Z	Acquisition Enterprise Data & Information Services	04	2,500	5,659			5,659 U

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61	0603781D8Z	Software Engineering Institute	03	12,598				12,598	U
62	0603826D8Z	Quick Reaction Special Projects	03						U
63	0603833D8Z	Engineering Science & Technology	03						U
64	0603924D8Z	High Energy Laser Advanced Technology Program	03	105,410				105,410	U
65	0603941D8Z	Test & Evaluation Science & Technology	03	187,065				187,065	U
66	0603950D8Z	National Security Innovation Network	03						U
67	0604055D8Z	Operational Energy Capability Improvement	03						U
68	0303310D8Z	CWMD Systems	03						U
69	0303367D8Z	Spectrum Access Research and Development	03						U
70	1160402BB	SOF Advanced Technology Development	03	89,072				89,072	U
71	1206310SDA	Space Science and Technology Research and Development	03	72,422				72,422	U
	Advanced Technology Development			3,588,876		23,149	23,149	3,612,025	
72	0603161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E ADC&P	04	32,636				32,636	U
73	0603600D8Z	WALKOFF	04	106,529				106,529	U
74	0603821D8Z	Acquisition Enterprise Data & Information Services	04						U

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75	0603851D8Z	Environmental Security Technical Certification Program	04	41,058	68,572			68,572	U
76	0603881C	Ballistic Missile Defense Terminal Defense Segment	04	383,369	306,761			306,761	U
77	0603882C	Ballistic Missile Defense Midcourse Defense Segment	04	790,316	1,303,716			1,303,716	U
78	0603884BP	Chemical and Biological Defense Program - Dem/Val	04	115,452	80,162			80,162	U
79	0603884C	Ballistic Missile Defense Sensors	04	382,759	352,288			352,288	U
80	0603890C	BMD Enabling Programs	04	614,855	634,449			634,449	U
81	0603891C	Special Programs - MDA	04	418,722	512,098			512,098	U
82	0603892C	AEGIS BMD	04	724,731	737,269			737,269	U
83	0603896C	Ballistic Missile Defense Command and Control, Battle Management and Communicati	04	500,965	549,756			549,756	U
84	0603898C	Ballistic Missile Defense Joint Warfighter Support	04	48,401	51,532			51,532	U
85	0603904C	Missile Defense Integration & Operations Center (MDIOC)	04	51,689	56,161			56,161	U
86	0603906C	Regarding Trench	04	16,512	22,424			22,424	U
87	0603907C	Sea Based X-Band Radar (SBX)	04	125,900	128,156			128,156	U
88	0603913C	Israeli Cooperative Programs	04	300,000	300,000			300,000	U
89	0603914C	Ballistic Missile Defense Test	04	510,292	399,738			399,738	U
90	0603915C	Ballistic Missile Defense Targets	04	561,349	542,939			542,939	U

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75	0603851D8Z	Environmental Security Technical Certification Program	04	61,345				61,345	U
76	0603881C	Ballistic Missile Defense Terminal Defense Segment	04	412,627				412,627	U
77	0603882C	Ballistic Missile Defense Midcourse Defense Segment	04	1,004,305				1,004,305	U
78	0603884BP	Chemical and Biological Defense Program - Dem/Val	04	76,167				76,167	U
79	0603884C	Ballistic Missile Defense Sensors	04	281,957				281,957	U
80	0603890C	BMD Enabling Programs	04	599,380				599,380	U
81	0603891C	Special Programs - MDA	04	420,216				420,216	U
82	0603892C	AEGIS BMD	04	814,936				814,936	U
83	0603896C	Ballistic Missile Defense Command and Control, Battle Management and Communicati	04	593,353				593,353	U
84	0603898C	Ballistic Missile Defense Joint Warfighter Support	04	49,560				49,560	U
85	0603904C	Missile Defense Integration & Operations Center (MDIOC)	04	55,356				55,356	U
86	0603906C	Regarding Trench	04	11,863				11,863	U
87	0603907C	Sea Based X-Band Radar (SBX)	04	118,318				118,318	U
88	0603913C	Israeli Cooperative Programs	04	300,000				300,000	U
89	0603914C	Ballistic Missile Defense Test	04	378,302				378,302	U
90	0603915C	Ballistic Missile Defense Targets	04	536,133				536,133	U

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91	0603920D8Z	Humanitarian Demining	04	10,952	14,700			14,700 U
92	0603923D8Z	Coalition Warfare	04	8,379	11,316			11,316 U
93	0604011D8Z	Next Generation Information Communications Technology (5G)	04	52,000	200,000			200,000 U
94	0604016D8Z	Department of Defense Corrosion Program	04	9,281	13,165			13,165 U
95	0604115C	Technology Maturation Initiatives	04	312,074	264,520			264,520 U
96	0604132D8Z	Missile Defeat Project	04	41,961	14,816			14,816 U
97	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04	169,638			113,590	113,590 U
98	0604181C	Hypersonic Defense	04	132,612	390,204			390,204 U
99	0604250D8Z	Advanced Innovative Technologies	04	1,347,956	1,133,365			1,133,365 U
100	0604294D8Z	Trusted & Assured Microelectronics	04	517,356	547,421			547,421 U
101	0604331D8Z	Rapid Prototyping Program	04	96,196	72,351			72,351 U
102	0604341D8Z	Defense Innovation Unit (DIU) Prototyping	04		17,000			17,000 U
103	0604400D8Z	Department of Defense (DoD) Unmanned System Common Development	04	7,625	7,021			7,021 U
104	0604532D8Z	Joint Artificial Intelligence	04	12,968				U
105	0604672C	Homeland Defense Radar - Hawaii (HDR-H)	04	70,735	188,480			188,480 U
106	0604673C	Pacific Discriminating Radar	04	14,453	6,711			6,711 U

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91	0603920D8Z	Humanitarian Demining	04						U
92	0603923D8Z	Coalition Warfare	04	10,129				10,129	U
93	0604011D8Z	Next Generation Information Communications Technology (5G)	04	449,000				449,000	U
94	0604016D8Z	Department of Defense Corrosion Program	04	3,325				3,325	U
95	0604115C	Technology Maturation Initiatives	04	67,389				67,389	U
96	0604132D8Z	Missile Defeat Project	04						U
97	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04			19,931	19,931	19,931	U
98	0604181C	Hypersonic Defense	04	206,832				206,832	U
99	0604250D8Z	Advanced Innovative Technologies	04	730,508				730,508	U
100	0604294D8Z	Trusted & Assured Microelectronics	04	489,076				489,076	U
101	0604331D8Z	Rapid Prototyping Program	04	102,023				102,023	U
102	0604341D8Z	Defense Innovation Unit (DIU) Prototyping	04	13,255				13,255	U
103	0604400D8Z	Department of Defense (DoD) Unmanned System Common Development	04	2,787				2,787	U
104	0604532D8Z	Joint Artificial Intelligence	04						U
105	0604672C	Homeland Defense Radar - Hawaii (HDR-H)	04						U
106	0604673C	Pacific Discriminating Radar	04						U

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107	0604682D8Z	Wargaming and Support for Strategic Analysis (SSA)	04	3,621	3,751			3,751 U
108	0604775D8Z	Defense Rapid Innovation Program	04	241,194				U
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	21,904	20,062			20,062 U
110	0604873C	Long Range Discrimination Radar (LRDR)	04	172,705	136,423			136,423 U
111	0604874C	Improved Homeland Defense Interceptors	04	407,858	515,000			515,000 U
112	0604876C	Ballistic Missile Defense Terminal Defense Segment Test	04	57,972	25,137			25,137 U
113	0604878C	Aegis BMD Test	04	92,160	169,822			169,822 U
114	0604879C	Ballistic Missile Defense Sensor Test	04	71,905	105,530			105,530 U
115	0604880C	Land-Based SM-3 (LBSM3)	04	25,200	38,352			38,352 U
116	0604887C	Ballistic Missile Defense Midcourse Segment Test	04	72,634	98,139			98,139 U
117	0604894C	Multi-Object Kill Vehicle	04	5,754				U
118	0300206R	Enterprise Information Technology Systems	04	2,600	1,600			1,600 U
119	0303191D8Z	Joint Electromagnetic Technology (JET) Program	04	3,096	3,191			3,191 U
120	0305103C	Cyber Security Initiative	04	961	11,138			11,138 U
121	1206410SDA	Space Technology Development and Prototyping	04		75,000			75,000 U

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107	0604682D8Z	Wargaming and Support for Strategic Analysis (SSA)	04	3,469				3,469	U
108	0604775D8Z	Defense Rapid Innovation Program	04						U
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	19,190				19,190	U
110	0604873C	Long Range Discrimination Radar (LRDR)	04	137,256				137,256	U
111	0604874C	Improved Homeland Defense Interceptors	04	664,138				664,138	U
112	0604876C	Ballistic Missile Defense Terminal Defense Segment Test	04	7,768				7,768	U
113	0604878C	Aegis BMD Test	04	170,880				170,880	U
114	0604879C	Ballistic Missile Defense Sensor Test	04	76,456				76,456	U
115	0604880C	Land-Based SM-3 (LBSM3)	04	56,628				56,628	U
116	0604887C	Ballistic Missile Defense Midcourse Segment Test	04	67,071				67,071	U
117	0604894C	Multi-Object Kill Vehicle	04						U
118	0300206R	Enterprise Information Technology Systems	04	2,198				2,198	U
119	0303191D8Z	Joint Electromagnetic Technology (JET) Program	04	997				997	U
120	0305103C	Cyber Security Initiative	04	1,148				1,148	U
121	1206410SDA	Space Technology Development and Prototyping	04	215,994				215,994	U

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122	1206893C	Space Tracking & Surveillance System	04	36,114	36,349			36,349	U
123	1206895C	Ballistic Missile Defense System Space Programs	04	96,146	140,565			140,565	U
		Advanced Component Development & Prototypes		9,821,379	10,448,295		113,590	10,561,885	
124	0604161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E SDD	05	8,185	11,276			11,276	U
125	0604165D8Z	Prompt Global Strike Capability Development	05	525,670	151,000			151,000	U
126	0604384BP	Chemical and Biological Defense Program - EMD	05	344,745	385,047			385,047	U
127	0604771D8Z	Joint Tactical Information Distribution System (JTIDS)	05	46,210	54,102			54,102	U
128	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	7,219	13,100			13,100	U
129	0605013BL	Information Technology Development	05	2,090	3,070			3,070	U
130	0605021SE	Homeland Personnel Security Initiative	05	285	7,295			7,295	U
131	0605022D8Z	Defense Exportability Program	05	1,455	12,115			12,115	U
132	0605027D8Z	OUSD(C) IT Development Initiatives	05	9,219	9,590			9,590	U
133	0605070S	DOD Enterprise Systems Development and Demonstration	05	3,057	2,291			2,291	U
134	0605075D8Z	CMO Policy and Integration	05	2,100	1,618			1,618	U
135	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	20,384	23,114			23,114	U

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122	1206893C	Space Tracking & Surveillance System	04	34,144				34,144	U
123	1206895C	Ballistic Missile Defense System Space Programs	04	32,068				32,068	U
Advanced Component Development & Prototypes				9,416,712		19,931	19,931	9,436,643	
124	0604161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E SDD	05	7,173				7,173	U
125	0604165D8Z	Prompt Global Strike Capability Development	05						U
126	0604384BP	Chemical and Biological Defense Program - EMD	05	319,976				319,976	U
127	0604771D8Z	Joint Tactical Information Distribution System (JTIDS)	05	54,985				54,985	U
128	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	15,650				15,650	U
129	0605013BL	Information Technology Development	05	1,441				1,441	U
130	0605021SE	Homeland Personnel Security Initiative	05	7,287				7,287	U
131	0605022D8Z	Defense Exportability Program	05	12,928				12,928	U
132	0605027D8Z	OUSD(C) IT Development Initiatives	05	10,259				10,259	U
133	0605070S	DOD Enterprise Systems Development and Demonstration	05	1,377				1,377	U
134	0605075D8Z	CMO Policy and Integration	05	1,648				1,648	U
135	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	20,537				20,537	U

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136	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	17,233	6,368			6,368	U
137	0605141BR	Mission Assurance Risk Management System (MARMS)	05						U
138	0605210D8Z	Defense-Wide Electronic Procurement Capabilities	05	6,126	9,619			9,619	U
139	0605294D8Z	Trusted & Assured Microelectronics	05	94,617	175,032			175,032	U
140	0605772D8Z	Nuclear Command, Control, & Communications	05						U
141	0303140BL	Information Systems Security Program	05		425			425	U
142	0303141K	Global Combat Support System	05	1,936	1,578			1,578	U
143	0305304D8Z	DoD Enterprise Energy Information Management (EEIM)	05	2,391	4,373			4,373	U
144	0305310D8Z	CWMD Systems: System Development and Demonstration	05	16,385	12,854			12,854	U
		System Development & Demonstration		1,109,307	883,867			883,867	
145	0603829J	Joint Capability Experimentation	06		13,000			13,000	U
146	0604774D8Z	Defense Readiness Reporting System (DRRS)	06	6,606	9,724			9,724	U
147	0604875D8Z	Joint Systems Architecture Development	06	3,929	9,593			9,593	U
148	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	06	295,067	390,692			390,692	U
149	0604942D8Z	Assessments and Evaluations	06	30,138	30,834			30,834	U

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136	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	1,638				1,638	U
137	0605141BR	Mission Assurance Risk Management System (MARMS)	05	5,500				5,500	U
138	0605210D8Z	Defense-Wide Electronic Procurement Capabilities	05	8,279				8,279	U
139	0605294D8Z	Trusted & Assured Microelectronics	05	107,585				107,585	U
140	0605772D8Z	Nuclear Command, Control, & Communications	05	3,685				3,685	U
141	0303140BL	Information Systems Security Program	05						U
142	0303141K	Global Combat Support System	05						U
143	0305304D8Z	DoD Enterprise Energy Information Management (EEIM)	05	3,275				3,275	U
144	0305310D8Z	CWMD Systems: System Development and Demonstration	05	20,585				20,585	U
		System Development & Demonstration		603,808				603,808	
145	0603829J	Joint Capability Experimentation	06	11,239				11,239	U
146	0604774D8Z	Defense Readiness Reporting System (DRRS)	06	9,793				9,793	U
147	0604875D8Z	Joint Systems Architecture Development	06	8,497				8,497	U
148	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	06	422,451				422,451	U
149	0604942D8Z	Assessments and Evaluations	06	18,379				18,379	U

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150	0605001E	Mission Support	06	67,850	68,498			68,498	U
151	0605100D8Z	Joint Mission Environment Test Capability (JMETC)	06	88,004	89,091			89,091	U
152	0605104D8Z	Technical Studies, Support and Analysis	06	21,281	18,079			18,079	U
153	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	48,097	62,805			62,805	U
154	0605128D8Z	Classified Program USD(P)	06	127,000	104,000			104,000	U
155	0605142D8Z	Systems Engineering	06	37,446	37,140			37,140	U
156	0605151D8Z	Studies and Analysis Support - OSD	06	3,423	4,759			4,759	U
157	0605161D8Z	Nuclear Matters-Physical Security	06	4,854	8,307			8,307	U
158	0605170D8Z	Support to Networks and Information Integration	06	11,042	9,441			9,441	U
159	0605200D8Z	General Support to USD (Intelligence)	06	8,139	20,200			20,200	U
160	0605384BP	Chemical and Biological Defense Program	06	104,187	110,363			110,363	U
161	0605502BP	Small Business Innovative Research - Chemical Biological Def	06	21,269					U
162	0605502BR	Small Business Innovation Research	06	11,315					U
163	0605502C	Small Business Innovation Research - MDA	06	91,161					U
164	0605502D8Z	Small Business Innovative Research	06	147,668					U
165	0605502E	Small Business Innovative Research	06	112,579					U

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150	0605001E	Mission Support	06	74,334				74,334	U
151	0605100D8Z	Joint Mission Environment Test Capability (JMETC)	06	79,046				79,046	U
152	0605104D8Z	Technical Studies, Support and Analysis	06						U
153	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	50,255				50,255	U
154	0605128D8Z	Classified Program USD(P)	06						U
155	0605142D8Z	Systems Engineering	06	49,376				49,376	U
156	0605151D8Z	Studies and Analysis Support - OSD	06	5,777				5,777	U
157	0605161D8Z	Nuclear Matters-Physical Security	06	16,552				16,552	U
158	0605170D8Z	Support to Networks and Information Integration	06	9,582				9,582	U
159	0605200D8Z	General Support to USD (Intelligence)	06	1,940				1,940	U
160	0605384BP	Chemical and Biological Defense Program	06	122,951				122,951	U
161	0605502BP	Small Business Innovative Research - Chemical Biological Def	06						U
162	0605502BR	Small Business Innovation Research	06						U
163	0605502C	Small Business Innovation Research - MDA	06						U
164	0605502D8Z	Small Business Innovative Research	06						U
165	0605502E	Small Business Innovative Research	06						U

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166	0605502S	Small Business Innovative Research	06	10,715	10,027			10,027 U
167	0605790D8Z	Small Business Innovation Research (SBIR)/ Small Business Technology Transfer	06	2,539	3,568			3,568 U
168	0605797D8Z	Maintaining Technology Advantage	06		20,936			20,936 U
169	0605798D8Z	Defense Technology Analysis	06	27,231	15,875			15,875 U
170	0605801KA	Defense Technical Information Center (DTIC)	06	56,853	57,716			57,716 U
171	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	24,005	29,448			29,448 U
172	0605804D8Z	Development Test and Evaluation	06	19,417	22,203			22,203 U
173	0605898E	Management HQ - R&D	06	13,663	13,208			13,208 U
174	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	4,124	3,027			3,027 U
175	0606100D8Z	Budget and Program Assessments	06	5,544	8,017			8,017 U
176	0606225D8Z	ODNA Technology and Resource Analysis	06	1,028	3,194			3,194 U
177	0606589D8W	Defense Digital Service (DDS) Development Support	06	1,000	1,000			1,000 U
178	0606942C	Assessments and Evaluations Cyber Vulnerabilities	06	3,400				U
179	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06	3,854				U
180	0203345D8Z	Defense Operations Security Initiative (DOSI)	06	9,892	8,037			8,037 U

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166	0605502S	Small Business Innovative Research	06						U
167	0605790D8Z	Small Business Innovation Research (SBIR)/ Small Business Technology Transfer	06	3,582				3,582	U
168	0605797D8Z	Maintaining Technology Advantage	06	29,566				29,566	U
169	0605798D8Z	Defense Technology Analysis	06	29,059				29,059	U
170	0605801KA	Defense Technical Information Center (DTIC)	06	59,369				59,369	U
171	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	29,420				29,420	U
172	0605804D8Z	Development Test and Evaluation	06	27,198				27,198	U
173	0605898E	Management HQ - R&D	06	13,434				13,434	U
174	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	2,837				2,837	U
175	0606100D8Z	Budget and Program Assessments	06	13,173				13,173	U
176	0606225D8Z	ODNA Technology and Resource Analysis	06	3,200				3,200	U
177	0606589D8W	Defense Digital Service (DDS) Development Support	06	999				999	U
178	0606942C	Assessments and Evaluations Cyber Vulnerabilities	06						U
179	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06						U
180	0203345D8Z	Defense Operations Security Initiative (DOSI)	06	3,099				3,099	U

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181	0204571J	Joint Staff Analytical Support	06	16,768	9,216			9,216 U
182	0208045K	C4I Interoperability	06					U
185	0303140SE	Information Systems Security Program	06					U
186	0303166J	Support to Information Operations (IO) Capabilities	06	859	553			553 U
187	0303260D8Z	Defense Military Deception Program Office (DMDPO)	06	966	1,014			1,014 U
188	0305172K	Combined Advanced Applications	06	21,363	58,667			58,667 U
190	0305208K	Distributed Common Ground/Surface Systems	06					U
191	0305245D8Z	Intelligence Capabilities and Innovation Investments	06	188,876	15,871			15,871 U
192	0306310D8Z	CWMD Systems: RDT&E Management Support	06	1,195				U
193	0307588D8Z	Algorithmic Warfare Cross Functional Teams	06		221,235			221,235 U
194	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	43,600	40,073			40,073 U
195	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06		100			100 U
196	0901598C	Management HQ - MDA	06	28,626	27,065			27,065 U
197	0903235K	Joint Service Provider (JSP)	06	4,884	3,090			3,090 U

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181	0204571J	Joint Staff Analytical Support	06	3,058				3,058	U
182	0208045K	C4I Interoperability	06	59,813				59,813	U
185	0303140SE	Information Systems Security Program	06	1,112				1,112	U
186	0303166J	Support to Information Operations (IO) Capabilities	06	545				545	U
187	0303260D8Z	Defense Military Deception Program Office (DMDPO)	06	1,036				1,036	U
188	0305172K	Combined Advanced Applications	06	30,824				30,824	U
190	0305208K	Distributed Common Ground/Surface Systems	06	3,048				3,048	U
191	0305245D8Z	Intelligence Capabilities and Innovation Investments	06						U
192	0306310D8Z	CWMD Systems: RDT&E Management Support	06						U
193	0307588D8Z	Algorithmic Warfare Cross Functional Teams	06						U
194	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	31,125				31,125	U
195	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06	100				100	U
196	0901598C	Management HQ - MDA	06	26,902				26,902	U
197	0903235K	Joint Service Provider (JSP)	06	3,138				3,138	U

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198	0909999D8Z	Financing for Cancelled Account Adjustments	06	969				U
9999	9999999999	Classified Programs		47,104	51,471			51,471 U
		Management Support		1,779,530	1,611,137			1,611,137
199	0604130V	Enterprise Security System (ESS)	07	9,395	7,945			7,945 U
200	0604532K	Joint Artificial Intelligence	07		183,834			183,834 U
201	0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	2,745	1,947			1,947 U
202	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS)	07	304	310			310 U
203	0607210D8Z	Industrial Base Analysis and Sustainment Support	07		104,051			104,051 U
204	0607310D8Z	CWMD Systems: Operational Systems Development	07		12,734			12,734 U
205	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	4,685	12,000			12,000 U
206	0607384BP	Chemical and Biological Defense (Operational Systems Development)	07	41,813	51,834			51,834 U
207	0208043J	Planning and Decision Aid System (PDAS)	07	3,037	4,537			4,537 U
208	0208045K	C4I Interoperability	07	61,208	64,122			64,122 U
212	0302019K	Defense Info Infrastructure Engineering and Integration	07	13,540	10,798			10,798 U
213	0303126K	Long-Haul Communications - DCS	07	12,572	11,166			11,166 U

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198	0909999D8Z	Financing for Cancelled Account Adjustments	06						U
9999	99999999999	Classified Programs		41,583				41,583	U
		Management Support		1,297,392				1,297,392	
199	0604130V	Enterprise Security System (ESS)	07	14,378				14,378	U
200	0604532K	Joint Artificial Intelligence	07	132,058				132,058	U
201	0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	1,986				1,986	U
202	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS)	07	316				316	U
203	0607210D8Z	Industrial Base Analysis and Sustainment Support	07	9,151				9,151	U
204	0607310D8Z	CWMD Systems: Operational Systems Development	07	19,082				19,082	U
205	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	3,992				3,992	U
206	0607384BP	Chemical and Biological Defense (Operational Systems Development)	07	39,530				39,530	U
207	0208043J	Planning and Decision Aid System (PDAS)	07	3,039				3,039	U
208	0208045K	C4I Interoperability	07						U
212	0302019K	Defense Info Infrastructure Engineering and Integration	07	16,324				16,324	U
213	0303126K	Long-Haul Communications - DCS	07	11,884				11,884	U

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214	0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	17,579	17,383			17,383	U
215	0303136G	Key Management Infrastructure (KMI)	07	31,737	54,516			54,516	U
216	0303140D8Z	Information Systems Security Program	07	17,899	67,631			67,631	U
217	0303140G	Information Systems Security Program	07	235,082	327,198			327,198	U
218	0303140K	Information Systems Security Program	07	42,262	40,398			40,398	U
219	0303150K	Global Command and Control System	07	44,974	17,218			17,218	U
220	0303153K	Defense Spectrum Organization	07	5,748	19,528			19,528	U
221	0303167K	Pre-Auction Spectrum Relocation Fund	07	1,258					U
222	0303170K	Net-Centric Enterprise Services (NCES)	07	1,750					U
223	0303228K	Joint Regional Security Stacks (JRSS)	07	7,657	16,269			16,269	U
224	0303267K	Auctioned Spectrum Relocation Fund	07	24,600					U
225	0303430K	Federal Investigative Services Information Technology	07	59,870	44,001			44,001	U
226	0303467K	SENSR Spectrum Pipeline SRF	07	230					U
231	0305128V	Security and Investigative Activities	07		2,400			2,400	U
235	0305186D8Z	Policy R&D Programs	07		6,301			6,301	U

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214	0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	5,560				5,560	U
215	0303136G	Key Management Infrastructure (KMI)	07	73,356				73,356	U
216	0303140D8Z	Information Systems Security Program	07	46,577				46,577	U
217	0303140G	Information Systems Security Program	07	356,713				356,713	U
218	0303140K	Information Systems Security Program	07	8,922				8,922	U
219	0303150K	Global Command and Control System	07	3,695				3,695	U
220	0303153K	Defense Spectrum Organization	07	20,113				20,113	U
221	0303167K	Pre-Auction Spectrum Relocation Fund	07						U
222	0303170K	Net-Centric Enterprise Services (NCES)	07						U
223	0303228K	Joint Regional Security Stacks (JRSS)	07	9,728				9,728	U
224	0303267K	Auctioned Spectrum Relocation Fund	07						U
225	0303430K	Federal Investigative Services Information Technology	07						U
226	0303467K	SENSR Spectrum Pipeline SRF	07						U
231	0305128V	Security and Investigative Activities	07	5,700				5,700	U
235	0305186D8Z	Policy R&D Programs	07	7,144				7,144	U

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236	0305199D8Z	Net Centricity	07	4,071	21,384			21,384	U
238	0305208BB	Distributed Common Ground/Surface Systems	07	6,286	6,359			6,359	U
241	0305208K	Distributed Common Ground/Surface Systems	07	2,848	2,981			2,981	U
244	0305327V	Insider Threat	07	19,754	1,964			1,964	U
245	0305387D8Z	Homeland Defense Technology Transfer Program	07		2,221			2,221	U
252	0708012K	Logistics Support Activities	07	1,317	1,361			1,361	U
253	0708012S	Pacific Disaster Centers	07	1,705	1,705			1,705	U
254	0708047S	Defense Property Accountability System	07	1,739	3,545			3,545	U
255	0904903D	Defense-Wide Resources	07		3,000			3,000	U
256	1105219BB	MQ-9 UAV	07	17,745	20,697			20,697	U
257	1160279BB	Small Business Innovative Research/Small Bus Tech Transfer Pilot Prog	07	18,445					U
258	1160403BB	Aviation Systems	07	168,026	267,695			267,695	U
259	1160405BB	Intelligence Systems Development	07	10,625	15,484			15,484	U
260	1160408BB	Operational Enhancements	07	98,395	159,922		726	160,648	U
261	1160431BB	Warrior Systems	07	74,250	75,514		6,000	81,514	U
262	1160432BB	Special Programs	07	2,885	21,005			21,005	U
263	1160434BB	Unmanned ISR	07	44,970	37,377		5,000	42,377	U

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Defense-Wide
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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
236	0305199D8Z	Net Centricity	07	21,793				21,793	U
238	0305208BB	Distributed Common Ground/Surface Systems	07	6,066				6,066	U
241	0305208K	Distributed Common Ground/Surface Systems	07						U
244	0305327V	Insider Threat	07						U
245	0305387D8Z	Homeland Defense Technology Transfer Program	07	2,190				2,190	U
252	0708012K	Logistics Support Activities	07	1,654				1,654	U
253	0708012S	Pacific Disaster Centers	07	1,785				1,785	U
254	0708047S	Defense Property Accountability System	07	7,301				7,301	U
255	0904903D	Defense-Wide Resources	07						U
256	1105219BB	MQ-9 UAV	07	21,265				21,265	U
257	1160279BB	Small Business Innovative Research/Small Bus Tech Transfer Pilot Prog	07						U
258	1160403BB	Aviation Systems	07	230,812				230,812	U
259	1160405BB	Intelligence Systems Development	07	19,558				19,558	U
260	1160408BB	Operational Enhancements	07	136,041		1,186	1,186	137,227	U
261	1160431BB	Warrior Systems	07	59,511		5,796	5,796	65,307	U
262	1160432BB	Special Programs	07	10,500				10,500	U
263	1160434BB	Unmanned ISR	07	19,154		5,000	5,000	24,154	U

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	c
264	1160480BB	SOF Tactical Vehicles	07	1,806	11,150			11,150	U
265	1160483BB	Maritime Systems	07	40,600	72,626			72,626	U
266	1160489BB	Global Video Surveillance Activities	07	4,780	5,363			5,363	U
267	1160490BB	Operational Enhancements Intelligence	07	12,176	9,962			9,962	U
268	1203610K	Teleport Program	07	706	5,542			5,542	U
9999	9999999999	Classified Programs		4,106,487	4,440,074		192,509	4,632,583	U
		Operational Systems Development		5,279,561	6,265,052		204,235	6,469,287	
269	0608197V	National Background Investigation Services - Software Pilot Program	08						U
270	0608648D8Z	Acquisition Visibility - Software Pilot Program	08						U
271	0303150K	Global Command and Control System	08						U
272	0308588D8Z	Algorithmic Warfare Cross Functional Teams - Software Pilot Program	08						U
		Software And Digital Technology Pilot Progr							
Total Research, Development, Test & Eval, DW				24,300,844	25,938,027		394,260	26,332,287	

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
264	1160480BB	SOF Tactical Vehicles	07	9,263				9,263	U
265	1160483BB	Maritime Systems	07	59,882				59,882	U
266	1160489BB	Global Video Surveillance Activities	07	4,606				4,606	U
267	1160490BB	Operational Enhancements Intelligence	07	11,612				11,612	U
268	1203610K	Teleport Program	07	3,239				3,239	U
9999	9999999999	Classified Programs		4,746,466		24,057	24,057	4,770,523	U
		Operational Systems Development		6,161,946		36,039	36,039	6,197,985	
269	0608197V	National Background Investigation Services - Software Pilot Program	08	121,676				121,676	U
270	0608648D8Z	Acquisition Visibility - Software Pilot Program	08	16,848				16,848	U
271	0303150K	Global Command and Control System	08	86,750				86,750	U
272	0308588D8Z	Algorithmic Warfare Cross Functional Teams - Software Pilot Program	08	250,107				250,107	U
		Software And Digital Technology Pilot Progr		475,381				475,381	
Total Research, Development, Test & Eval, DW				24,280,891		82,818	82,818	24,363,709	

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	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
Management Support	377,001	227,700			227,700
Total Research, Development, Test & Evaluation	377,001	227,700			227,700
<u>Summary Recap of FYDP Programs</u>					
Research and Development	377,001	227,700			227,700
Total Research, Development, Test & Evaluation	377,001	227,700			227,700

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Summary Recap of Budget Activities	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)

Management Support	210,090				210,090
Total Research, Development, Test & Evaluation	210,090				210,090
Summary Recap of FYDP Programs					

Research and Development	210,090				210,090
Total Research, Development, Test & Evaluation	210,090				210,090

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 (Dollars in Thousands)

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Appropriation: 0460D Operational Test & Eval, Defense

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
1	06051180TE	Operational Test and Evaluation	06	85,685	93,291			93,291 U
2	06051310TE	Live Fire Test and Evaluation	06	64,332	69,172			69,172 U
3	06058140TE	Operational Test Activities and Analyses	06	226,984	65,237			65,237 U
		Management Support		377,001	227,700			227,700
Total Operational Test & Eval, Defense				377,001	227,700			227,700

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 (Dollars in Thousands)

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Appropriation: 0460D Operational Test & Eval, Defense

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
1	0605118	OTE Operational Test and Evaluation	06	100,021				100,021	U
2	0605131	OTE Live Fire Test and Evaluation	06	70,933				70,933	U
3	0605814	OTE Operational Test Activities and Analyses	06	39,136				39,136	U
		Management Support		210,090				210,090	
Total Operational Test & Eval, Defense				210,090				210,090	

Inspector General
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	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
RDT&E	3,977	2,965			2,965
Total Research, Development, Test & Evaluation	3,977	2,965			2,965
<u>Summary Recap of Non-RDT&E Title FYDP Programs</u>					
Administration and Associated Activities	3,977	2,965			2,965
Total Research, Development, Test & Evaluation	3,977	2,965			2,965

Inspector General
 FY 2021 President's Budget
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	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
RDT&E	1,098				1,098
Total Research, Development, Test & Evaluation	1,098				1,098
<u>Summary Recap of Non-RDT&E Title FYDP Programs</u>					
Administration and Associated Activities	1,098				1,098
Total Research, Development, Test & Evaluation	1,098				1,098

Inspector General
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Appropriation: 0107D Office of the Inspector General

Program Line Element No Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
1 0901517X	Inspector General, DoD, Audit, Intelligence and Non-Criminal Investigative Activ	02	3,766	2,965			2,965 U
2 0902498X	Office of the DoD Inspector General - MHA	02	211				U
RDT&E			3,977	2,965			2,965
Total Office of the Inspector General			3,977	2,965			2,965

Inspector General
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Appropriation: 0107D Office of the Inspector General

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
1	0901517X	Inspector General, DoD, Audit, Intelligence and Non-Criminal Investigative Activ	02	966				966	U
2	0902498X	Office of the DoD Inspector General - MHA	02	132				132	U
		RDT&E		1,098				1,098	
Total Office of the Inspector General				1,098				1,098	

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Summary Recap of Budget Activities	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
RDT&E	2,179,621	2,306,095			2,306,095
Total Research, Development, Test & Evaluation	2,179,621	2,306,095			2,306,095
Summary Recap of Non-RDT&E Title FYDP Programs					
Research and Development	2,179,621	2,306,095			2,306,095
Total Research, Development, Test & Evaluation	2,179,621	2,306,095			2,306,095

Defense Health Agency
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	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
RDT&E	562,465				562,465
Total Research, Development, Test & Evaluation	562,465				562,465
<u>Summary Recap of Non-RDT&E Title FYDP Programs</u>					
Research and Development	562,465				562,465
Total Research, Development, Test & Evaluation	562,465				562,465

Defense Health Agency
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 Non RDT&E Title
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Appropriation: 0130D Defense Health Program

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
1	0601101DHA	In-House Laboratory Independent Research	02	3,552	4,013			4,013 U
2	0601117DHA	Basic Operational Medical Research Science	02	8,400	17,408			17,408 U
3	0602115DHA	Applied Biomedical Technology	02	107,837	175,032			175,032 U
4	0602787DHA	Medical Technology	02	1,307	1,383			1,383 U
5	0603002DHA	Medical Advanced Technology	02	325	345			345 U
6	0603115DHA	Medical Development	02	1,594,929	1,782,072			1,782,072 U
7	0604110DHA	Medical Products Support and Advanced Concept Development	02	158,933	138,055			138,055 U
8	0605013DHA	Information Technology Development	02	24,306	23,780			23,780 U
9	0605026DHA	Information Technology Development- DoD Healthcare Management System Modernizati	02	27,293	14,478			14,478 U
10	0605045DHA	Joint Operational Medicine Information System	02	75,284	41,902			41,902 U
11	0605145DHA	Medical Products and Support Systems Development	02	24,921	21,589			21,589 U
12	0605502DHA	Small Business Innovative Research	02	66,784				U
13	0606105DHA	Medical Program-Wide Activities	02	70,610	69,219			69,219 U
14	0607100DHA	Medical Products and Capabilities Enhancement Activities	02	15,140	16,819			16,819 U
		RDT&E		2,179,621	2,306,095			2,306,095
Total Defense Health Program				2,179,621	2,306,095			2,306,095

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Appropriation: 0130D Defense Health Program

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Sequestration
1	0601101DHA	In-House Laboratory Research	02						U
2	0601117DHA	Basic Operational Medical Research Science	02	8,913				8,913	U
3	0602115DHA	Applied Biomedical Technology	02	72,573				72,573	U
4	0602787DHA	Medical Technology	02	1,411				1,411	U
5	0603002DHA	Medical Advanced Technology	02	352				352	U
6	0603115DHA	Medical Development	02	225,250				225,250	U
7	0604110DHA	Medical Products Support and Advanced Concept Development	02	132,331				132,331	U
8	0605013DHA	Information Technology Development	02	16,344				16,344	U
9	0605026DHA	Information Technology Development- DoD Healthcare Management System Modernizati	02	18,336				18,336	U
10	0605045DHA	Joint Operational Medicine Information System	02						U
11	0605145DHA	Medical Products and Support Systems Development	02	21,068				21,068	U
12	0605502DHA	Small Business Innovative Research	02						U
13	0606105DHA	Medical Program-Wide Activities	02	48,672				48,672	U
14	0607100DHA	Medical Products and Capabilities Enhancement Activities	02	17,215				17,215	U
		RDT&E		562,465				562,465	
		Total Defense Health Program		562,465				562,465	

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	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
Research, Development, Test, And Evaluation	666,863	875,930			875,930
Total Research, Development, Test & Evaluation	666,863	875,930			875,930
<u>Summary Recap of Non-RDT&E Title FYDP Programs</u>					
Central Supply and Maintenance	666,863	875,930			875,930
Total Research, Development, Test & Evaluation	666,863	875,930			875,930

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	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Research, Development, Test, And Evaluation	782,193				782,193
Total Research, Development, Test & Evaluation	782,193				782,193
<u>Summary Recap of Non-RDT&E Title FYDP Programs</u>					
Central Supply and Maintenance	782,193				782,193
Total Research, Development, Test & Evaluation	782,193				782,193

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Appropriation: 0390D Chem Agents & Munitions Destruction

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
1	0708081D	Chemical Materials Agency	02	6,500	6,500			6,500 U
2	0708083D	Assembled Chemical Weapons Alternatives	02	660,363	869,430			869,430 U
		Research, Development, Test, And Evaluation		666,863	875,930			875,930
Total Chem Agents & Munitions Destruction				666,863	875,930			875,930

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Appropriation: 0390D Chem Agents & Munitions Destruction

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
1	0708081D	Chemical Materials Agency	02	6,494				6,494	U
2	0708083D	Assembled Chemical Weapons Alternatives	02	775,699				775,699	U
		Research, Development, Test, And Evaluation		782,193				782,193	
Total Chem Agents & Munitions Destruction				782,193				782,193	

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257	07	1160279BB	Small Business Innovation Research/Small Bus Tech Transfer.....	Volume 5 - 1037
258	07	1160403BB	Aviation Systems.....	Volume 5 - 1047
259	07	1160405BB	Intelligence Systems Development.....	Volume 5 - 1115
260	07	1160408BB	Operational Enhancements.....	Volume 5 - 1137
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DoD Enterprise Systems Development and Demonstration	0605070S	133	05.....	Volume 5 - 405
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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

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Department of Defense
 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

08 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted
Research, Development, Test & Eval, DW	2,600	1,600			1,600
Total Research, Development, Test & Evaluation	2,600	1,600			1,600

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

08 Jan 2020

Appropriation -----	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
-----	-----	-----	-----	-----	-----
Research, Development, Test & Eval, DW	2,198				2,198
Total Research, Development, Test & Evaluation	2,198				2,198

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Department of Defense
 FY 2021 President's Budget
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 (Dollars in Thousands)

08 Jan 2020

Summary Recap of Budget Activities	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted
Advanced Component Development & Prototypes	2,600	1,600			1,600
Total Research, Development, Test & Evaluation	2,600	1,600			1,600
Summary Recap of FYDP Programs					
Intelligence and Communications	2,600	1,600			1,600
Total Research, Development, Test & Evaluation	2,600	1,600			1,600

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

08 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Component Development & Prototypes	2,198				2,198
Total Research, Development, Test & Evaluation	2,198				2,198
<u>Summary Recap of FYDP Programs</u>					
Intelligence and Communications	2,198				2,198
Total Research, Development, Test & Evaluation	2,198				2,198

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 Total Obligational Authority
 (Dollars in Thousands)

08 Jan 2020

Summary Recap of Budget Activities	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted
Advanced Component Development & Prototypes	2,600	1,600			1,600
Total Research, Development, Test & Evaluation	2,600	1,600			1,600
Summary Recap of FYDP Programs					
Intelligence and Communications	2,600	1,600			1,600
Total Research, Development, Test & Evaluation	2,600	1,600			1,600

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Defense-Wide
 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

08 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Component Development & Prototypes	2,198				2,198
Total Research, Development, Test & Evaluation	2,198				2,198
<u>Summary Recap of FYDP Programs</u>					
Intelligence and Communications	2,198				2,198
Total Research, Development, Test & Evaluation	2,198				2,198

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FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

08 Jan 2020

Appropriation -----	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted
Defense Contract Audit Agency	2,600	1,600			1,600
Total Research, Development, Test & Evaluation	2,600	1,600			1,600

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

08 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Defense Contract Audit Agency	2,198				2,198
Total Research, Development, Test & Evaluation	2,198				2,198

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

08 Jan 2020

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

Line No	Element Number	Program Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted	Se
118	0300206R	Enterprise Information Technology Systems	04	2,600	1,600			1,600	U
		Advanced Component Development & Prototypes		2,600	1,600			1,600	
Total Research, Development, Test & Eval, DW				2,600	1,600			1,600	

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 (Dollars in Thousands)

08 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
118	0300206R	Enterprise Information Technology Systems	04	2,198				2,198	U
		Advanced Component Development & Prototypes		2,198				2,198	
Total Research, Development, Test & Eval, DW				2,198				2,198	

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Defense Contract Audit Agency
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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted	Se
118	0300206R	Enterprise Information Technology Systems	04	2,600	1,600			1,600	U
		Advanced Component Development & Prototypes		2,600	1,600			1,600	
Total Defense Contract Audit Agency				2,600	1,600			1,600	

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 (Dollars in Thousands)

08 Jan 2020

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

Line No	Element Number	Program Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
118	0300206R	Enterprise Information Technology Systems	04	2,198				2,198	U
		Advanced Component Development & Prototypes		2,198				2,198	
Total Defense Contract Audit Agency				2,198				2,198	

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Contract Audit Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	2.600	1.600	2.198	-	2.198	1.698	1.698	1.698	1.698	Continuing	Continuing
000001: <i>Enterprise Information Technology System</i>	0.000	2.600	1.600	2.198	-	2.198	1.698	1.698	1.698	1.698	Continuing	Continuing

A. Mission Description and Budget Item Justification

This was a new start in FY19. Funding 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 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	2.600	1.600	1.600	-	1.600
Current President's Budget	2.600	1.600	2.198	-	2.198
Total Adjustments	0.000	0.000	0.598	-	0.598
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Technical Adjustment	-	-	0.598	-	0.598

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

Project: 000001: *Enterprise Information Technology System*

Congressional Add: *N/A*

Congressional Add Subtotals for Project: 000001

Congressional Add Totals for all Projects

	FY 2019	FY 2020
	0.000	-
	0.000	-
	0.000	-

Change Summary Explanation

This additional funding permits enhanced capability development for the Defense Contract Audit Agency's legacy auditor information systems replacement effort. Funding was originally requested as O&M funds; however, upon further review, it was determined this requirement should be funded with RDT&E funds.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Contract Audit Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
000001: <i>Enterprise Information Technology System</i>	0.000	2.600	1.600	2.198	-	2.198	1.698	1.698	1.698	1.698	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This was a new start in FY19. Funding 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 2019	FY 2020	FY 2021
Title: Enterprise Information Technology System	2.600	1.600	2.198
<p>Description: - Develop CSP (Contractor Submission portal) requirements and design the technical architecture that will support the CSP business and technical requirements</p> <ul style="list-style-type: none"> - 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 <p>FY 2020 Plans: Additional modules will continue to be developed from FY20 through FY23. Staffing and funding levels will return to their original levels once the enhancement is complete.</p> <p>FY 2021 Plans: This effort will remain in a steady state from FY21 through FY25 as additional modules continue to be developed. Once the enhancement is complete, the staffing and funding levels return to their original levels.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Contract Audit Agency		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
This additional funding permits enhanced capability development for the Defense Contract Audit Agency's legacy auditor information systems replacement effort. Funding was originally requested as O&M funds; however, upon further review, it was determined this requirement should be funded with RDT&E funds			
Accomplishments/Planned Programs Subtotals	2.600	1.600	2.198

	FY 2019	FY 2020
Congressional Add: N/A	0.000	-
FY 2019 Accomplishments: 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-4, RDT&E Schedule Profile: PB 2021 Defense Contract Audit Agency		Date: February 2020
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Contract Audit Agency		Date: February 2020
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) 2021 Budget Estimates**

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Research, Development, Test & Eval, DW	2,090	3,495			3,495
Total Research, Development, Test & Evaluation	2,090	3,495			3,495

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	1,441				1,441
Total Research, Development, Test & Evaluation	1,441				1,441

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
System Development & Demonstration	2,090	3,495			3,495
Total Research, Development, Test & Evaluation	2,090	3,495			3,495
<u>Summary Recap of FYDP Programs</u>					
Intelligence and Communications			425		425
Research and Development	2,090	3,070			3,070
Total Research, Development, Test & Evaluation	2,090	3,495			3,495

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
System Development & Demonstration	1,441				1,441
Total Research, Development, Test & Evaluation	1,441				1,441
<u>Summary Recap of FYDP Programs</u>					
Intelligence and Communications					
Research and Development	1,441				1,441
Total Research, Development, Test & Evaluation	1,441				1,441

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
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 (Dollars in Thousands)

13 Feb 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
System Development & Demonstration	2,090	3,495			3,495
Total Research, Development, Test & Evaluation	2,090	3,495			3,495
<u>Summary Recap of FYDP Programs</u>					
Intelligence and Communications			425		425
Research and Development	2,090	3,070			3,070
Total Research, Development, Test & Evaluation	2,090	3,495			3,495

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	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities -----					
System Development & Demonstration	1,441				1,441
Total Research, Development, Test & Evaluation	1,441				1,441
Summary Recap of FYDP Programs -----					
Intelligence and Communications					
Research and Development	1,441				1,441
Total Research, Development, Test & Evaluation	1,441				1,441

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Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Defense Contract Management Agency	2,090	3,495			3,495
Total Research, Development, Test & Evaluation	2,090	3,495			3,495

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Defense-Wide
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Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Defense Contract Management Agency	1,441				1,441
Total Research, Development, Test & Evaluation	1,441				1,441

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
129	0605013BL	Information Technology Development	05	2,090	3,070			3,070 U
141	0303140BL	Information Systems Security Program	05		425			425 U
		System Development & Demonstration		2,090	3,495			3,495
Total Research, Development, Test & Eval, DW				2,090	3,495			3,495

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Defense-Wide
 FY 2021 President's Budget
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 (Dollars in Thousands)

13 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	See
129	0605013BL	Information Technology Development	05	1,441				1,441	U
141	0303140BL	Information Systems Security Program	05						U
		System Development & Demonstration		1,441				1,441	
Total Research, Development, Test & Eval, DW				1,441				1,441	

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Defense Contract Management Agency
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
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 (Dollars in Thousands)

13 Feb 2020

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

Line	Program Element No Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	c
129	0605013BL	Information Technology Development	05	2,090	3,070			3,070	U
141	0303140BL	Information Systems Security Program	05		425			425	U
		System Development & Demonstration		2,090	3,495			3,495	
Total Defense Contract Management Agency				2,090	3,495			3,495	

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Defense Contract Management Agency
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 (Dollars in Thousands)

13 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Section
129	0605013BL	Information Technology Development	05	1,441				1,441	U
141	0303140BL	Information Systems Security Program	05						U
		System Development & Demonstration		1,441				1,441	
Total Defense Contract Management Agency				1,441				1,441	

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Contract Management Agency **Date:** February 2020

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)</i>					PE 0605013BL / <i>Information Technology Development</i>							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	178.795	11.988	3.070	1.441	-	1.441	0.000	0.000	0.000	0.000	Continuing	Continuing
01: <i>Systems Modifications and Development</i>	178.795	11.988	3.070	1.441	-	1.441	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), which will occur in FY 2021.

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 efficiency and effectiveness. DCMA also has a mandate to align with DoD strategy for digital modernization of enterprise capabilities. This involves migrating DCMA application infrastructure to enterprise hosting environments and modern technology platforms, rationalizing existing applications to ensure capabilities align with mission requirements, and adopting new DoD strategies for modern software development methodologies.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Contract Management Agency **Date:** February 2020

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 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	11.988	3.070	1.441	-	1.441
Current President's Budget	11.988	3.070	1.441	-	1.441
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	-	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Contract Management Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
01: <i>Systems Modifications and Development</i>	178.795	11.988	3.070	1.441	-	1.441	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. DCMA has a mandate to align with DoD strategy for digital modernization of enterprise capabilities. This involves migrating DCMA application infrastructure to enterprise hosting environments and modern technology platforms, rationalizing existing applications to ensure capabilities align with mission requirements, and adopting new DoD strategies for modern software development methodologies. This will ensure delivery of secure, interoperable, and optimized solutions. In order to meet the needs of the DoD community, DCMA's current effort is to develop the DCMA App Store.

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

	FY 2019	FY 2020	FY 2021
Title: System Modifications and Development	11.988	3.070	1.441
Description: The DCMA will use the system and modifications program to focus on two main efforts which support: 1) messaging and collaboration (DCMA App Store). 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. This effort is predicated on the implementation of the 4th Estate IT Reform Initiative, which includes migrating application workloads to milCloud2. DCMA began this migration effort in FY 2019, but schedule delays have shift the start of the business application modernization to 3rd Quarter FY 2020.			
FY 2020 Plans: DCMA App Store DCMA will begin consolidating IT investments and transitioning subsequent applications to milCloud2 and other existing DoD capabilities/environments by 2nd Qtr FY 2020. Funding in FY 2020 and FY 2021 will be used to develop the concept of operations for building mission capabilities in a cloud environment, prototyping configuration management solutions that enable Development, Security, and Operations methodologies, and creating frameworks for automated testing solutions for rapid verification of application functionality.			
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			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Contract Management Agency		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>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 Pricing and Contracting Office (DPC) and the Office of the Under Secretary of Defense (Comptroller) (OUSD (C)).</p> <p>FY 2021 Plans: DCMA App Store FY 2021 RDT&E will be used for activities in the material solution analysis and technology maturation and risk reduction phases of the acquisition life cycle, including Analysis of Alternatives, initial lifecycle sustainment plan, and initial concept of operations, system engineering plan, high level system design, prototyping, test and evaluation master plan.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Explanation of change from FY 2020 to FY 2021 decreases result from anticipated WAWF requirements identified and a delay in the DCMA transition of application infrastructure to DISA enterprise hosting environments and modern technology platforms, which caused a slight schedule shift to the rationalization of existing applications to ensure capabilities align with mission requirements, and adopting new DoD strategies for modern software development methodologies for DCMA's App Store.</p>			
Accomplishments/Planned Programs Subtotals	11.988	3.070	1.441

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

N/A

Remarks

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Contract Management Agency **Date:** February 2020

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>
--	--	---

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	1.441		-		1.441	Continuing	Continuing	3.712
WAWF	C/FFP	Various : Various	-	-		0.800	Jan 2020	-		-		-	Continuing	Continuing	0.800
Other Programs	C/FFP	Various : Various	178.795	11.988		-		-		-		-	Continuing	Continuing	-
Subtotal			178.795	11.988		3.070		1.441		-		1.441	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		178.795	11.988	3.070	1.441	-	1.441	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 2021 Defense Contract Management Agency **Date:** February 2020

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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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	
Other Programs	
Requirement	
DCMA App Store Capability Release Sprint 1	
Requirement	
Design	
Development	
Testing	
Deployment	

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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	
Other Programs	
Requirement	
DCMA App Store Capability Release Sprint 1	
Requirement	
Design	
Development	

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Contract Management Agency **Date:** February 2020

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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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

Testing																												
Deployment																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Contract Management Agency		Date: February 2020
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
Other Programs				
Requirement	1	2018	4	2019
DCMA App Store Capability Release Sprint 1				
Requirement	4	2018	2	2020
Design	3	2020	2	2021
Development	1	2021	4	2021
Testing	2	2021	1	2022
Deployment	2	2021	1	2022

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**Department of Defense
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Total Obligational Authority
(Dollars in Thousands)

13 Jan 2020

Appropriation -----	FY 2019 (Base + OCO) -----	FY 2020 Base Enacted -----	FY 2020 OCO Enacted -----	FY 2020 Emergency -----
Procurement, Defense-Wide	598	5,703		
Total Defense-Wide	598	5,703		

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Defense-Wide
FY 2021 President's Budget
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Total Obligational Authority
(Dollars in Thousands)

13 Jan 2020

Appropriation -----	FY 2020 Total Enacted -----	FY 2021 Base -----	FY 2021 OCO for Base Requirements -----	FY 2021 OCO for Direct War and Enduring Costs -----
Procurement, Defense-Wide	5,703	2,712		
Total Defense-Wide	5,703	2,712		

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Defense-Wide
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Total Obligational Authority
(Dollars in Thousands)

13 Jan 2020

Appropriation -----	FY 2021 Total OCO -----	FY 2021 Total (Base + OCO) -----
Procurement, Defense-Wide		2,712
Total Defense-Wide		2,712

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 (Dollars in Thousands)

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Organization: Procurement, Defense-Wide	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency
Defense Counterintelligence & Security Agency, DCSA	598	5,703		
Total	598	5,703		

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(Dollars in Thousands)

13 Jan 2020

Organization: Procurement, Defense-Wide -----	FY 2020 Total Enacted -----	FY 2021 Base -----	FY 2021 OCO for Base Requirements -----	FY 2021 OCO for Direct War and Enduring Costs -----
Defense Counterintelligence & Security Agency, DCSA	5,703			
Total	5,703			

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(Dollars in Thousands)

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	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Organization: Procurement, Defense-Wide -----	-----	-----
Defense Counterintelligence & Security Agency, DCSA		
Total		

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(Dollars in Thousands)

13 Jan 2020

Appropriation: Procurement, Defense-Wide

Budget Activity -----	FY 2019 (Base + OCO) -----	FY 2020 Base Enacted -----	FY 2020 OCO Enacted -----	FY 2020 Emergency -----
01. Major Equipment	598	5,703		
Total Procurement, Defense-Wide	598	5,703		

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 (Dollars in Thousands)

13 Jan 2020

Appropriation: Procurement, Defense-Wide

Budget Activity	FY 2020 Total Enacted	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs
01. Major Equipment	5,703	2,712		
Total Procurement, Defense-Wide	5,703	2,712		

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(Dollars in Thousands)

13 Jan 2020

Appropriation: Procurement, Defense-Wide

Budget Activity -----	FY 2021 Total OCO -----	FY 2021 Total (Base + OCO) -----
01. Major Equipment		2,712
Total Procurement, Defense-Wide		2,712

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Defense-Wide
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 Total Obligational Authority
 (Dollars in Thousands)

13 Jan 2020

Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2019 (Base + OCO)		FY 2020 Base Enacted		FY 2020 OCO Enacted		FY 2020 Emergency		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
Budget Activity 01: Major Equipment											
Major Equipment, DCSA											
3	Major Equipment			598		5,703					U
999	Classified Programs										U
Total Major Equipment				598		5,703					
Total Procurement, Defense-Wide				598		5,703					

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 (Dollars in Thousands)

13 Jan 2020

Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2020		FY 2021		FY 2021		FY 2021		S
			Quantity	Cost	Quantity	Cost	OCO for Base Requirements	OCO for Base Requirements	Direct War and Enduring Costs	Direct War and Enduring Costs	
Budget Activity 01: Major Equipment											

Major Equipment, DCSA											
3	Major Equipment			5,703		2,212					U
999	Classified Programs					500					U
Total Major Equipment				5,703		2,712					
Total Procurement, Defense-Wide				5,703		2,712					

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 (Dollars in Thousands)

13 Jan 2020

Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2021 Total		FY 2021 Total		S e c
			Quantity	Cost	(Base + OCO) Quantity	Cost	
Budget Activity 01: Major Equipment							
Major Equipment, DCSA							
	3 Major Equipment					2,212	U
	999 Classified Programs					500	U
	Total Major Equipment					2,712	
	Total Procurement, Defense-Wide					2,712	

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Defense Counterintelligence and Security Agency • Budget Estimates FY 2021 • 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
199	07	0604130V	Enterprise Security System (ESS).....	Volume 5 - 75
231	07	0305128V	Security and Investigative Activities.....	Volume 5 - 85
244	07	0305327V	Insider Threat.....	Volume 5 - 91

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
269	08	0608197V	National Background Investigation Services - Software Pilot Program.....	Volume 5 - 97

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Defense Counterintelligence and Security Agency • Budget Estimates FY 2021 • RDT&E Program

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

Program Element Title	Program Element Number	Line #	BA	Page
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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	123.200	9.395	7.945	14.378	-	14.378	14.632	13.490	9.685	0.000	Continuing	Continuing
000: <i>Enterprise Security System (ESS)</i>	123.200	9.395	7.945	14.378	-	14.378	14.632	13.490	9.685	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Counterintelligence Security Agency (DCSA) formerly known as the Defense Security Service (DSS) is a strategic asset to the nation and our allies – continuously ensuring a trusted federal, industrial, and affiliated workforce, and enabling industry’s delivery of uncompromised capabilities by leveraging advanced technologies and innovation. DCSA uniquely blend critical technology protection, trusted personnel vetting, counterintelligence, and professional education and certification to advance and preserve America’s strategic edge.

B. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	9.395	7.945	14.378	-	14.378
Current President's Budget	9.395	7.945	14.378	-	14.378
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

National Industrial Security System (NISS) development consists of continued enhancements in response to user community requirements. These requirements consist of enhancements to Key Management Personnel (KMP) monitoring, NATO Control Point Inspection Triage Outreach Program, NISP Oversight Report, Outgoing Foreign Visits and enabling Industry with the ability to initiate Facility Profile updates. A separate, parallel development effort will facilitate a SIPR NISS baseline consisting of an alternative Single Sign-On (SSO) capability to National Industrial Security Program (NISP) Central Access Information Security System (NCAISS), as well as Cross Domain Solution (CDS) for movement of NIPR-based data to SIPR for subsequent reporting and data aggregation. Development activities will include interface work between NISS and the Defense Information System for Security (DISS), NISP Contracts Classification System (NCCS) and Enterprise Mission Assurance Support Service (eMASS) systems as well as initial planning for refactoring of NISS functionality into National Background Investigative Services (NBIS). Achievement of Full Operational Capability (FOC) delayed due to the of the Period of Performance (PoP)² which is scheduled for a March 2020 completion.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

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 0604130V / <i>Enterprise Security System (ESS)</i>
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The Adaptive Data Exchange (ADX)/ Joint Cyber Intelligence Tool Suite (JCITS) will assist DCSA with analysis of network telemetry data gathered from the JCITS unclassified cyber threat intelligence data, cleared contractor reporting and other government agency feeds for detecting anomalous behavior and enhancing data.

The Defense Information System for Security (DISS) which transfers to DCSA from DHRA/ DMDC beginning FY2021 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. This will provide comprehensive capabilities to perform processing and verification of security clearances for all DoD military personnel, civilians and contractors including the technology and processes to implement Continuous Evaluation.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Counterintelligence and Security Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
000: <i>Enterprise Security System (ESS)</i>	123.200	9.395	7.945	14.378	-	14.378	14.632	13.490	9.685	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Defense Counterintelligence Security Agency (DCSA) manages the Enterprise Security System (ESS) to provide an effective, real-time, security support capabilities for 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, Enterprise Security System (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.

DCSA Mission Information Technology (IT) systems provide critical service to the major DCSA mission areas for Industrial Security Oversight and Security Education. DCSA performs this critical function through operation of its mission production systems to include the National Industrial Security System (NISS) and the DCSA Gateway. RDT&E for DCSA 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 to increase efficiencies through web-based systems to manage certification and accreditation activities. These IT systems are as follows:

National Industrial Security System (NISS, formerly known as Field Operations System (FOS). NISS is the next generation functional replacement for the Industrial Security Facility Database system (ISFD) and supports end to end facility identification and registration processing, Foreign Ownership Control or Influence (FOCI) mitigation, and supports Personnel Vetting business processes. NISS provides a centralized web-based platform for National Industrial Security Program (NISP) personnel to manage the industrial security facility clearance process; from request initiation to approval (or rejection) storage of all associated data, and provides a centralized process for users to submit, update, search, and view facility verification requests.

National Contract Classification System (NCCS). NCCS is a web-based system that automates the DD Form 254 for contract security classification specification submission; provides submitter with intuitive form of instructions, drop-down selections, and linkage to relevant contract information for completing the form; and provides user access control, query/search, notification, tracking, and reporting capabilities for accountability of all contract security classification specifications. 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

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 Program (NISP) DCSA NISP Central Access and Information Security System (NCAISS) a web-based Identity Management (IdM) enterprise portal, PKI compliant point-of-entry to the suite of services offered by DCSA, which controls user service accessibility through single sign-on authentication. User service-level permissions are verified, and authorized services are offered accordingly. 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 DCSA business systems to have service-accessibility that is controlled through PKI-compliant single sign-on authentication. Potential expanded use of the NCAISS across the DCSA 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 DCSA operated application into the DcSA NCAISS solution.

DCSA is establishing a Controlled Unclassified Information (CUI) program for industry that requires development and implementation of tools that support integration with cybersecurity monitoring, threat indications and warning, and supply chain illumination to protect critical technology. The development of a Security Rating Score (SRS) and its integration with the Contract Performance Assessment System will inform defense acquisition decisions and prioritize DCSA Industrial Security with active monitoring of companies in a single system of record. Funding will purchase data licenses for supply chain illumination tools that can be integrated into CUI cybersecurity assessments and will include business process tools to integrate data and manage DCSA business unit inputs from industrial and personnel security inputs. Funds will also support use of Artificial Intelligence / Machine Learning to accelerate and enhance cyber I&W via predictive analytics.

The Defense Information System for Security (DISS) 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 to provide 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.

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

	FY 2019	FY 2020	FY 2021
<p>Title: Systems Enhancement</p> <p>Description: Accomplishments: 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>	9.395	7.945	14.378

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Counterintelligence and Security Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<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.3. NCAISS. Continue integration and application sustainment activities. Contract period of performance ends 1st Qtr FY19.</p> <p>4. eFCL. Usage of systems has been retired from DCSA use.</p> <p>FY 2020 Plans:</p> <p>1.) NISS. Continue development of NISS NIPR enhancements. Development of NISS SIPR Increment, IOC projected by Q4 FY20.</p> <p>2.)Initiate development of NISS Cross Domain Solution (CDS)</p> <p>3.) NIPR NISS Enhancements to Key Management Personnel (KMP) monitoring, NATO CPI, Triage Outreach Program, NISP Oversight Report, Outgoing Foreign Visits and Facility Profile.</p> <p>4.) Refine Processes and Requirements for Critical Threat Protection (CTP).</p> <p>5.)Initiate Independent Verification and Verification (IV&V) and Government Acceptance Testing (GAT) of NIPR and SIPR NISS IV&V and GAT findings will be addressed</p> <p>FY 2021 Plans:</p> <p>The application will require both MilCloud and alternative cloud instances for National Background Investigative Services (NBIS) refactoring related activities.</p> <p>Hardware and software required for the SIPR NISS instance will double overall development ramp-up costs. NISS interfaces with DISS, NCCS and eMASS will drive additional developer expense, with only initial requirements or Technical Interchanges having been conducted to-date.</p> <p>Development efforts for enhancements (Key Management Personnel (KMP) monitoring, NATO CPI, Triage Outreach Program, NISP Oversight Report, and Outgoing Foreign Visits) were delayed due to a late FOC for NISS NIPR baseline</p> <p>Adaptive Data Exchange (ADP)/JCITS will assist DCSA with analysis of network telemetry data gathered from the Joint Cyber Intelligence Tool Suite, unclassified cyber threat intelligence data, cleared contractor reporting and other government agency feeds for detecting anomalous behavior and enhancing data.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Counterintelligence and Security Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p>Funding will be used to complete development of the DISS functionality necessary to sunset the Joint Personnel Adjudication System (JPAS).</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase from FY20 to FY21 provides funding for ADX/JCITS funding will assist DCSA with analysis of network telemetry data gathered from the Joint Cyber Intelligence Tool Suite, unclassified cyber threat intelligence data, cleared contractor reporting and other government agency feeds for detecting anomalous behavior and enhancing data.</p> <p>Transfers in from DHRA/DMDC funding for continued development of DISS.</p>			
Accomplishments/Planned Programs Subtotals	9.395	7.945	14.378

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

N/A

Remarks

D. Acquisition Strategy

DCSA will use a variety of 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 DCSA and the NISP community.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

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)
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	114.305	7.940	May 2019	6.603	May 2020	5.784		-		5.784	Continuing	Continuing	-
NISS Development/ MilCloud	MIPR	DISA : Pensacola, FL	0.600	0.500	May 2019	0.500	May 2020	0.000		-		0.000	Continuing	Continuing	-
NCAISS Development	Option/BPA	Deloitt : Arlington VA	3.740	0.000		0.000		0.000		-		0.000	Continuing	Continuing	-
NCCS Development	MIPR	DLA : Philadelphia, PA	3.312	0.600	Oct 2018	0.600	Oct 2019	0.000	Oct 2020	-		0.000	Continuing	Continuing	-
SBIR/STTR	MIPR	AT&L : Arlington, VA	1.243	0.355	May 2019	0.242	May 2020	-		-		-	Continuing	Continuing	-
ADX/JCITS	Option/TBD	TBD : TBD	-	-		-		4.000	Apr 2020	-		4.000	Continuing	Continuing	-
DISS Development	TBD	TBD : TBD	-	-		-		4.594		-		4.594	Continuing	Continuing	-
Subtotal			123.200	9.395		7.945		14.378		-		14.378	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	123.200	9.395	7.945	14.378	-	14.378	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 to provide seamless integration of applications.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Counterintelligence and Security Agency			Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2021 Defense Counterintelligence and Security Agency		Date: February 2020
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	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	2.400	5.700	-	5.700	0.000	0.000	0.000	0.000	Continuing	Continuing
000: <i>Risk Rating Tool</i>	0.000	0.000	2.400	5.700	-	5.700	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Counterintelligence and Security Agency (DCSA) 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, continuous vetting, and insider threat for the federal government. Continuous Vetting (CV) program incorporates continual monitoring of individuals in support of the federal investigation standards for security clearances. This funding facilitates critical objectives the Risk Rating Tool and a Research & Innovation fund for future capabilities. DVD continues to develop the Risk Rating Tool (RRT) to focus data acquisition on individuals demonstrating high risk behaviors as identified by machine learning modeling approaches. DVD will expand, test, and evaluate RRT models for the entire DoD population. The second objective of the funds is to establish a Behavioral Research and Innovation fund to support such entities as PERSEREC to continue to understand cleared populations, validate and or inform policy offices, and support in the development of business rules with scientifically backed recommendations. Additional the funds in the out years will support prototypes, and pilots in Continuous Vetting to ensure an agile ability to test and evaluate state of the art technology that can support and off set existing Continuous Vetting processes in such areas as: Robotic Process Automation, Gamification, Bio-Metrics/Credibility, Augmented Reality, Machine Learning, Artificial Intelligence, Chatbots, and other state of the art technologies that can be developed, prototyped, and piloted.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	2.400	0.000	-	0.000
Current President's Budget	0.000	2.400	5.700	-	5.700
Total Adjustments	0.000	0.000	5.700	-	5.700
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• One Time Increase	-	-	5.700	-	5.700

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
000: Risk Rating Tool	0.000	0.000	2.400	5.700	-	5.700	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Counterintelligence and Security Agency 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. This funding facilities two critical objectives the Risk Rating Tool and a Research & Innovation fund for future capabilities. DVD continues to develop the Risk Rating Tool (RRT) to focus data acquisition on individuals demonstrating high behaviors risk as identified by Machine Learning modeling approaches. DVD will expand, test, and evaluate RRT models for the entire DoD population. The second objective of the funds is to establish a Behavioral Research and Innovation fund to support such entities as PERSEREC to continue to understand cleared populations, validate and or inform policy offices, and support in the development of business rules with scientifically back recommendations. Additional the funds in out years will support prototypes, and pilots in Continuous Vetting to ensure an agile ability to test and evaluate state of the art technology that can support and off set existing Continuous Vetting processes in such areas as: Robotic Process Automation, Gamification, Bio-Metrics/Credibility, Augmented Reality, Machine Learning, Artificial Intelligence, Chatbots, and other state of the art technologies that can be developed, prototyped, and piloted.

DVD will utilize the Risk Rating Tool models to identify individuals with high risk stressors mapped to the 13 Adjudicative guidelines. Use of the Risk Rating Tool for case management and enrollment into High, Medium, Low Continuous Vetting Tier management is projected to generate cost avoidance in data acquisition by focusing resources on high risks rather than a randomly selected process. Execution of small scale prototypes or pilots will facilitate demonstrating value added before full scale integration, ensuring funds are not executed on an effort that cannot scale or meet all requirements.

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

	FY 2019	FY 2020	FY 2021
Title: RRT	-	2.400	5.700
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 2021 Plans:			
1. RRT. Continue development of RRT models with integration of results in future system of use with the National Background Investigation System.			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Counterintelligence and Security Agency		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
2. Establishment of a Research & innovation Fund for Behavioral Research and policy impacts/recommendations as well as state of the art testing and evaluation of capabilities that can support continuous vetting and provide cost savings			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Support prototypes, and pilots in Continuous Vetting to ensure an agile ability to test and evaluate state of the art technology that can support and off set existing Continuous Vetting processes in such areas as: Robotic Process Automation, Gamification, Bio-Metrics/Credibility, Augmented Reality, Machine Learning, Artificial Intelligence, Chatbots, and other state of the art technologies that can be developed, prototyped, and piloted.			
Title: NA	0.000	-	-
Accomplishments/Planned Programs Subtotals	0.000	2.400	5.700

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Counterintelligence and Security Agency		Date: February 2020
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2021 Defense Counterintelligence and Security Agency		Date: February 2020
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	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

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 0305327V / <i>Insider Threat</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	23.502	5.954	1.964	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
002: <i>Insider Threat</i>	23.502	5.954	1.964	0.000	-	0.000	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 comply 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)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	5.954	1.964	0.000	-	0.000
Current President's Budget	5.954	1.964	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	-	-			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
002: <i>Insider Threat</i>	23.502	5.954	1.964	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 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 comply 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 2019	FY 2020	FY 2021
Title: Insider Threat	5.954	1.964	-
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 reported in 2017 to 37 as of 4th quarter 2018. The system redesign provides 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.			
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.			
FY 2020 to FY 2021 Increase/Decrease Statement: The decrease from FY20 to FY21 is due to the completion of the DSoS development efforts.			
Accomplishments/Planned Programs Subtotals	5.954	1.964	-

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0400 / 7	PE 0305327V / <i>Insider Threat</i>	002 / <i>Insider Threat</i>

D. Acquisition Strategy

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

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>
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FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

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>
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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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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 8: Software and Digital Technology Pilot Programs</i>	R-1 Program Element (Number/Name) PE 0608197V / <i>National Background Investigation Services - Software Pilot Program</i>
--	--

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	121.676	-	121.676	124.587	127.330	129.371	131.966	Continuing	Continuing
000: <i>National Background Investigation Services - Software Pilot Program</i>	0.000	0.000	0.000	121.676	-	121.676	124.587	127.330	129.371	131.966	Continuing	Continuing

Note

This effort is not a new start in FY2021. It continues FY2020 development effort funded in PE 0303430K, Federal Investigative Services Information Technology.

A. Mission Description and Budget Item Justification

The Defense Counterintelligence and Security Agency acquires, develops, and deploys software and manages digital talent to support the development of a modernized Federal Government background investigation information technology (IT) systems(s) to replace the current legacy IT systems formerly the responsibility of the Office of Personnel Management (OPM) and provide a highly secured infrastructure. DoD assumed modernization efforts beginning in FY 2017, as decided by the Interagency Deputies Committee and the Office of Management and Budget (OMB). Funds support the development, sustainment, technical refresh of hardware and software, Cloud migration, and program management costs to develop and field a modernized Federal Investigation System. This modernized capability's data architecture will leverage and extend the existing secure Information Technology capabilities inherent to DoD infrastructure to the federal wide background investigation processes and data archives. This approach will provide essential security of this information and in turn protect the identities, lives, and livelihoods of these people, and the family members and associates identified as part of these records. The aim is to avert or eliminate the continuous and dynamic threat of identity theft, financial espionage and other attacks on this personal information, while providing a secure basis for background investigations necessary to Federal and DoD operations.

Using proven data architecture and identifiable security, DCSA will leverage critical and inherent information technology (IT) security capabilities; identify means and methods to efficiently and securely access digital services; enhance systems necessary to operate the background investigation processes and associated vast reservoirs of data and interfaces; provide Government-wide tools to assist agencies with workforce management; and, develop and provide investigative products that comply with the new, Federal Investigations Standards and Workforce 2.0. Resources will be used to implement and sustain agency network upgrades and security software maintenance to ensure a stronger, more reliable, and better protected network architecture for conducting background investigations. Costs include program management activities, payroll for security specialists, engineers, data architects, and business process management activities to develop, test, and deploy the new capability. As capabilities are fielded NBIS and DCSA will provide system maintenance, security licenses and operational support to the system and users worldwide.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Counterintelligence and Security Agency	Date: February 2020
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 8: Software and Digital Technology Pilot Programs</i>	R-1 Program Element (Number/Name) PE 0608197V / <i>National Background Investigation Services - Software Pilot Program</i>
--	--

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	121.676	-	121.676
Total Adjustments	0.000	0.000	121.676	-	121.676
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Establishment of Software Pilot Program	0.000	0.000	121.676	-	121.676

Change Summary Explanation

Supports execution of software development, procurement, modification, and operations and maintenance using RDT&E for pilot programs specified in BA 8.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Counterintelligence and Security Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 8	R-1 Program Element (Number/Name) PE 0608197V / <i>National Background Investigation Services - Software Pilot Program</i>	Project (Number/Name) 000 / <i>National Background Investigation Services - Software Pilot Program</i>
--	--	--

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
000: <i>National Background Investigation Services - Software Pilot Program</i>	0.000	0.000	0.000	121.676	-	121.676	124.587	127.330	129.371	131.966	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Counterintelligence and Security acquires, develops, and deploys software and manages digital talent. The system used for this is the National Background Investigation Services (NBIS) which supports the government-wide background investigation process; replacing the OPM's legacy systems that were breached in 2015. The objectives of NBIS enhances security, meets new policy requirements, reduces the backlog of pending cases, and realizes cost avoidance as legacy systems are retired. The system establishes and streamlines the requirements intake (software factory model), establish as a services approach, implements the DevSecOps pipeline, standardizes test processes, automates unit component, and integration testing, implements cyber processes to achieve continuous ATO, consolidates help desk activities, and enhances monitoring capabilities.

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

	FY 2019	FY 2020	FY 2021
Title: Software Pilot Program	-	-	121.676
Description: The Defense Counterintelligence and Security acquires, develops, and deploys software and manages digital talent. The system used for this is the National Background Investigation Services (NBIS) which supports the government-wide background investigation process; replacing the OPM's legacy systems that were breached in 2015. The objectives of NBIS enhances security, meets new policy requirements, reduces the backlog of pending cases, and realizes cost avoidance as legacy systems are retired. The system establishes and streamlines the requirements intake (software factory model), establish as a services approach, implements the DevSecOps pipeline, standardizes test processes, automates unit component, and integration testing, implements cyber processes to achieve continuous ATO, consolidates help desk activities, and enhances monitoring capabilities.			
FY 2021 Plans: FY 2021 O&M Plans: \$83.176 NBIS will continue to provide support functions for DMDC capabilities that are running in the DISA Data Centers along with the COOP to ensure continuous operations in event of failure. NBIS will leverage programmatic, operations and support contracts to provide Program Control, Financial and Budget support as well as the Operations functions to support the Cloud environment and transition of existing and new services into the Gov Cloud environments. NBIS will provide travel, non-centralized training, credit card, supplies, new laptops, Joint Enterprise Licensing Agreement (JELA) costs, and common licensing costs that supports running a PEO and Program Office. Finally, in FY2021 NBIS will pay any residual moving costs required for the transition from the			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Counterintelligence and Security Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 8	R-1 Program Element (Number/Name) PE 0608197V / <i>National Background Investigation Services - Software Pilot Program</i>	Project (Number/Name) 000 / <i>National Background Investigation Services - Software Pilot Program</i>

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

	FY 2019	FY 2020	FY 2021
<p>DISA campus to a DCSA facility. Additionally, under Budget Authority (BA) 8, the previous BA4 funds will be capitalized to offset the shortfalls in the previous BA7 funds to continue development of the evolving Investigation Services.</p> <p>FY 2021 RDT&E Plans: \$38.500</p> <p>DoD will continue to develop, enhance and improve the capabilities. As part of an Agile development process, the National Background Investigation System (NBIS) will deploy additional releases in FY21 to improve automation of the background investigation process, improve analytics to address insider threat analysis, improve continuous evaluation capabilities, and develop capabilities to meet additional Federal Agency requirements (e.g., Trusted Workforce 2.0). The system will continue to defend against cyber-attacks and improve defensibility by meeting new and evolving threats. Specifically, NBIS will continue to support Investigation Management (IM) Development for automation, new models, rules engines, and algorithms for optimization of assignments (i.e., continuous development); continue evolving the automation of IT infrastructure and DevSecOps tools and processes; implement Security Enterprise Architecture and Data Services to develop the capability to re-use data and analytics across multiple security missions, all while, simplifying system security and user access; supporting business transformation and late-derived requirements, technology change management, and Tier support for the NBIS Customers; identifying, developing, and testing multiple prototype efforts; and continuing to evolve and execute the adjusted implementation strategy based on lessons learned from prototype efforts and results of independent assessments.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase from FY 2020 to FY 2021 is due to the implementation of a pilot Budget Authority that combines the NBIS funding lines to better support the movement of Continual Evaluation (CE)/Continuous Vetting (CV) Compliance; Data Sources (CV Data Sources Connections); NBIS Application Development (eApp, NBIS Billing, IMT1 and Adjudication); and NBIS IT Infrastructure (Amazon Web Service (AWS) Gov Cloud and DevSecOps Pipeline) from development and testing to implementation and sustainment.</p>			
Accomplishments/Planned Programs Subtotals	-	-	121.676

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

N/A

Remarks

D. Acquisition Strategy

N/A

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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



Defense Information Systems Agency

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Research, Development, Test & Eval, DW	326,302	497,936			497,936
Total Research, Development, Test & Evaluation	326,302	497,936			497,936

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Department of Defense
 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	396,750				396,750
Total Research, Development, Test & Evaluation	396,750				396,750

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Summary Recap of Budget Activities					
System Development & Demonstration	1,936	1,578			1,578
Management Support	26,247	61,757			61,757
Operational Systems Development	298,119	434,601			434,601
Software And Digital Technology Pilot Programs					
Total Research, Development, Test & Evaluation	326,302	497,936			497,936
Summary Recap of FYDP Programs					
General Purpose Forces	61,208	64,122			64,122
Intelligence and Communications	258,187	239,987			239,987
Research and Development		183,834			183,834
Central Supply and Maintenance	1,317	1,361			1,361
Administration and Associated Activities	4,884	3,090			3,090
Space	706	5,542			5,542
Total Research, Development, Test & Evaluation	326,302	497,936			497,936

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities -----					
System Development & Demonstration					
Management Support	96,823				96,823
Operational Systems Development	213,177				213,177
Software And Digital Technology Pilot Programs	86,750				86,750
Total Research, Development, Test & Evaluation	396,750				396,750
 Summary Recap of FYDP Programs -----					
General Purpose Forces	59,813				59,813
Intelligence and Communications	196,848				196,848
Research and Development	132,058				132,058
Central Supply and Maintenance	1,654				1,654
Administration and Associated Activities	3,138				3,138
Space	3,239				3,239
Total Research, Development, Test & Evaluation	396,750				396,750

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 (Dollars in Thousands)

21 Jan 2020

Summary Recap of Budget Activities	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)

System Development & Demonstration	1,936	1,578			1,578
Management Support	26,247	61,757			61,757
Operational Systems Development	298,119	434,601			434,601
Software And Digital Technology Pilot Programs					
Total Research, Development, Test & Evaluation	326,302	497,936			497,936

Summary Recap of FYDP Programs					

General Purpose Forces	61,208	64,122			64,122
Intelligence and Communications	258,187	239,987			239,987
Research and Development		183,834			183,834
Central Supply and Maintenance	1,317	1,361			1,361
Administration and Associated Activities	4,884	3,090			3,090
Space	706	5,542			5,542
Total Research, Development, Test & Evaluation	326,302	497,936			497,936

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 FY 2021 President's Budget
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 (Dollars in Thousands)

21 Jan 2020

Summary Recap of Budget Activities	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
System Development & Demonstration					
Management Support	96,823				96,823
Operational Systems Development	213,177				213,177
Software And Digital Technology Pilot Programs	86,750				86,750
Total Research, Development, Test & Evaluation	396,750				396,750
Summary Recap of FYDP Programs					
General Purpose Forces	59,813				59,813
Intelligence and Communications	196,848				196,848
Research and Development	132,058				132,058
Central Supply and Maintenance	1,654				1,654
Administration and Associated Activities	3,138				3,138
Space	3,239				3,239
Total Research, Development, Test & Evaluation	396,750				396,750

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 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Defense Information Systems Agency	326,302	497,936			497,936
Total Research, Development, Test & Evaluation	326,302	497,936			497,936

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 (Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Defense Information Systems Agency	396,750				396,750
Total Research, Development, Test & Evaluation	396,750				396,750

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 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Program Line Element No Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
142 0303141K	Global Combat Support System	05	1,936	1,578			1,578 U
	System Development & Demonstration		1,936	1,578			1,578
182 0208045K	C4I Interoperability	06					U
188 0305172K	Combined Advanced Applications	06	21,363	58,667			58,667 U
190 0305208K	Distributed Common Ground/Surface Systems	06					U
197 0903235K	Joint Service Provider (JSP)	06	4,884	3,090			3,090 U
	Management Support		26,247	61,757			61,757
200 0604532K	Joint Artificial Intelligence	07		183,834			183,834 U
208 0208045K	C4I Interoperability	07	61,208	64,122			64,122 U
212 0302019K	Defense Info Infrastructure Engineering and Integration	07	13,540	10,798			10,798 U
213 0303126K	Long-Haul Communications - DCS	07	12,572	11,166			11,166 U
214 0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	17,579	17,383			17,383 U
218 0303140K	Information Systems Security Program	07	42,262	40,398			40,398 U
219 0303150K	Global Command and Control System	07	44,974	17,218			17,218 U
220 0303153K	Defense Spectrum Organization	07	5,748	19,528			19,528 U
221 0303167K	Pre-Auction Spectrum Relocation Fund	07	1,258				U
222 0303170K	Net-Centric Enterprise Services (NCES)	07	1,750				U

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Total Obligational Authority
(Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se c
142	0303141K	Global Combat Support System	05						U
		System Development & Demonstration							
182	0208045K	C4I Interoperability	06	59,813				59,813	U
188	0305172K	Combined Advanced Applications	06	30,824				30,824	U
190	0305208K	Distributed Common Ground/Surface Systems	06	3,048				3,048	U
197	0903235K	Joint Service Provider (JSP)	06	3,138				3,138	U
		Management Support		96,823				96,823	
200	0604532K	Joint Artificial Intelligence	07	132,058				132,058	U
208	0208045K	C4I Interoperability	07						U
212	0302019K	Defense Info Infrastructure Engineering and Integration	07	16,324				16,324	U
213	0303126K	Long-Haul Communications - DCS	07	11,884				11,884	U
214	0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	5,560				5,560	U
218	0303140K	Information Systems Security Program	07	8,922				8,922	U
219	0303150K	Global Command and Control System	07	3,695				3,695	U
220	0303153K	Defense Spectrum Organization	07	20,113				20,113	U
221	0303167K	Pre-Auction Spectrum Relocation Fund	07						U
222	0303170K	Net-Centric Enterprise Services (NCES)	07						U

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Defense-Wide
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 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	c
223	0303228K	Joint Regional Security Stacks (JRSS)	07	7,657	16,269			16,269	U
224	0303267K	Auctioned Spectrum Relocation Fund	07	24,600					U
225	0303430K	Federal Investigative Services Information Technology	07	59,870	44,001			44,001	U
226	0303467K	SENSR Spectrum Pipeline SRF	07	230					U
241	0305208K	Distributed Common Ground/Surface Systems	07	2,848	2,981			2,981	U
252	0708012K	Logistics Support Activities	07	1,317	1,361			1,361	U
268	1203610K	Teleport Program	07	706	5,542			5,542	U
		Operational Systems Development		298,119	434,601			434,601	
271	0303150K	Global Command and Control System	08						U
		Software And Digital Technology Pilot Progr							
Total Research, Development, Test & Eval, DW				326,302	497,936			497,936	

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
223	0303228K	Joint Regional Security Stacks (JRSS)	07	9,728				9,728	U
224	0303267K	Auctioned Spectrum Relocation Fund	07						U
225	0303430K	Federal Investigative Services Information Technology	07						U
226	0303467K	SENSR Spectrum Pipeline SRF	07						U
241	0305208K	Distributed Common Ground/Surface Systems	07						U
252	0708012K	Logistics Support Activities	07	1,654				1,654	U
268	1203610K	Teleport Program	07	3,239				3,239	U
		Operational Systems Development		213,177				213,177	
271	0303150K	Global Command and Control System	08	86,750				86,750	U
		Software And Digital Technology Pilot Progr		86,750				86,750	
Total Research, Development, Test & Eval, DW				396,750				396,750	

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Defense Information Systems Agency
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emergency+OCO)	S
142	0303141K	Global Combat Support System	05	1,936	1,578			1,578	U
		System Development & Demonstration		1,936	1,578			1,578	
182	0208045K	C4I Interoperability	06						U
188	0305172K	Combined Advanced Applications	06	21,363	58,667			58,667	U
190	0305208K	Distributed Common Ground/Surface Systems	06						U
197	0903235K	Joint Service Provider (JSP)	06	4,884	3,090			3,090	U
		Management Support		26,247	61,757			61,757	
200	0604532K	Joint Artificial Intelligence	07		183,834			183,834	U
208	0208045K	C4I Interoperability	07	61,208	64,122			64,122	U
212	0302019K	Defense Info Infrastructure Engineering and Integration	07	13,540	10,798			10,798	U
213	0303126K	Long-Haul Communications - DCS	07	12,572	11,166			11,166	U
214	0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	17,579	17,383			17,383	U
218	0303140K	Information Systems Security Program	07	42,262	40,398			40,398	U
219	0303150K	Global Command and Control System	07	44,974	17,218			17,218	U
220	0303153K	Defense Spectrum Organization	07	5,748	19,528			19,528	U
221	0303167K	Pre-Auction Spectrum Relocation Fund	07	1,258					U
222	0303170K	Net-Centric Enterprise Services (NCES)	07	1,750					U

R-121PB: FY 2021 President's Budget (Published Version), as of January 21, 2020 at 08:48:38

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Defense Information Systems Agency
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	See c
142	0303141K	Global Combat Support System	05						U
		System Development & Demonstration							
182	0208045K	C4I Interoperability	06	59,813				59,813	U
188	0305172K	Combined Advanced Applications	06	30,824				30,824	U
190	0305208K	Distributed Common Ground/Surface Systems	06	3,048				3,048	U
197	0903235K	Joint Service Provider (JSP)	06	3,138				3,138	U
		Management Support		96,823				96,823	
200	0604532K	Joint Artificial Intelligence	07	132,058				132,058	U
208	0208045K	C4I Interoperability	07						U
212	0302019K	Defense Info Infrastructure Engineering and Integration	07	16,324				16,324	U
213	0303126K	Long-Haul Communications - DCS	07	11,884				11,884	U
214	0303131K	Minimum Essential Emergency Communications Network (MEECN)	07	5,560				5,560	U
218	0303140K	Information Systems Security Program	07	8,922				8,922	U
219	0303150K	Global Command and Control System	07	3,695				3,695	U
220	0303153K	Defense Spectrum Organization	07	20,113				20,113	U
221	0303167K	Pre-Auction Spectrum Relocation Fund	07						U
222	0303170K	Net-Centric Enterprise Services (NCES)	07						U

R-121PB: FY 2021 President's Budget (Published Version), as of January 21, 2020 at 08:48:38

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Defense Information Systems Agency
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	
223	0303228K	Joint Regional Security Stacks (JRSS)	07	7,657	16,269			16,269	U
224	0303267K	Auctioned Spectrum Relocation Fund	07	24,600					U
225	0303430K	Federal Investigative Services Information Technology	07	59,870	44,001			44,001	U
226	0303467K	SENSR Spectrum Pipeline SRF	07	230					U
241	0305208K	Distributed Common Ground/Surface Systems	07	2,848	2,981			2,981	U
252	0708012K	Logistics Support Activities	07	1,317	1,361			1,361	U
268	1203610K	Teleport Program	07	706	5,542			5,542	U
		Operational Systems Development		298,119	434,601			434,601	
271	0303150K	Global Command and Control System Software And Digital Technology Pilot Programs	08						U
Total Defense Information Systems Agency				326,302	497,936			497,936	

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Defense Information Systems Agency
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
223	0303228K	Joint Regional Security Stacks (JRSS)	07	9,728				9,728	U
224	0303267K	Auctioned Spectrum Relocation Fund	07						U
225	0303430K	Federal Investigative Services Information Technology	07						U
226	0303467K	SENSR Spectrum Pipeline SRF	07						U
241	0305208K	Distributed Common Ground/Surface Systems	07						U
252	0708012K	Logistics Support Activities	07	1,654				1,654	U
268	1203610K	Teleport Program	07	3,239				3,239	U
		Operational Systems Development		213,177				213,177	
271	0303150K	Global Command and Control System	08	86,750				86,750	U
		Software And Digital Technology Pilot Programs		86,750				86,750	
Total Defense Information Systems Agency				396,750				396,750	

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188	06	0305172K	Combined Advanced Applications.....	Volume 5 - 143
190	06	0305208K	Distributed Common Ground/Surface Systems.....	Volume 5 - 147
197	06	0903235K	Joint Service Provider.....	Volume 5 - 151

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

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208	07	0208045K	C4I Interoperability.....	Volume 5 - 165
212	07	0302019K	Defense Info. Infrastructure Engineering and Integration.....	Volume 5 - 183
213	07	0303126K	Long-Haul Communications - DCS.....	Volume 5 - 203
214	07	0303131K	Minimum Essential Emergency Communications Network (MEECN).....	Volume 5 - 221
218	07	0303140K	Information Systems Security Program.....	Volume 5 - 233
219	07	0303150K	Global Command and Control System.....	Volume 5 - 245
220	07	0303153K	Defense Spectrum Organization.....	Volume 5 - 257
221	07	0303167K	Pre-Auctioned Spectrum Relocation Fund.....	Volume 5 - 267
222	07	0303170K	Net Centric Enterprise Services (NCES).....	Volume 5 - 273
223	07	0303228K	Joint Information Environment.....	Volume 5 - 281
224	07	0303267K	Auctioned Spectrum Relocation Fund.....	Volume 5 - 289
225	07	0303430K	Federal Investigative Services Information Technology.....	Volume 5 - 295
226	07	0303467K	Spectrum Efficient National Surveillance Radar (SENSR) Pipeline Spectrum Relocation Fund.....	Volume 5 - 301
241	07	0305208K	Distributed Common Ground/Surface Systems.....	Volume 5 - 307
252	07	0708012K	Logistics Support Activities.....	Volume 5 - 313

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
268	07	1203610K	Teleport Program.....	Volume 5 - 319

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
271	08	0303150K	Global Command and Control System Software and Digital Technology Pilot Program.	Volume 5 - 331

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C4I Interoperability	0208045K	208	07.....	Volume 5 - 165
Combined Advanced Applications	0305172K	188	06.....	Volume 5 - 143
Defense Info. Infrastructure Engineering and Integration	0302019K	212	07.....	Volume 5 - 183
Defense Spectrum Organization	0303153K	220	07.....	Volume 5 - 257
Distributed Common Ground/Surface Systems	0305208K	190	06.....	Volume 5 - 147
Distributed Common Ground/Surface Systems	0305208K	241	07.....	Volume 5 - 307
Federal Investigative Services Information Technology	0303430K	225	07.....	Volume 5 - 295
Global Combat Support System	0303141K	142	05.....	Volume 5 - 127
Global Command and Control System	0303150K	219	07.....	Volume 5 - 245
Global Command and Control System Software and Digital Technology Pilot Program	0303150K	271	08.....	Volume 5 - 331
Information Systems Security Program	0303140K	218	07.....	Volume 5 - 233
Joint Artificial Intelligence Center (JAIC)	0604532K	200	07.....	Volume 5 - 155
Joint Information Environment	0303228K	223	07.....	Volume 5 - 281
Joint Service Provider	0903235K	197	06.....	Volume 5 - 151
Logistics Support Activities	0708012K	252	07.....	Volume 5 - 313

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Program Element Title	Program Element Number	Line #	BA	Page
Long-Haul Communications - DCS	0303126K	213	07.....	Volume 5 - 203
Minimum Essential Emergency Communications Network (MEECN)	0303131K	214	07.....	Volume 5 - 221
Net Centric Enterprise Services (NCES)	0303170K	222	07.....	Volume 5 - 273
Pre-Auctioned Spectrum Relocation Fund	0303167K	221	07.....	Volume 5 - 267
Spectrum Efficient National Surveillance Radar (SENSR) Pipeline Spectrum Relocation Fund	0303467K	226	07.....	Volume 5 - 301
Teleport Program	1203610K	268	07.....	Volume 5 - 319

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	268.685	1.936	1.578	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
CS01: <i>Global Combat Support System</i>	268.685	1.936	1.578	0.000	-	0.000	0.000	0.000	0.000	0.000	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)	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	2.512	1.578	1.708	-	1.708
Current President's Budget	1.936	1.578	0.000	-	0.000
Total Adjustments	-0.576	0.000	-1.708	-	-1.708
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.510	-			
• SBIR/STTR Transfer	-0.066	-			
• Realignment	-	-	-1.708	-	-1.708

Change Summary Explanation

The decrease of -\$0.066 in FY 2019 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and -\$0.510 was reprogrammed to support Other Transaction Authority (TOA) contract.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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The decrease of -\$1.708 in FY 2021 is due to realignment of funds to PE 0303150K for JPES Phase 2 Modernization.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
CS01: <i>Global Combat Support System</i>	268.685	1.936	1.578	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 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 2019	FY 2020	FY 2021
Title: Global Combat Support System-Joint	1.936	1.578	0.000
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 2020 Plans: The GCSS-J PMO will continue to meet the Joint Staff (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 2021 Plans: N/A			
FY 2020 to FY 2021 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
The decrease of -\$1.578 from FY 2020 to FY 2021 is due to the termination of the program at the end of FY 2020. The funding has been realigned to PE0303150K Global Command and Control for Joint Planning and Execution Services (JPES) Phase 2 Modernization.			
Accomplishments/Planned Programs Subtotals	1.936	1.578	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• O&M, DW/PE 0303141K: O&M, DW	15.174	14.717	-	-	-	-	-	-	-	14.717	0.000

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	14.770	1.198	May 2019	0.722	May 2020	-		-		-	0.000	16.690	17.266
Subtotal			225.942	1.198		0.722		-		-		-	0.000	227.862	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	8.232	0.486	Oct 2018	0.616	Oct 2019	-		-		-	0.000	9.334	9.334
Test & Evaluation 7	MIPR	STRATCOM (DAA) : Bolling AFB, DC	1.132	0.157	Oct 2018	0.170	Oct 2019	-		-		-	0.000	1.459	1.459
Test & Evaluation 8	MIPR	DISA (TE LAB Support) : Fort Meade, MD	1.564	0.095	Oct 2018	0.070	Oct 2019	-		-		-	0.000	1.729	1.729
Test & Evaluation 9	MIPR	DISA FSO Security Testing Support : Fort Meade, MD	0.350	-		-		-		-		-	0.000	0.350	0.350
Subtotal			23.939	0.738		0.856		-		-		-	0.000	25.533	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	268.685	1.936	1.578	-	-	-	0.000	272.199	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Development & Testing - Increment 8	[REDACTED]																											
Full Deployment Decision - Increment 8	[REDACTED]																											

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Development & Testing - Increment 8	[REDACTED]																											
Full Deployment Decision - Increment 8	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
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	2020
Full Deployment Decision - Increment 8	4	2019	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	59.813	-	59.813	55.938	57.363	57.948	58.643	Continuing	Continuing
T-30: MRTFB Test and Evaluation	0.000	0.000	0.000	7.831	-	7.831	7.816	8.032	8.071	8.119	Continuing	Continuing
T-40: Major Range Test Facility Base Operations	0.000	0.000	0.000	51.982	-	51.982	48.122	49.331	49.877	50.524	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	59.813	-	59.813
Total Adjustments	0.000	0.000	59.813	-	59.813
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	-	-	59.813	-	59.813

Change Summary Explanation

The increase of +\$59.813 in FY 2021 is due to the transfer of program from Budget Activity (BA) 7 to BA 6 to accurately align the mission of the program.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability				Project (Number/Name) T-30 / MRTFB Test and Evaluation			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
T-30: MRTFB Test and Evaluation	0.000	0.000	0.000	7.831	-	7.831	7.816	8.032	8.071	8.119	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 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0208045K / <i>C4I Interoperability</i>	Project (Number/Name) T-30 / <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 2019	FY 2020	FY 2021
<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 2021 Plans:</p>	-	-	6.911

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020		
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T-30 / MRTFB Test and Evaluation		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
<p>Will 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 to FY 2021 Increase/Decrease Statement: The increase of +\$6.911 from FY 2020 to FY 2021 is due to transfer of program from BA 7 to BA 6 to accurately align the mission of the program. This transfer includes an increase +\$0.129 that provides support to development of new methodologies for conducting interoperability assessments.</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 2021 Plans: Will 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. Provide OT&E support to COCOMs, Military Services, and Defense Agencies as requested.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase of +\$0.800 from FY 2020 to FY 2021 is due to transfer of program from BA 7 to BA 6 to accurately align the mission of the program.</p>		-	-	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 2021 Plans: Support will focus 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.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase of +\$0.120 from FY 2020 to FY 2021 is due to transfer of program from BA 7 to BA 6 to accurately align the mission of the program.</p>		-	-	0.120
Accomplishments/Planned Programs Subtotals		-	-	7.831

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency	Date: February 2020
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Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0208045K / <i>C4I Interoperability</i>	Project (Number/Name) T-30 / <i>MRTFB Test and Evaluation</i>
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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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability				Project (Number/Name) T-40 / Major Range Test Facility Base Operations			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
T-40: Major Range Test Facility Base Operations	0.000	0.000	0.000	51.982	-	51.982	48.122	49.331	49.877	50.524	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 2019	FY 2020	FY 2021
Title: MRTFB Improvements and Operations	-	-	51.982
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 2021 Plans: As an MRTFB, JITC will operate the DISA IT Test infrastructure standardized test bed at Fort George G. Meade, MD and Fort Huachuca, AZ. JITC will support the Agency and the Department by expanding the use of cloud technologies to provide seamless			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability	Project (Number/Name) T-40 / Major Range Test Facility Base Operations

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
distributed testing services and efficient use of testing equipment and resources. JITC maintain technical workforce, support base operations, communications, and operating expenses at each location. FY 2020 to FY 2021 Increase/Decrease Statement: The increase of +\$51.982 from FY 2020 to FY 2021 is due to transfer of program from BA 7 to BA 6 to accurately align the mission of the program. A decrease of -\$4.917 is the result of a reduction in FTEs and a delay in cloud implementation and IT infrastructure sustainment and modernization efforts supporting T&E services.			
Accomplishments/Planned Programs Subtotals	-	-	51.982

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 0305172K / <i>Combined Advanced Applications</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	29.198	21.363	58.667	30.824	-	30.824	6.472	6.001	5.764	5.884	Continuing	Continuing
CA1: <i>Combined Advanced Applications</i>	29.198	21.363	48.667	30.824	-	30.824	6.472	6.001	5.764	5.884	Continuing	Continuing
FM1: <i>Financial Management Systems</i>	0.000	0.000	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.000

A. Mission Description and Budget Item Justification

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)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	21.363	58.667	33.796	-	33.796
Current President's Budget	21.363	58.667	30.824	-	30.824
Total Adjustments	0.000	0.000	-2.972	-	-2.972
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Reprogrammings	-	-	-2.972	-	-2.972

Change Summary Explanation

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

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
CA1: <i>Combined Advanced Applications</i>	29.198	21.363	48.667	30.824	-	30.824	6.472	6.001	5.764	5.884	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 2019	FY 2020	FY 2021
Title: Combined Advanced Applications	21.363	48.667	30.824
Description: Classified.			
FY 2020 Plans: Classified.			
FY 2021 Plans: Classified.			
FY 2020 to FY 2021 Increase/Decrease Statement: Classified.			
Accomplishments/Planned Programs Subtotals	21.363	48.667	30.824

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

N/A

Remarks

D. Acquisition Strategy

Classified

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0305172K / Combined Advanced Applications	Project (Number/Name) FM1 / Financial Management Systems
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
FM1: <i>Financial Management Systems</i>	0.000	0.000	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

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 2019	FY 2020	FY 2021
Title: Financial Management Systems - Test and Development	-	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 2020 to FY 2021 Increase/Decrease Statement: Decrease of -\$10.000 from FY 2020 to FY 2021 is the result of a one-time increase in FY 2020 to develop, pilot and test solutions to support the operational requirements of the defense-wide financial communities user base being completed.			
Accomplishments/Planned Programs Subtotals	-	10.000	-

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

N/A

Remarks

D. Acquisition Strategy

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 0305208K / <i>Distributed Common Ground/Surface Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	3.048	-	3.048	3.110	3.172	3.233	3.301	Continuing	Continuing
NF1: <i>Distributed Common Ground/Surface Systems</i>	0.000	0.000	0.000	3.048	-	3.048	3.110	3.172	3.233	3.301	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)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	3.048	-	3.048
Total Adjustments	0.000	0.000	3.048	-	3.048
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	-	-	3.048	-	3.048

Change Summary Explanation

The increase of +\$3.048 in FY 2021 is due to transfer of program from Budget Activity (BA) 7 to BA 6 to accurately align the mission of the program.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
NF1: <i>Distributed Common Ground/Surface Systems</i>	0.000	0.000	0.000	3.048	-	3.048	3.110	3.172	3.233	3.301	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 2019	FY 2020	FY 2021
Title: Distributed Common Ground/Surface Systems (DCGS)	0.000	0.000	3.048
FY 2020 Plans: N/A			
FY 2021 Plans: Will 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			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 6	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 2019	FY 2020	FY 2021
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.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase of +\$3.048 from FY 2020 to FY 2021 is due to transfer of program from BA 7 to BA 6 to accurately align the mission of the program. It includes an increase of +\$0.067 that provides for minimal tech refresh of T&E infrastructure.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	3.048

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. Since FY18, DCGS has transitioned to a cost plus fixed fee and firm fixed price Test, Evaluation and Certification contract (TEC).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 0903235K / <i>Joint Service Provider</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	4.309	4.884	3.090	3.138	-	3.138	2.992	2.989	3.007	3.070	Continuing	Continuing
JSP: <i>Joint Service Provider</i>	4.309	4.884	3.090	3.138	-	3.138	2.992	2.989	3.007	3.070	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Service Provider (JSP) provides Information Technology (IT) 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	5.104	3.090	3.140	-	3.140
Current President's Budget	4.884	3.090	3.138	-	3.138
Total Adjustments	-0.220	0.000	-0.002	-	-0.002
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.034	-			
• SBIR/STTR Transfer	-0.186	-			
• General Reductions	-	-	-0.002	-	-0.002

Change Summary Explanation

Decrease of -\$0.186 in FY 2019 is due to the transfer to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and -\$0.034 decrease in contract support.

Decrease of -\$0.002 in FY 2021 is due to reduction in technical contract support.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
JSP: Joint Service Provider	4.309	4.884	3.090	3.138	-	3.138	2.992	2.989	3.007	3.070	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 2019	FY 2020	FY 2021
Title: Pentagon/National Capitol Region (NCR) Core Enterprise Services	4.166	-	-
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.			
Title: SECDEF Communications	0.103	0.105	0.107
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.			
FY 2020 Plans: 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 2021 Plans: Continue to 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 2020 to FY 2021 Increase/Decrease Statement: The increase of +\$0.002 from FY 2020 to FY 2021 is attributed to an increase to the Federally Funded Research and Development Center (FFRDC) MITRE/Johns Hopkins University Applied Physics Laboratory (JHU APL) contract support.			
Title: Business Solutions - Enterprise Services	0.615	-	-
Description: Provides development, testing, piloting, and pre-deployment support for integrated business tools that will enhance JSP-supported enterprise mission application environment.			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency	Date: February 2020
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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 2019	FY 2020	FY 2021
<p>Title: Enterprise Initiative Test & Development</p> <p>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.</p> <p>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).</p> <p>FY 2021 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).</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase of +\$0.046 from FY 2020 to FY 2021 is attributed to increased costs for FFRDC MITRE/JHU APL contract support.</p>	-	2.985	3.031
Accomplishments/Planned Programs Subtotals	4.884	3.090	3.138

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	183.834	132.058	-	132.058	128.049	136.045	145.045	154.755	Continuing	Continuing
JA1: <i>Joint Artificial Intelligence Center (JAIC)</i>	0.000	0.000	183.834	132.058	-	132.058	128.049	136.045	145.045	154.755	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 (NDS). 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 Department of Defense (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 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-governmental organizations, corporations, strategic influencers,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	208.834	34.134	-	34.134
Current President's Budget	0.000	183.834	132.058	-	132.058
Total Adjustments	0.000	-25.000	97.924	-	97.924
• Congressional General Reductions	-	-25.000			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	-	-	97.924	-	97.924

Change Summary Explanation

The decrease of -\$25.000 in FY 2020 is due to a Congressional general reduction.

The increase of +\$97.924 in FY 2021 is to accelerate delivery of Artificial Intelligence (AI) algorithms and upgrade AI capabilities for adoption by the Military Departments.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
JA1: <i>Joint Artificial Intelligence Center (JAIC)</i>	0.000	0.000	183.834	132.058	-	132.058	128.049	136.045	145.045	154.755	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 2021 Defense Information Systems Agency	Date: February 2020
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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 2019	FY 2020	FY 2021
<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 continues AI enabled product delivery to enable the National Defense Strategy across multiple National Mission Initiative (NMI) focus areas. JAIC continues to deliver AI Capability lines of effort begun during FY2019 in the areas of Predictive Maintenance (PMx) and Humanitarian Assistance and Disaster Relief (HA/DR), and expand into the National Mission Initiative Areas of Cyber Sense-making, Intelligence Business Automation, Joint Warfighting and Predictive Health. Second, the JAIC continues to build the Joint Common Foundation (JCF), a cloud enabler that provides foundational AI tools and to enable centralized direction, and decentralized development and experimentation. JAIC will develop and harden the JCF Development and Test environments to provide reusable AI workspaces, development tools, data repository and data ingestion and conditioning. Third, the JAIC will grow into the DoD AI Center of Excellence brokering partnerships among AI stakeholders, growing DoD-wide expertise in AI engineering, mathematics, cognitive services and data science, and providing a governance framework for synchronizing the DoD AI strategy and the implementation of FY2019 NDAA Section 238 tasks. The JAIC continues the Predictive Maintenance (PMx) NMI begun in FY19 to improve the availability of military airframes by minimizing downtime for maintenance. In FY20, the JAIC will work with the Army to operationalize an AI-enabled advance engine health model to replace imprecise, manually intensive aircraft maintenance schedule. AI-enabled predicted engine failures will allow operational planners, program offices, and supply personnel to anticipate and provide maintenance intervention ahead of otherwise reactive and costly depot maintenance. In FY20, the JAIC will work with stake holders to analyze and reform existing workflows, perform environmental data analysis and identify alternative ways to create a user interface for maintenance stakeholders to leverage high performance computing results to better anticipate fleet health and availability. The JAIC continues the HA/DR NMI begun in FY19 to create AI-enabled geo-rectified disaster response maps in minutes rather than hours or days. This capability will be used to transform disaster center response operations that currently rely on time consuming, manually curated maps to identify disaster perimeters (e.g. fire or flood lines), vulnerable infrastructure and to direct</p>	-	183.834	132.058

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p>first responders with greater speed, precision and agility. In FY20 the JAIC will work with component transition partners to test end-to-end integration of AI model performance in delivering Keyhole Markup Language (KML) map layers for use in response center’s Common Operating Picture (COP). This will require the test and evaluation of each part of the AI pipeline from sensors, to models, to integrating data feeds and ultimately designing a user interface that emergency response operators will use to understand, edit, validate and employ the use of AI-enabled map layers to protect infrastructure and save lives.</p> <p>In FY20 the JAIC will begin the Joint Warfighting NMI to increase the speed, precision and agility of warfighting through improved Joint All-Domain Command and Control (JADC2), the autonomous application of systems, sensors, and targeting solutions, and accelerated AI-enabled mission command. Currently, structuring and organizing operations and intelligence data sources is manual, slow and imprecise. The Joint Warfighting NMI will develop an application platform for JADC2 using open-API tools to automate the fusion and curation of a unified purpose-built information set. During FY20, the Joint Warfighting NMI will conduct an exhaustive assessment of current tools, techniques and data sources within scope for the JADC2 platform, build a viable architecture and repeatable data curation and fusion pipeline. This open API data fusion platform, will provide the foundation for future AI enabled workflows related to the identification, tracking and targeting within a well understood and appropriately governed data-driven command and control eco system.</p> <p>In FY20 the JAIC will begin the Warfighter Health NMI to accelerate health classification, individual diagnoses, and enable resilient field medicine. AI enabled capabilities can enable population inferences about treatments, readiness, and work conditions with greater speed and precision. In FY20 this NMI will focus on building a structured Medical Readiness repository of data that fuses multiple sources of health care, physical performance and veterans affairs assessments in order to leverage AI capabilities to reduce the time it takes to perform Readiness and Disability Adjudications hours to minutes per warfighter. The Warfighter Health NMI will create a repeatable AI architecture and pipeline for classifying disability conditions during FY20, setting the conditions for FY21.</p> <p>FY 2021 Plans: JAIC will begin to transition the lines of effort in the areas of Predictive Maintenance (PMx) and Humanitarian Assistance and Disaster Relief (HA/DR) to service and component partners. These capabilities are expected to be available on the JCF for reuse by many. As soon as an NMI has fully transitioned ongoing lines of effort, those JAIC resources will be aligned to kick off new AI Capability lines of effort in accordance with the direction of the DOD AI ESG. The JAIC will mature AI enabled capabilities in the National Mission Initiative Areas of Cyber Sense-making, Intelligence Business Automation, Joint Warfighting and Predictive Health and will begin to plan and prepare for their transition to component transition partners. The JAIC will begin up to 5 new lines of effort within the six National Mission areas. By FY21, 90% of NMIs Development and Test will be accomplished in the JCF. The JCF will provide a collaboration portal for the DoD, a registry for DoD AI Projects and optimized JCF virtual environments provisioned with the right tools, suited to the users and developers assigned to given project. In FY21 the JCF will begin testing capabilities on the SIPR domain.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0604532K / Joint Artificial Intelligence Center (JAIC)	Project (Number/Name) JA1 / Joint Artificial Intelligence Center (JAIC)

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

	FY 2019	FY 2020	FY 2021
<p>In FY21 the JAIC will continue the Cyber Sense-making NMI that was begun in FY20 to shrink timelines for cyber-threat situational awareness using AI anomaly detection and network exploration techniques. In FY21 the NMI will leverage the CSSP gold standard benchmark dataset, and the completed GOTS assessments o AI-enabled cyber threat detection applications to deploy the highest performing tools and models, along with the lessons learned, to the Joint Common Foundation for wide-spread adoption.</p> <p>In FY21 the JAIC will begin the Intelligent Business Automation (IBA) NMI to increase the effectiveness and efficiency of routine tasks by enabling DoD staff to use robotic process automation (RPA) and other AI tools. In FY21, based on the most promising RPA technologies and workflows, this NMI will gain temporary authority to operate (ATO) and authority to connect (ATC), and will conduct operational experiments. The Intelligent Business Automation (IBA) will deliver a platform of Robotic Process Automation (RPA) services and platform to save manhours, reduce routine errors in back-office processes.</p> <p>In FY21 the JAIC will continue the Joint Warfighting NMI started in FY20 to increase the speed, precision and agility of warfighting through improved Joint All-Domain Command and Control (JADC2), the autonomous application of systems, sensors, and targeting solutions, and accelerated AI-enabled mission command. The Joint Warfighting NMI will continue to develop and mature the application platform for JADC2 using open-API tools to automate the fusion and curation of a unified purpose-built information set. Based on the FY20 assessment of current tools, techniques and data sources within scope for the JADC2 platform, the approved architecture and a repeatable data curation and fusion pipeline, the JW NMI will design and build AI enabled workflows related to the identification, tracking and targeting within a well understood and appropriately governed data-driven command and control eco system.</p> <p>In FY21 the JAIC will continue the Warfighter Health NMI to accelerate health classification, individual diagnoses, and enable resilient field medicine. In FY21, this NMI will leverage the structured Medical Readiness repository of data created in FY20 to reduce the time it takes to perform Readiness and Disability Adjudications hours to minutes per warfighter. In FY21 this NMI will expand on early successes dynamically classifying disabling conditions. The NMI will leverage the Medical Readiness data, architecture, and repeatable AI pipeline to train a machine to recognize all 50 categorically disabling conditions, in anticipation of wide deployment during subsequent fiscal years.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The decrease of -\$51.776 from FY 2020 to FY 2021 reflects the transfer of several enhance AI-enabled capabilities within the National Mission Initiatives (NMI) begun in FY 2020 in the areas of Humanitarian Assistance and Disaster Relief, Predictive Maintenance, and Cyber Sensemaking.</p>			
Accomplishments/Planned Programs Subtotals	-	183.834	132.058

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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>

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

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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Information Systems Agency		Date: February 2020
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	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	809.164	61.208	64.122	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
T30: <i>MRTFB Test and Evaluation</i>	185.061	7.809	7.584	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
T40: <i>Major Range Test Facility Base Operations</i>	624.103	53.399	56.538	0.000	-	0.000	0.000	0.000	0.000	0.000	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	62.814	64.122	62.364	-	62.364
Current President's Budget	61.208	64.122	0.000	-	0.000
Total Adjustments	-1.606	0.000	-62.364	-	-62.364
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.697	-			
• SBIR/STTR Transfer	-0.909	-			
• Adjustments	-	-	-62.364	-	-62.364

Change Summary Explanation

Decrease of -\$0.909 in FY 2019 reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and a decrease of -\$0.697 was achieved by efficiencies gained in Test and Evaluation infrastructure modernization efforts.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity
0400: *Research, Development, Test & Evaluation, Defense-Wide / BA 7:
Operational Systems Development*

R-1 Program Element (Number/Name)
PE 0208045K / *C4I Interoperability*

The decrease of -\$62.364 in FY 2021 is due to transfer of program from Budget Activity (BA) 7 to BA 6 to accurately align the mission of the program.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
T30: MRTFB Test and Evaluation	185.061	7.809	7.584	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 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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021
<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 2020 Plans:</p>	6.889	6.664	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020		
Appropriation/Budget Activity 0400 / 7		R-1 Program Element (Number/Name) PE 0208045K / C4I Interoperability		Project (Number/Name) T30 / MRTFB Test and Evaluation
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
<p>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 to FY 2021 Increase/Decrease Statement: The decrease of -\$6.664 from FY 2020 to FY 2021 is due to transfer of program from BA 7 to BA 6 to accurately align the mission of the program.</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 2020 Plans: Will provide OT&E support for process, 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 2020 to FY 2021 Increase/Decrease Statement: The decrease of -\$0.800 in FY 2020 to F2021 is due to transfer of program from BA 7 to BA 6 to accurately align the mission of the program.</p>		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 2020 Plans: Support 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.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The decrease of -\$0.120 from FY 2020 to FY 2021 is due to transfer of program from BA 7 to BA 6 to accurately align the mission of the program.</p>		0.120	0.120	-
Accomplishments/Planned Programs Subtotals		7.809	7.584	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency	Date: February 2020
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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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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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	-		-		-	0.000	16.605	-
Test and Evaluation	Option/CPFF	ALION SCIENCE & TECH CORP : Various	0.026	0.010	Oct 2018	-		-		-		-	0.000	0.036	-
Test and Evaluation	Option/CPFF	AMERICAN SYSTEMS CORP : Various	0.346	0.080	Oct 2018	-		-		-		-	0.000	0.426	-
Test and Evaluation	Option/CPFF	MANTECH TELECOMMUNICATIONS AND INFORMATION : Various	1.408	0.305	Oct 2018	-		-		-		-	0.000	1.713	-
Test and Evaluation	Option/CPFF	OBERON ASSOCIATES : Various	0.285	0.072	Oct 2018	-		-		-		-	0.000	0.357	-
Test and Evaluation	Option/CPFF	TASC, INC : Various	5.110	1.132	Oct 2018	-		-		-		-	0.000	6.242	-
Subtotal			128.911	1.599		1.529		-		-		-	0.000	132.039	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Information Systems Agency **Date:** February 2020

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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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	2020
Conduct Joint interoperability test and certification on IT/NSS using the Joint Family of Tactical Data Link (TDL)	1	2017	4	2020
Operate 24/7 Interoperability Hotline	1	2017	4	2020
Provide Joint/Combined Interoperability Test support to Combatant Commanders	2	2017	4	2020
Provide JIE Compliance Test and Evaluation framework and infrastructure	1	2017	4	2020
Provide Cyberspace Test and Evaluation framework and infrastructure	1	2017	4	2020
Plan and conduct the Defense Interoperability Communications Exercise (DICE)	3	2017	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
T40: Major Range Test Facility Base Operations	624.103	53.399	56.538	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

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 2019	FY 2020	FY 2021
Title: MRTFB Improvements and Operations	53.399	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 2020 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 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
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 to FY 2021 Increase/Decrease Statement:</i> The decrease of -\$56.538 from FY 2020 to FY 2021 is due to transfer of program from BA 7 to BA 6 to accurately align the mission of the program.			
Accomplishments/Planned Programs Subtotals	53.399	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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	0.617	-		-		-		-		-	0.000	0.617	-
Test and Evaluation 6	Option/CPFF	AMERICAN SYSTEMS COPR : Various	1.559	-		-		-		-		-	0.000	1.559	-
Test and Evaluation 7	Option/CPFF	MANTECH TELECOMMUNICATIONS AND INFORMATION : Various	9.903	-		-		-		-		-	0.000	9.903	-
Test and Evaluation 8	Option/CPFF	OBERON ASSOCIATES : Various	12.980	-		-		-		-		-	0.000	12.980	-
Test and Evaluation 9	Option/CPFF	TASC, INC. : Various	3.951	-		-		-		-		-	0.000	3.951	-
Test and Evaluation 10	Option/CPFF	BEACON GROUP SW, INC : Various	21.363	7.711	Oct 2018	-		-		-		-	0.000	29.074	-
Test and Evaluation 11	Option/CPFF	Multiple : Various	-	12.001	Oct 2018	30.226	Oct 2019	-		-		-	0.000	42.227	-
Test and Evaluation 12	C/CPFF	Various : Various	25.386	8.355	Oct 2018	-		-		-		-	0.000	33.741	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency							Date: February 2020				
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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	[REDACTED]																											
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FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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	[REDACTED]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
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	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	165.641	13.540	10.798	16.324	-	16.324	16.538	16.874	17.089	17.342	Continuing	Continuing
E65: <i>Modeling and Simulation</i>	103.652	3.423	2.109	4.068	-	4.068	4.151	4.240	4.319	4.410	Continuing	Continuing
T62: <i>DoD Information Network (DODIN) Systems Engineering and Support</i>	61.989	10.117	8.689	12.256	-	12.256	12.387	12.634	12.770	12.932	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) Emerging Technology Directorate (EM) (formerly OCTO) to fill capability shortfalls and technology gaps across the Future Years Defense Program (FYDP). EM identifies these gaps/shortfalls, pursues leading innovative solutions from industry, academia, and the Federal sector, and engages industry partners for commercial best practices. EM conducts technical system engineering reviews and oversight of DISA and DoD enterprise products and services. EM resolves mission partner gaps and agency challenges requiring technical and/or process innovation in Machine Learning/Artificial Intelligence (AI), Mobility, Assured Identity, Rapid Transition, Cyber Defense, and Blockchain among other technologies.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	16.121	15.798	16.226	-	16.226
Current President's Budget	13.540	10.798	16.324	-	16.324
Total Adjustments	-2.581	-5.000	0.098	-	0.098
• Congressional General Reductions	-	-5.000			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.025	-			
• SBIR/STTR Transfer	-0.556	-			
• Adjustment	-	-	0.098	-	0.098

Change Summary Explanation

The decrease in FY 2019 is due to the decrease of -\$0.556 for a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and the decrease of -\$2.025 was reprogrammed to support Other Transaction Authority (OTA) requirement.

The decrease of -\$5.000 in FY 2020 reflects a congressional general reduction.

The increase of +\$0.098 is due to the expansion to resolve mission partner gaps and agency challenges requiring technical and or process innovation.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>E65: Modeling and Simulation</i>	103.652	3.423	2.109	4.068	-	4.068	4.151	4.240	4.319	4.410	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 2019	FY 2020	FY 2021
Title: Modeling and Simulation	3.423	2.109	4.068
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 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 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 information technology (IT) capabilities to ensure compatibility			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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)

	FY 2019	FY 2020	FY 2021
and interoperability with the DISN, data centers, and Joint Information Environment (JIE) solution architectures. Will develop application performance monitoring framework to support reliable operation of enterprise services and applications.			
FY 2021 Plans: Revision of DoD Cybersecurity Analysis and Review (DoDCAR) analysis tools and testing of implementations of DoDCAR based cyber architecture and system assessment methods. This effort will develop add Mil-Cloud networking, and the evaluation of network security solutions. Will expand the testing of Mil-Cloud access point solutions with government and contracted labor support. Will perform additional product and solution testing. Will evaluate performance monitoring framework to support reliable operation of enterprise services and applications. This task will develop continued assessment, testing, prototype improvement and implementation of DoDCAR processes. This includes portfolio management against threat coverage of DoD Networks. Will continue fielding modeling tools integrated with the DISN for automated DISN views and troubleshooting tools. 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, on-premise and cloud data centers, and JIE solution architectures. Will develop application performance monitoring to support reliable operation of enterprise services and applications.			
FY 2020 to FY 2021 Increase/Decrease Statement: The increase of +\$1.959 is due to additional efforts to develop and test model driven telemetry to replace Simple Network Management Protocol (SNMP) for performance monitoring; and the research into a Hybrid Multi-Cloud Orchestration architecture to mirror industry methodologies on various option for orchestration tool suites. Managing various cloud offerings such as MilCloud 2.0, Joint Enterprise Defense Infrastructure (JEDI) and other private or non-private cloud offerings.			
Accomplishments/Planned Programs Subtotals	3.423	2.109	4.068

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0302019K: <i>Operation & Maintenance, Defense-Wide</i>	16.437	16.579	16.911	-	16.911	-	-	-	-	-	Continuing Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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>

D. Acquisition Strategy

Enterprise Wide Systems Engineering (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 DoD 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). Federally Funded Research and Development Centers (FFRDCs) are also considered depending upon the task.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development 1	SS/FFP	OPNET Tech, Inc : Bethesda, MD	9.955	0.290	Oct 2018	0.218	Feb 2020	0.276	Feb 2021	-		0.276	Continuing	Continuing	Continuing
Product Development 2	C/CPFF	APPTIS : Chantilly, VA	3.634	0.217	Oct 2018	0.087	Feb 2020	0.187	Feb 2021	-		0.187	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	4.981	0.212	Oct 2018	0.170	Feb 2020	0.250	Feb 2021	-		0.250	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	13.299	-		-		-		-		-	0.000	13.299	-
Product Development 10	MIPR	Various : Various	11.268	-		-		-		-		-	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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	0.800	0.061	Oct 2018	-		-		-		-	0.000	0.861	-
Engineering Technical Services	MIPR	Axom Technologies : Fort Meade	0.980	0.170	Oct 2018	-		-		-		-	0.000	1.150	-
Requirements Analysis/ Program Management: Civilian Pay	MIPR	Various : Various	1.537	-		0.520	Feb 2020	-		-		-	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	-
DoDCAR	C/FFP	TBD : TBD	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			98.627	0.950		0.995		0.713		-		0.713	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	1.017	Sep 2019	0.588	Sep 2020	1.504	Sep 2021	-		1.504	Continuing	Continuing	-
JCSS/JRSS Modeling	C/FFP	Booz Allen, Hamilton : McLean, VA	1.131	1.246	May 2019	0.251	May 2020	1.210	May 2021	-		1.210	Continuing	Continuing	-
JRSS Modeling	C/FFP	IPKEYS : Annapolis Junction, MD	0.373	-		-		-		-		-	0.000	0.373	-
E2E Performance	C/FFP	Tapestry : Chambersburg, PA	0.251	-		-		0.499	Oct 2020	-		0.499	0.000	0.750	-
E2E Performance	C/FFP	Various : Various	0.142	0.210	Oct 2018	0.275	Oct 2019	0.142	Oct 2020	-		0.142	Continuing	Continuing	-
Subtotal			2.953	2.473		1.114		3.355		-		3.355	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	SS/CPFF	Comptel : Arlington, VA	2.072	-		-		-		-		-	0.000	2.072	-
Subtotal			2.072	-		-		-		-		-	0.000	2.072	N/A

			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			103.652	3.423	2.109	4.068	-	4.068	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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
Horizontal Engineering																												
Horizontal Engineering																												
Modeling and Simulation Applications																												
Modeling and Simulation Applications																												

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Horizontal Engineering																												
Horizontal Engineering																												
Modeling and Simulation Applications																												
Modeling and Simulation Applications																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
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	2025
<i>Modeling and Simulation Applications</i>				
Modeling and Simulation Applications	1	2017	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
T62: DoD Information Network (DODIN) Systems Engineering and Support	61.989	10.117	8.689	12.256	-	12.256	12.387	12.634	12.770	12.932	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The DoD Information Network (DODIN) Systems Engineering and Support project identifies key technology areas that are essential for Defense Information Systems Agency (DISA) including: Machine Learning/Artificial Intelligence (AI), Mobility, Assured Identity, Rapid Transition, Cyber Defense, and Blockchain among other technologies.

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 Emerging Technology Directorate (EM). These strategies will establish the foundation for DISA's technology investments and technical development. The EM 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 EM'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 EM 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 EM 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.

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

	FY 2019	FY 2020	FY 2021
Title: Department of Defense Information Network (DODIN) Systems Engineering and Support	10.117	8.689	12.256

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p><i>FY 2020 Plans:</i> 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 DISArupive enhancements, begin training support curriculum, and begin R&D support to innovative ideas received through the DISArupive portal, the Agency's internal innovation suggestion program.</p> <p><i>FY 2021 Plans:</i> Identify and deliver innovative processes, services, and capabilities across all facets of DISA's operating model. Accelerate the transition of emerging technology through collaboration, outreach, and cooperative research and development agreements (CRADA's) among agency, mission, and industry partners. Work with mission partners to discover, test, and deploy appropriate technological solutions/processes, including efforts in development, security and operations (DevSecOps), Next-Generation Endpoint, Machine Learning/Artificial Intelligence (AI), Assured Identity, Universal Transport, Internet Browser Isolation, Blockchain, Commercial Solutions for Classified (CSfC) , SIPR/NIPR Single Device and Multiple Access Reduced Sign-on. Further Operationalize DISArupive enhancements, continue training support curriculum, and enhance R&D support to innovative ideas received through the DISArupive portal.</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase of \$3.567 is due to increased support of the DISArupive program enhancements, training support curriculum, and internal efficiencies and resuming of technical research partnerships with universities to discover, research, and develop technologies; longer commercial technology assessments and evaluations yielding deeper understanding, including more critical awareness, characterization, and suitability of specific technologies; and reinstatement of the Agency's internal innovation suggestion program, DISArupive.</p>			
Accomplishments/Planned Programs Subtotals	10.117	8.689	12.256

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• O&M, DW/PE	2.814	2.899	2.962	-	2.962	3.035	-	-	-	-	Continuing Continuing
0302019K: <i>Operation & Maintenance, Defense-Wide</i>											

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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)

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	12.910	1.323	Oct 2018	0.505	Oct 2019	0.505	Oct 2020	-		0.505	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	1.000	Jan 2020	1.967	Jan 2020	-		1.967	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	3.023	-		-		-		-		-	0.000	3.023	-
Product Development	C/FFP	Booz Allen Hamilton : McLean, VA	1.062	-		-		-		-		-	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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	4.481	-		-		-		-		-	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	3.173	-		-		-		-		-	0.000	3.173	-
Management Services - Civilian Pay	Various	Various : Ft. Meade, MD	6.428	-		-		-		-		-	0.000	6.428	-
Engineering Technical Services	C/FFP	PMPC-Itility LLC : Ft. Meade, MD	0.580	0.227	Mar 2019	-		-		-		-	Continuing	Continuing	Continuing
Information Assurance	C/CPFF	Tapestry Tech : Chambersburg, PA	-	0.583	Jan 2019	0.600	Jan 2020	0.600	Jan 2021	-		0.600	Continuing	Continuing	Continuing
Sys Engineering	C/CPFF	Various : Ft. Meade, MD	-	4.911	Mar 2019	4.897	Mar 2020	5.114	Dec 2020	-		5.114	Continuing	Continuing	Continuing
Management Services - Civilian Pay	C/CPFF	Various : Ft. Meade	-	1.989	Oct 2018	1.417	Oct 2019	3.570	Mar 2021	-		3.570	Continuing	Continuing	Continuing
Program Management and Knowledge Management	C/FFP	TBD : TBD	-	-		-		-		-		-	Continuing	Continuing	Continuing
(DODIN) Systems Engineering and Support	C/FFP	TBD : TBD	-	-		0.270	Mar 2020	0.500	Mar 2021	-		0.500	Continuing	Continuing	Continuing
Subtotal			61.989	10.117		8.689		12.256		-		12.256	Continuing	Continuing	N/A
Project Cost Totals			61.989	10.117		8.689		12.256		-		12.256	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency							Date: February 2020			
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Information Systems Agency		Date: February 2020
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	2024
Engineering Support				
Engineering Support	1	2017	4	2024
Industry/University Technical Research				
Industry/University Technical Research	1	2017	4	2024
Technology Assessments				
Technology Assessments	1	2017	4	2024
DISA Ruptive				
DISA Ruptive	4	2020	3	2025
Research and Development for technical solutions				
Research and Development for technical solutions	4	2019	3	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	293.587	12.572	11.166	11.884	-	11.884	11.674	11.916	12.137	12.392	Continuing	Continuing
PC01: <i>Presidential and National Voice Conferencing/</i>	101.820	3.047	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
T82: <i>DISN Systems Engineering Support</i>	191.767	9.525	11.166	11.884	-	11.884	11.674	11.916	12.137	12.392	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 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	14.353	11.166	11.891	-	11.891
Current President's Budget	12.572	11.166	11.884	-	11.884
Total Adjustments	-1.781	0.000	-0.007	-	-0.007
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.257	-			
• SBIR/STTR Transfer	-0.524	-			
• Adjustment	-	-	-0.007	-	-0.007

Change Summary Explanation

The decrease in FY 2019 is due to the decrease of -\$0.524 for a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and decrease of -\$1.257 due to ramp down in engineering and testing functions as the unclassified capability transitions to sustainment.

The decrease in FY 2021 of -\$0.007 is a result of efficiencies realized from consolidation of unclassified and classified engineering Support contract.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
PC01: <i>Presidential and National Voice Conferencing/</i>	101.820	3.047	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 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 2019	FY 2020	FY 2021
Title: Presidential and National Voice Conferencing (PNVC)	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.			
Accomplishments/Planned Programs Subtotals	3.047	-	-

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• Procurement, DW/PE 0303126K: <i>Procurement, Defense-Wide</i>	1.386	-	-	-	-	-	-	-	-	-	-

Remarks

N/A

D. Acquisition Strategy

N/A.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	5.416	0.562	Feb 2019	-		-		-		-	0.000	5.978	-
Systems Engineering	C/CPFF	Booz Allen Hamilton : McLean, VA	4.867	0.900	Mar 2019	-		-		-		-	0.000	5.767	-
Systems Engineering	FFRDC	Aerospace Corporation : Falls Church, VA	1.595	0.350	Oct 2018	-		-		-		-	0.000	1.945	-
Systems Engineering	FFRDC	Mitre : McLean, VA	1.410	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	1.680	-		-		-		-		-	0.000	1.680	-
Subtotal			17.507	3.047		-		-		-		-	0.000	20.554	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Information Systems Agency		Date: February 2020
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 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
T82: DISN Systems Engineering Support	191.767	9.525	11.166	11.884	-	11.884	11.674	11.916	12.137	12.392	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Information Systems Network (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 2019	FY 2020	FY 2021
Title: Next Generation Networking Technologies (formally known as Internet Protocol (IP) and Optical Transport Technology Refresh)	4.280	5.061	5.318
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 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<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 2021 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 2020 to FY 2021 Increase/Decrease Statement: The increase of +\$0.257 from FY 2020 to FY 2021 is due to added effort for Gray networking technologies such as Commercial Solutions for Classified (CSfC) and converged gateways.</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 2020 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 2021 Plans: Support replacement of obsolete equipment as it relates to Secure Voice Switches.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase of +\$0.190 from FY 2020 to FY 2021 is attributed to additional cost for contract support.</p>	1.458	1.627	1.817
<p>Title: Mobility</p> <p>Description: 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 Combatant Commands (COCOMs).</p> <p>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</p>	3.787	4.478	4.749

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
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.			
<i>FY 2021 Plans:</i> 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. In addition, Outside Continental United States (OCONUS) development of the Commercial Solutions for Classified (CSfC) converged gateway (C2G) merging of current DoD Enterprise Classified Travel Kit (DEC-TK) gateway and Defense Mobility Classified Capability - Secret (DMCC-S) gateway.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase of +\$0.271 from FY 2020 to FY 2021 is attributed to the OCONUS development of the C2G merging of current DEC-TK gateway and DMCC-S gateway.			
Accomplishments/Planned Programs Subtotals	9.525	11.166	11.884

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• O&M/PE0303126K: <i>Operation & Maintenance, Defense-Wide</i>	51.725	123.058	127.029	-	127.029	128.714	131.137	134.971	134.971	Continuing	Continuing
• Procurement/PE0303126K: <i>Procurement, Defense-Wide</i>	150.674	17.574	28.141	-	28.141	26.982	28.460	28.922	29.345	Continuing	Continuing

Remarks

D. Acquisition Strategy

Products acquired for Element Management System (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 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0400 / 7	PE 0303126K / <i>Long-Haul Communications - DCS</i>	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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	1.462	Mar 2021	-		1.462	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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	-		-		0.355	Mar 2021	-		0.355	Continuing	Continuing	-
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	-		-		-		-		-	0.000	2.420	-
System Engineering Support DMCC/DMUC	C/FFP	BAH : Annapolis Junction MD	2.000	1.191	Feb 2019	1.339	Feb 2020	1.449	Feb 2021	-		1.449	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	Zimperium : Dallas TX	-	2.237	Feb 2019	-		-		-		-	0.000	2.237	-
MES-C-DMCC Buildout/ VDI	SS/CPFF	APRIVA/SPAWAR : APRIVA/SPAWAR	-	-		1.139	Oct 2019	1.300	Oct 2020	-		1.300	Continuing	Continuing	-
Subtotal			146.441	5.159		4.105		4.566		-		4.566	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	Oct 2020	-		1.050	Continuing	Continuing	-
PNVC Software enhancements	C/CPFF	General Dynamics : NSA	5.900	-		-		-		-		-	0.000	5.900	-
Subtotal			11.511	-		1.050		1.050		-		1.050	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	Oct 2020	-		0.950	Continuing	Continuing	-
Integration, Test ann Modification - Mobility	Various	Various : Various	7.158	-		-		-		-		-	0.000	7.158	-
DISN Tech Refresh	Various	Various : Various	10.203	4.080	Jan 2019	5.061	Dec 2019	5.318	Dec 2020	-		5.318	Continuing	Continuing	-
Various	Various	Various : Various	2.305	-		-		-		-		-	0.000	2.305	-
Subtotal			33.815	4.366		6.011		6.268		-		6.268	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency								Date: February 2020			
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				
	Prior Years	FY 2019	FY 2020		FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	191.767	9.525	11.166		11.884	-	11.884	Continuing	Continuing	N/A	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Information Systems Agency		Date: February 2020
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	2025
Mobility				
Lab Purchase (Gateways, NIPR, SIPR, TS Enclave)	1	2017	4	2025
DoD Mobility Gateways - Architecture Support	1	2017	4	2025
NIPR Enclave (MDM, MAS)	1	2017	4	2025
SIPR Enclave (MDM, MAS)	1	2017	4	2025
TS Enclave (MDM, MAS)	1	2017	4	2025
MDM & MAS Operational Testing	1	2017	4	2025
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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	182.036	17.579	17.383	5.560	-	5.560	5.558	5.669	5.774	6.048	Continuing	Continuing
T64: <i>Special Projects</i>	70.985	5.481	5.558	5.560	-	5.560	5.558	5.669	5.774	6.048	Continuing	Continuing
T70: <i>Strategic C3 Support</i>	111.051	12.098	11.825	0.000	-	0.000	0.000	0.000	0.000	0.000	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)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	17.579	17.383	17.715	-	17.715
Current President's Budget	17.579	17.383	5.560	-	5.560
Total Adjustments	0.000	0.000	-12.155	-	-12.155
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	-	-	-12.155	-	-12.155

Change Summary Explanation

The decrease of -\$12.155 is due to the transfer of the Joint Systems Engineering and Integration Office from DISA to USSTRATCOM. Ensures compliance with 2018 National Defense Authorization Act (NDAA).

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
T64: <i>Special Projects</i>	70.985	5.481	5.558	5.560	-	5.560	5.558	5.669	5.774	6.048	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 2019	FY 2020	FY 2021
Title: Special Projects	5.481	5.558	5.560
Description: 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 2021 Plans: Program is classified and exhibit will be provided under a separate cover.			
FY 2020 to FY 2021 Increase/Decrease Statement: Program is classified and exhibit will be provided under a separate cover.			
Accomplishments/Planned Programs Subtotals			5.560

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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
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	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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>		
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
T70: <i>Strategic C3 Support</i>	111.051	12.098	11.825	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 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 2019	FY 2020	FY 2021
Title: Systems Engineering, Analysis and Architecture	12.098	11.825	0.000
Description: Engineering, development, testing and systems analysis to support NLCC capabilities.			
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 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 2021 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,			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
NLCC Enterprise Architecture, NLCC Roadmaps, and the technical architecture patterns that will guide future solution architecture development.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The decrease of -\$11.825 in FY 2020 to FY 2021 is attributed to the transfer of the Joint Systems Engineering and Integration Office from DISA to USSTRATCOM. Ensures compliance with 2018 NDAA.			
Accomplishments/Planned Programs Subtotals	12.098	11.825	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• O&M, PE 0303131K: O&M	19.027	19.331	19.989	-	19.989	20.246	20.942	22.947	23.364	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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency												Date: February 2020		
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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	24.247	6.050	Feb 2019	6.050	Feb 2020	0.000	Feb 2021	-		0.000	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	2.273	1.000	Oct 2018	1.000	Oct 2019	0.000	Oct 2020	-		0.000	Continuing	Continuing	Continuing
System Engineering 9	C/FFP	JHU APL : Laurel, MD	2.500	1.000	Apr 2019	0.551	Apr 2020	0.000	Apr 2021	-		0.000	Continuing	Continuing	Continuing
System Engineering 10	C/FFP	Various : Various	1.342	-		-		-		-		-	0.000	1.342	-
System Engineering	C/CPFF	Jacob FNS : Arlington, Va	-	4.048	Oct 2018	4.224	Dec 2019	-		-		-	Continuing	Continuing	Continuing
Systems Engineering & Integration	C/CPFF	Verizon : Arlington, VA	5.481	-		-		-		-		-	0.000	5.481	-
Subtotal			111.051	12.098		11.825		0.000		-		0.000	Continuing	Continuing	N/A
Project Cost Totals			111.051	12.098		11.825		0.000		-		0.000	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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>NLCC Program Tracking Report (formally known as NC3 Program Tracking Report)</i>	
NLCC Program Tracking Report	
<i>Systems Analysis Documents</i>	
Systems Analysis Documents	
<i>NLCC Reference Architecture (formally known as NC3 Reference Architecture)</i>	
NLCC Reference Architecture	
<i>Operational Assessments</i>	
Operational Assessments	
<i>NLCC Portfolio Roadmap</i>	
NLCC Portfolio Roadmap	
<i>NLCC System Engineering and Integration</i>	
NLCC System Engineering and Integration	
<i>NLCC Target Architecture</i>	
NLCC Target Architecture	

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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>NLCC Program Tracking Report (formally known as NC3 Program Tracking Report)</i>	
NLCC Program Tracking Report	
<i>Systems Analysis Documents</i>	
Systems Analysis Documents	

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 Reference Architecture (formally known as NC3 Reference Architecture)																												
NLCC Reference Architecture																												
Operational Assessments																												
Operational Assessments																												
NLCC Portfolio Roadmap																												
NLCC Portfolio Roadmap																												
NLCC System Engineering and Integration																												
NLCC System Engineering and Integration																												
NLCC Target Architecture																												
NLCC Target Architecture																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
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	2025
Systems Analysis Documents				
Systems Analysis Documents	1	2018	4	2025
NLCC Reference Architecture (formally known as NC3 Reference Architecture)				
NLCC Reference Architecture	1	2018	4	2025
Operational Assessments				
Operational Assessments	1	2018	4	2025
NLCC Portfolio Roadmap				
NLCC Portfolio Roadmap	1	2018	1	2025
NLCC System Engineering and Integration				
NLCC System Engineering and Integration	1	2018	1	2025
NLCC Target Architecture				
NLCC Target Architecture	4	2018	3	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	42.262	40.398	8.922	-	8.922	6.485	7.222	9.065	9.109	Continuing	Continuing
IA3: <i>Information Systems Security Program</i>	0.000	42.262	40.398	8.922	-	8.922	6.485	7.222	9.065	9.109	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)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	19.611	42.796	12.904	-	12.904
Current President's Budget	42.262	40.398	8.922	-	8.922
Total Adjustments	22.651	-2.398	-3.982	-	-3.982
• Congressional General Reductions	-	-2.398			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	22.717	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.066	-			
• Adjustment	-	-	-3.982	-	-3.982

Change Summary Explanation

The increase of +\$22.651 in FY2019 reflects a transfer of funding to Small Business Innovation research (SBIR) and Small Business Technology Transfer (STTR) programs (-\$0.066) and an increase of +\$22.717 received through a congressional reprogramming action for Secure Application Development (DevSecOps) (+\$4.500); Identity Credentialing and Access Management (ICAM) (+\$12.200) and Zero Trust Architecture (ZTA) (+\$6.000). DevSecOps is to develop integrated tools and standards that enable users and partners to develop, deploy, and operate applications in a security and flexible environment. ICAM will standardize

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 0303140K / <i>Information Systems Security Program</i>
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credentialing capabilities for secure access to mobile devices and ZTA implements the Department's security protocols by continuously verifying everyone within the network.

The decrease of -\$2.398 in FY 2020 is attributable to the Congressional directed transfer of Sharkseer from NSA to DISA (\$1.882) and a Congressional general reduction of -\$4.280 for unjustified growth.

The decrease of -\$3.982 in FY 2021 is due to an increase for Zero Trust Architecture (ZTA) to further develop the DoD architectures for Zero-Trust Architecture and lab development (+\$2.462) and a decrease due to the elimination of the DISA Cybersecurity Information Assurance Range, to avoid duplication of effort with the CYBERCOM Range under development. Also a reduction to cyber innovation and "DWR".

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
IA3: <i>Information Systems Security Program</i>	0.000	42.262	40.398	8.922	-	8.922	6.485	7.222	9.065	9.109	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 2019	FY 2020	FY 2021
Title: Zero-Day Network Defense Email Capability Description: Zero-Day Network Defense (ZND) Email Capability Technology Assessment/Evaluation for Tech Refresh.	4.500	-	-
Title: DoD Cyber Security Range (CSR) 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. FY 2020 Plans: 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. FY 2020 to FY 2021 Increase/Decrease Statement:	1.351	1.337	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
The decrease of -\$1.337 between FY 2020 and FY 2021 is due to the elimination of the DISA Cybersecurity Information Assurance Range to avoid duplication of effort with the CYBERCOM Range under development and apart of the "DWR".			
<p>Title: Endpoint Security Solutions (ESS)</p> <p>Description: 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>	3.000	-	-
<p>Title: Cyber HQs Support</p> <p>Description: Preserves User Activity Monitoring (UAM) capability in countering insider threats at nine Combatant Commands.</p>	10.300	-	-
<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 DoD Information Network (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, test, and prototype DoDCAR (DoD Cybersecurity Analysis and Review processes), including portfolio management against threat coverage and analyses of advisory behaviors within DoD Networks. Perform an assessment of Blockchain commercial capabilities, evaluating them for suitability to enhance enterprise level services for DoD entities.</p> <p>FY 2021 Plans: Continued assessment, testing, prototype improvement and implementation of DoDCAR (DoD Cybersecurity Analysis and Review processes). This includes portfolio management against threat coverage and the execution of deeper analyses of advisory behaviors within DoD Networks.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>	0.411	1.179	0.464

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020		
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 2019	FY 2020	FY 2021
The decrease of -\$0.715 from FY 2020 to FY 2021 is due to a reduction in the scope of Cyber Innovation & Technology efforts, specifically early completion of the Blockchain assessment in FY 2020.				
<p>Title: Identity, Credential, and Access Management (ICAM)</p> <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 2020 to FY 2021 Increase/Decrease Statement: The decrease of -\$30.000 from FY 2020 to FY 2021 is due to completion of one-time funding of Master User Record (MUR) pathfinder effort and several Automated Account Provisioning (AAP) use-case pilots.</p>		12.200	30.000	-
<p>Title: Sharkseer</p> <p>Description: SHARKSEER is a critical component of the Cyber Kill Chain that uniquely enhances the defensive posture of the Department of Defense Information Network (DoDIN) by assisting us with mitigating unknown (zero-day) cyber threats in near-real time utilizing orchestration. SHARKSEERs primary mission is to detect and mitigate Zero-Days and Advanced Persistent Threats (APTs) at DoDIN IAPs. SHARKSEER also provides Malware Analytics, Deep Packet Analysis, Global Threat Intelligence, and Cyber Threat Indicator (CTI) sharing to Federal Agencies, Military Departments, and Services.</p> <p>FY 2020 Plans: Research and develop next generation advance architecture to provide a more scalable system that can also more effectively respond to unknown cyber security threats that traverse the Department of Defense Information Networks (DoDIN).</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The decrease of -\$1.882 from FY 2020 to FY 2021 is due to completion of next generation advance architecture.</p>		-	1.882	-
<p>Title: Zero Trust Architecture (ZTA)</p> <p>Description: Will develop, test, and evaluate the technologies required for the implementation of ZTA.</p> <p>FY 2021 Plans: To develop, test, and evaluate technologies, identify critical applications on SIPR that are required to improve security, and analyze backbone design, gateway, and mobility infrastructure for necessary improvements.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>		6.000	-	2.462

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
The increase of \$2.462 between FY 2020 and FY 2021 will further the DoD architectures for Zero-Trust Architecture (ZTA) and lab development. The labs purpose is to replicate the DoD infrastructure in order to validate architectures. Funding will be utilized for lab improvements to test and verify vendor equipment and contractor labor support.			
Title: Secure Application Development (DevSecOps) Program	4.500	6.000	5.996
Description: Will provide an enterprise capability for an automated DevSecOps platform that programs can use to rapidly and automatically build, accredit, secure, test, deploy, monitor, and protect newly developed applications.			
FY 2020 Plans: Develops integrated tools and standards that enable users and partners to develop, deploy, and operate applications in a secure and flexible environment.			
FY 2021 Plans: Develops integrated tools and standards that enable users and partners to develop, deploy, and operate applications in a secure and flexible environment.			
FY 2020 to FY 2021 Increase/Decrease Statement: The decrease of $-\$0.004$ from FY 2020 to FY 2021 is due to a non-pay non-fuel inflation adjustment.			
Accomplishments/Planned Programs Subtotals	42.262	40.398	8.922

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• O&M, DW: PE 0303140K	0.000	0.000	56.974	0.000	56.974	59.237	57.545	56.380	58.837	Continuing	Continuing
• Procurement, DW: PE 0303140K	0.000	0.000	4.160	0.000	4.160	2.214	4.258	6.300	6.432	Continuing	Continuing

Remarks

N/A

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	ASRC Federal : Beltsville, MD	-	16.705	Feb 2019	-		-		-		-	0.000	16.705	-
DoD Cyber Security Range (CSR) Virtual Training Environment	C/FFP	ManTech : Fairfax, VA	-	2.198	Feb 2019	-		-		-		-	0.000	2.198	-
DoD Cyber Security Range (CSR) Virtual Training Environment - Re-compete	C/FFP	ManTech : Fairfax, VA	-	0.476	Jun 2019	1.207	Sep 2020	-		-		-	Continuing	Continuing	-
DoD Endpoint Security Solutions (ESS)	C/FFP	TBD : TBD	-	-		-		-		-		-	0.000	0.000	-
Cyber HQs Support	C/FFP	Bylight : Fort Meade, MD	-	18.705	Jan 2019	-		-		-		-	0.000	18.705	-
Joint Information Operations Range (JIOR) Connection	C/FFP	ManTech : Stafford, VA	-	0.130	Jan 2019	0.130	Sep 2020	-		-		-	Continuing	Continuing	-
DISA EA Model Development for Cyber Security and Network Technical Domains, DODCAR Cyber Analysis Tool Development	C/FFP	Various : Various	-	4.048		0.459	Jan 2020	0.464	Jan 2021	-		0.464	Continuing	Continuing	-
Deployment of Blockchain and Next Generation Identity	C/FFP	TBD : TBD	-	-		6.000	Jan 2020	1.494	Jan 2021	-		1.494	Continuing	Continuing	-
Cyber Innovation and Technology	C/FFP	TBD : TBD	-	-		5.000	Mar 2020	-		-		-	Continuing	Continuing	-
Identity, Credential, and Access Management (ICAM)	C/FFP	TBD : TBD	-	-		27.602	Mar 2020	-		-		-	Continuing	Continuing	-
Sharkseeker	C/FFP	TBD : TBD	-	-		-		4.500		-		4.500	Continuing	Continuing	-
Zero Trust Architecture (ZTA)	C/FFP	TBD : TBD	-	-		-		2.464		-		2.464	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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

Zero-Day Network Defense Email Capability	
Zero-Day Network Defence (ZND) Email Capability Technology Assessment/Evaluation for Tech Refresh	█
Cyber HQs Support	
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	█
Replicate the tactical network boundaries of the four services.	█
Architecture and Model development	
DODCAR WG Support	
Innovation and Technology	
Block Chain Cyber Innovation Technology Assessment	
Next Gen Identity Tool Suite Cyber Innovation Technology Assessment	
Zero Trust Architecture (ZTA)	
Develop, test, and evaluate the technologies	

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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>Sharkseer</i>	
To develop Sharkseer 2.0	

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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>Zero-Day Network Defense Email Capability</i>	
Zero-Day Network Defence (ZND) Email Capability Technology Assessment/ Evaluation for Tech Refresh	
<i>Cyber HQs Support</i>	
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	
Replicate the tactical network boundaries of the four services.	
<i>Architecture and Model development</i>	
DODCAR WG Support	
<i>Innovation and Technology</i>	

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Block Chain Cyber Innovation Technology Assessment																												
Next Gen Identity Tool Suite Cyber Innovation Technology Assessment																												
Zero Trust Architecture (ZTA)																												
Develop, test, and evaluate the technologies																												
Sharkseer																												
To develop Sharkseer 2.0																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
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	2019
Increase capability to leverage CS Range for training and capstone events;	4	2018	4	2019
Increase capability for remote access to CS Range for testing, training and exercises.	4	2018	4	2019
Implement Joint Regional Security Stacks (JRSS) Cloud Learning Environment improvements	4	2018	4	2019
JRSS Management System (JMS) Enhancements	4	2018	4	2019
Replicate the tactical network boundaries of the four services.	4	2018	4	2019
<i>Architecture and Model development</i>				
DODCAR WG Support	2	2020	3	2025
<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
<i>Zero Trust Architecture (ZTA)</i>				
Develop, test, and evaluate the technologies	4	2021	3	2025
<i>Sharkseer</i>				
To develop Sharkseer 2.0	4	2021	3	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	572.655	44.974	17.218	3.695	-	3.695	4.201	4.364	4.446	4.538	Continuing	Continuing
CC01: <i>Global Command and Control System-Joint (GCCS-J)</i>	572.655	44.974	17.218	3.695	-	3.695	4.201	4.364	4.446	4.538	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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	46.900	25.218	33.075	-	33.075
Current President's Budget	44.974	17.218	3.695	-	3.695
Total Adjustments	-1.926	-8.000	-29.380	-	-29.380
• Congressional General Reductions	-	-8.000			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.221	-			
• SBIR/STTR Transfer	-1.705	-			
• Adjustments	-	-	-29.380	-	-29.380

Change Summary Explanation

The decrease in FY 2019 is due to the decrease of -\$1.705 for a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and decrease of -\$0.221 was reprogrammed to support Other Transaction Authority (OTA) requirement.

The decrease of -\$29.380 in FY 2021 is attributed to the transfer of funds from BA7 to BA 8 to support Global Command and Control System-Joint under the Software & Digital Technology pilot program.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
CC01: <i>Global Command and Control System-Joint (GCCS-J)</i>	572.655	44.974	17.218	3.695	-	3.695	4.201	4.364	4.446	4.538	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 2019	FY 2020	FY 2021
Title: Development and Strategic Planning	38.601	13.944	-
<p>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:</p> <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 2021 Defense Information Systems Agency		Date: February 2020		
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 2019	FY 2020	FY 2021
<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 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 initial operating capability (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 2020 to FY 2021 Increase/Decrease Statement: The decrease of -\$13.944 from FY 2020 to FY 2021 is attributed to the transfer of funds from BA7 to BA 8 to support Global Command and Control System- Joint under the Software & Digital Technology pilot program.</p>				
<p>Title: Joint Planning and Execution Services (JPES)</p> <p>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 Joint Planning and Execution Community (JPEC). JPEC uses these capabilities to monitor, plan, and execute: mobilization, deployment, employment, sustainment, redeployment, and demobilization activities associated with joint operations.</p> <p>FY 2020 Plans: Maintain, fix and enhance performance on JPES, Newsgroups, Joint Capabilities Requirements Manager (JCRM) and Preferred Forces Generation (PFG) and develop any additional data services.</p> <p>FY 2021 Plans:</p>		6.373	3.274	3.695

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
Continue to modernize JPES by improving performance on the Framework, integrating with additional external partners, developing additional data services and enhancements to the user interface.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase of +\$0.421 from FY 2020 to FY 2021 is due to the transition from DoD Information Assurance Certification and Accreditation Process (DIACAP) to Risk Management Framework (RMF) for Joint Operation Planning and Execution System (JOPES) and the related development activities to maintain the Authority to Operation (ATO).			
Accomplishments/Planned Programs Subtotals	44.974	17.218	3.695

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PE 0303150K: <i>Operation & Maintenance, Defense-Wide</i>	92.415	93.315	90.559	-	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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	0.587	Dec 2018	-		-		-		-	0.000	20.141	-
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	-		2.100	Dec 2019	-		-		-	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 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	10.755	0.720	Sep 2019	1.681	Sep 2020	-		-		-	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	-		-		-		-		-	Continuing	Continuing	Continuing
Product Development 30	C/CPFF	Systems Engineering and Integration : Various	14.030	-		-		-		-		-	0.000	14.030	-
Product Development 31	C/Various	GCCS-J : Various	5.367	-		-		-		-		-	0.000	5.367	-
Product Development 32	C/CPFF	CRSA/GDIT LLC : Chantilly, VA	10.500	3.693	Jun 2019	-		-		-		-	0.000	14.193	-
Product Development 33	C/FFP	Interimage Inc : Arlington, VA	4.673	1.506	Mar 2019	3.026	Mar 2020	1.000	Mar 2021	-		1.000	Continuing	Continuing	Continuing
Engineering Services and Integration 29	SS/FFP	GCCS-J : Various	6.782	-		-		-		-		-	6.782	13.564	-
I3 Engineering Services & SW Development	C/Various	NGIT : Various	1.811	-		-		-		-		-	0.000	1.811	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	-		-		-		-		-	Continuing	Continuing	Continuing
Product Development 34	C/CPFF	JPES Solution : Falls Church, VA	7.400	-		2.542	Jun 2020	0.307	Jun 2021	-		0.307	Continuing	Continuing	Continuing
Product Development 35	C/CPFF	Leidos : Gaithersburg, MD	0.000	-		0.307	Aug 2019	-		-		-	Continuing	Continuing	Continuing
Product Development	C/CPFF	GCCS-JE OTA : McLean, VA	16.005	9.287	Oct 2019	-		-		-		-	0.000	25.292	-
Product Development 37	C/CPFF	Leidos OTA : McLean, VA	-	10.134	Feb 2019	-		-		-		-	Continuing	Continuing	Continuing
Product Development 38	C/CPFF	GCCS-J : Various	-	11.801	May 2019	-		-		-		-	Continuing	Continuing	Continuing
Product Development 39	C/CPFF	Bluestone Logic : McLean, VA	-	1.499	Sep 2019	-		-		-		-	Continuing	Continuing	Continuing
Product Development 40	C/CPFF	C2 Systems Engineering : TBD	-	-		3.563	Aug 2020	-		-		-	Continuing	Continuing	Continuing
Product Development 41	C/CPFF	Tapestry : Chambersburg, PA	-	3.048	Jun 2019	-		-		-		-	Continuing	Continuing	Continuing
Product Development 42	C/CPFF	Leidos : McLean, VA	-	0.670	Jun 2019	-		-		-		-	Continuing	Continuing	Continuing
Product Development 36	C/CPFF	TBD : C2 Systems Engineering	-	-		0.179	Aug 2020	0.442	Aug 2021	-		0.442	Continuing	Continuing	Continuing
Subtotal			459.325	42.945		13.398		1.749		-		1.749	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Costs - Engineering Support 3	FFRDC	MITRE : Various	0.754	-		1.382	Nov 2019	1.400	Nov 2020	-		1.400	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		1.400		-		1.400	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	32.565	0.800	Oct 2018	1.836	Oct 2019	0.546	Oct 2020	-		0.546	Continuing	Continuing	Continuing
Test & Evaluation 3	MIPR	DIA : Various	9.104	0.629	Jan 2019	-		-		-		-	Continuing	Continuing	Continuing
Test & Evaluation 4	MIPR	DAA : Various	4.352	0.600	Sep 2019	0.602	Oct 2019	-		-		-	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	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 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			88.031	2.029		2.438		0.546		-		0.546	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	MIPR	SSC Atlantic : Charleston, SC	3.759	-		-		-		-		-	0.000	3.759	-
Subtotal			3.759	-		-		-		-		-	0.000	3.759	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		572.655	44.974	17.218	3.695	-	3.695	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency							Date: February 2020				
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2021 Defense Information Systems Agency		Date: February 2020
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	2025
Integration and Test	1	2017	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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>							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	192.642	5.748	19.528	20.113	-	20.113	21.932	20.125	27.064	17.136	Continuing	Continuing
JS1: <i>Joint Spectrum Center</i>	192.642	5.748	19.528	20.113	-	20.113	21.932	20.125	27.064	17.136	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	7.457	21.698	9.836	-	9.836
Current President's Budget	5.748	19.528	20.113	-	20.113
Total Adjustments	-1.709	-2.170	10.277	-	10.277
• Congressional General Reductions	-	-2.170			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.499	-			
• SBIR/STTR Transfer	-0.210	-			
• Adjustment	-	-	10.277	-	10.277

Change Summary Explanation

The decrease of -\$0.210 in FY 2019 reflects a transfer of funding to Small Business innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. The decrease of -\$1.499 in FY 2019 is due to a decrease in the number of prototype assessments that were accomplished for future capabilities during FY 2019.

The decrease of -\$2.170 in FY 2020 is due to a Congressional general reduction.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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>	

The increase of \$10.277 in FY2021 is a result of increase to develop Joint Electromagnetic Battle Management (EMBM) capabilities that provide situational awareness and joint integrating leveraging in the Electronic Warfare Planning Management Tool, the Joint Spectrum Data Repository and the Global Command & Control System – Joint (GCCS-J).

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>JS1: Joint Spectrum Center</i>	192.642	5.748	19.528	20.113	-	20.113	21.932	20.125	27.064	17.136	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 2019	FY 2020	FY 2021
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 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 2021 Plans: Will make enhancements to analytical tools in support of Spectrum Engineering Analysis and Relocation efforts. Supports evaluation of future and existing spectrum analysis tools.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
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 2020 Plans: Will 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 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 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 2021 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 radio frequency (RF) safety requirements. Will update military handbooks as needed to keep pace with technology. 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 ISP acquisition documents assigned</p>	3.315	4.203	4.203

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020		
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 2019	FY 2020	FY 2021
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.				
FY 2020 to FY 2021 Increase/Decrease Statement: No change statement required.				
Title: Emerging Spectrum Technologies (EST)		0.744	1.630	2.215
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.				
FY 2020 Plans: Will 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, standards, architecture, and business processes to exploit and/or minimize the impact of emerging technologies on DoD spectrum operations.				
FY 2021 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. 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.				
FY 2020 to FY 2021 Increase/Decrease Statement:				

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
Increase of +\$0.585 from FY 2020 to FY 2021 is due to a increase in number of emerging spectrum technology assessments that will be accomplished for future capabilities during FY 2021.			
Title: Global Electromagnetic Spectrum Information System (GEMSIS)	0.806	12.812	12.812
Description: 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.			
FY 2020 Plans: Will perform Spectrum XXI (SXXI) Legacy, End-to-End Supportability System (E2ESS), and Joint Spectrum Data Repository (JSDR) maintenance and version releases.			
FY 2021 Plans: Will continue (SXXI) Legacy, E2ESS, and JSDR maintenance and version releases.			
FY 2020 to FY 2021 Increase/Decrease Statement: No change statement required.			
Accomplishments/Planned Programs Subtotals	5.748	19.528	20.113

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• O&M, DW/PE 0303153K: O&M, DW	34.409	34.270	34.902	-	34.902	35.743	36.408	36.930	36.930	Continuing	Continuing

Remarks

D. Acquisition Strategy

Engineering support services are provided by the use of a contract. Competition is being used under existing Indefinite Delivery Indefinite Quantity (IDIQ) contracts. Task orders will be a mix of Firm Fixed Price (FFP) and Cost Plus Fixed Fee (CPFF) as dictated by specific tasks to be accomplished.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	175.502	5.418	Oct 2018	7.198	Nov 2019	9.176	Nov 2020	-		9.176	Continuing	Continuing	Continuing
Technical Engineering Services 2	MIPR	Various : Various	5.769	0.330	Oct 2018	12.000	Oct 2019	10.573	Oct 2020	-		10.573	Continuing	Continuing	Continuing
Subtotal			181.271	5.748		19.198		19.749		-		19.749	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	0.364	Nov 2020	-		0.364	Continuing	Continuing	Continuing
Subtotal			9.059	-		0.330		0.364		-		0.364	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		192.642	5.748	19.528	20.113	-	20.113	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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 GEMISIS	████████████████████
E3 Program Outputs	████████████████████
EMBM SA Capability	

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 GEMISIS	████████████████
E3 Program Outputs	████████████████████

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
EMBM SA Capability																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
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	2025
JOERAD Releases	3	2017	4	2025
Emerging Spectrum Technology Research Projects	3	2017	4	2025
Spectrum Data Sharing Capability Deployments	3	2017	4	2025
Increment Two GEMISIS	1	2017	4	2019
E3 Program Outputs	1	2017	4	2025
EMBM SA Capability	2	2020	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 0303167K / <i>Pre-Auctioned Spectrum Relocation Fund</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	1.258	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
JS1: <i>Pre-Auctioned Spectrum Relocation Fund</i>	0.000	1.258	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

Funding supports Pre-Auctioned Spectrum relocation and sharing activities.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	1.258	0.000	0.000	-	0.000
Total Adjustments	1.258	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments	1.258	-	-	-	-

Change Summary Explanation

Increase of +\$1.258 in FY 2019 represent funds received during execution through a transfer from Office of Management and Budget.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0303167K / Pre-Auctioned Spectrum Relocation Fund				Project (Number/Name) JS1 / Pre-Auctioned Spectrum Relocation Fund			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
JS1: Pre-Auctioned Spectrum Relocation Fund	0.000	1.258	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 Pre-Auctioned Spectrum relocation and sharing activities.

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

	FY 2019	FY 2020	FY 2021
Title: Pre-Auctioned Spectrum Relocation Fund	1.258	0.000	-
Description: Funding supports Pre-Auctioned Spectrum relocation and sharing activities			
FY 2020 Plans: N/A			
FY 2020 to FY 2021 Increase/Decrease Statement: N/A			
Accomplishments/Planned Programs Subtotals	1.258	0.000	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303167K / Pre-Auctioned Spectrum Relocation Fund	Project (Number/Name) JS1 / Pre-Auctioned Spectrum Relocation Fund
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 pre-auction spectrum relocation and sharing activities	Various	Various : Various	0.000	1.258		-		-		-		-	-	-	-
Subtotal			0.000	1.258		-		-		-		-	-	-	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.258	0.000	-	-	-	-	-	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303167K / <i>Pre-Auctioned Spectrum Relocation Fund</i>	Project (Number/Name) JS1 / <i>Pre-Auctioned Spectrum Relocation Fund</i>

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 pre-auction spectrum relocation activities	

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303167K / <i>Pre-Auctioned Spectrum Relocation Fund</i>	Project (Number/Name) JS1 / <i>Pre-Auctioned Spectrum Relocation Fund</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Auctioned Spectrum Relocation Fund</i>				
Support pre-auction spectrum relocation activities	1	2019	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303170K / <i>Net Centric Enterprise Services (NCES)</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	1.750	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
T57: <i>Net Centric Enterprise Services (NCES)</i>	0.000	1.750	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

DISA provides a portfolio of services that includes legacy capabilities delivered by the Net-Centric Enterprise Services (NCES) Program supporting a resilient and flexible infrastructure that enables a collaborative environment for secure information sharing across the Department of Defense (DoD). These critical warfighter, Business, and Intelligence Mission Area services enable more than two million authorized DoD users to collaborate across the Combatant Commands (COCOMs)/ Services/Joint Staff/Agency/Mission Partners using a suite of web-accessible services. The portfolio also includes the DoD Visitor service that transitioned from a Government developed service to a Commercial-Off-the-Shelf annual right-to-use licensed service operating on domain controllers throughout the DoD. This service allows personnel to "go anywhere within the DoD, login, and be productive". It includes the privilege management Authentication Gateway Services (AGS) and the DoD Enterprise Portal Service. The AGS is integrated with the Identity and Access Management services supporting brokered Public Key Infrastructure (PKI) authentication for DoD applications without a native PKI authentication capability. The DoD Enterprise Portal Service provides users with a flexible web-based hosting solution to create and manage mission, community, organization, and user focused sites. The individual suite of capabilities within the portfolio of services provides the user with the flexibility to couple the services in varying ways to support their mission needs. This flexibility provides unprecedented secure access to web and application content, critical imagery, intelligence and warfighter information from anywhere, at any time, on any DoD authorized device. The portfolio of enterprise services delivers tangible benefits to the Department by providing capabilities that are applied by the US Forces, Coalition forces, and Allied forces to support full spectrum joint and expeditionary campaign operations. These enabling benefits include the ability to:

- Enhance collaborative decision-making processes
- Improve information sharing and integrated situational awareness
- Share and exchange knowledge and services between enterprise units and commands
- Share and exchange information between previously unreachable and unconnected sources
- Schedule and coordinate meetings with people across the DoD Components
- "Go anywhere in the DoD, login, and be productive"
- Create and manage mission, community, organization, and user-focused sites from global locations
- Exchange knowledge to enable situational awareness, determine the effects desired, select a course of action, the forces to execute it, and accurately assess the effects of that action

The portfolio contains capabilities that are also key enablers to the Defense Information Systems Agency's (DISA) mission of providing a global net-centric enterprise infrastructure in direct support of joint Warfighter, National level leaders, and other mission and coalition partners across the full spectrum of operations.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 0303170K / <i>Net Centric Enterprise Services (NCES)</i>
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B. Program Change Summary (\$ in Millions)	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	1.750	0.000	0.000	-	0.000
Total Adjustments	1.750	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments	1.750	-	-	-	-

Change Summary Explanation

Increase of +\$1.750 in FY 2019 represent funds received during execution through a transfer from Office of Management and Budget.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0303170K / <i>Net Centric Enterprise Services (NCES)</i>				Project (Number/Name) T57 / <i>Net Centric Enterprise Services (NCES)</i>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
T57: <i>Net Centric Enterprise Services (NCES)</i>	0.000	1.750	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

DISA provides a portfolio of services that includes legacy capabilities delivered by the Net-Centric Enterprise Services (NCES) Program supporting a resilient and flexible infrastructure that enables a collaborative environment for secure information sharing across the Department of Defense (DoD). These critical warfighter, Business, and Intelligence Mission Area services enable more than two million authorized DoD users to collaborate across the Combatant Commands (COCOMs)/ Services/Joint Staff/Agency/Mission Partners using a suite of web-accessible services. The portfolio also includes the DoD Visitor service that transitioned from a Government developed service to a Commercial-Off-the-Shelf annual right-to-use licensed service operating on domain controllers throughout the DoD. This service allows personnel to "go anywhere within the DoD, login, and be productive". It includes the privilege management Authentication Gateway Services (AGS) and the DoD Enterprise Portal Service. The AGS is integrated with the Identity and Access Management services supporting brokered Public Key Infrastructure (PKI) authentication for DoD applications without a native PKI authentication capability. The DoD Enterprise Portal Service provides users with a flexible web-based hosting solution to create and manage mission, community, organization, and user focused sites. The individual suite of capabilities within the portfolio of services provides the user with the flexibility to couple the services in varying ways to support their mission needs. This flexibility provides unprecedented secure access to web and application content, critical imagery, intelligence and warfighter information from anywhere, at any time, on any DoD authorized device. The portfolio of enterprise services delivers tangible benefits to the Department by providing capabilities that are applied by the US Forces, Coalition forces, and Allied forces to support full spectrum joint and expeditionary campaign operations. These enabling benefits include the ability to:

- Enhance collaborative decision-making processes
- Improve information sharing and integrated situational awareness
- Share and exchange knowledge and services between enterprise units and commands
- Share and exchange information between previously unreachable and unconnected sources
- Schedule and coordinate meetings with people across the DoD Components
- "Go anywhere in the DoD, login, and be productive"
- Create and manage mission, community, organization, and user-focused sites from global locations
- Exchange knowledge to enable situational awareness, determine the effects desired, select a course of action, the forces to execute it, and accurately assess the effects of that action

The portfolio contains capabilities that are also key enablers to the Defense Information Systems Agency's (DISA) mission of providing a global net-centric enterprise infrastructure in direct support of joint Warfighter, National level leaders, and other mission and coalition partners across the full spectrum of operations.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303170K / <i>Net Centric Enterprise Services (NCES)</i>	Project (Number/Name) T57 / <i>Net Centric Enterprise Services (NCES)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Title: Test and Evaluation	1.750	0.000	-
Description: N/A			
FY 2020 Plans: N/A			
FY 2020 to FY 2021 Increase/Decrease Statement: N/A			
Accomplishments/Planned Programs Subtotals	1.750	0.000	-

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• O&M/PE0303170K:: <i>Operation & Maintenance, Defense-Wide</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• Procurement/PE0303170K:: <i>Procurement, Defense-Wide</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303170K / <i>Net Centric Enterprise Services (NCES)</i>	Project (Number/Name) T57 / <i>Net Centric Enterprise Services (NCES)</i>
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Development	Various	Various : Various	0.000	1.750		-		-		-		-		-	-	-
Subtotal			0.000	1.750		-		-		-		-		-	-	N/A
Project Cost Totals			0.000	1.750		0.000		-		-		-		-	-	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303170K / <i>Net Centric Enterprise Services (NCES)</i>	Project (Number/Name) T57 / <i>Net Centric Enterprise Services (NCES)</i>	

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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

Net Centric Enterprise Services (NCES)	
Net Centric Enterprise Services (NCES)	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303170K / <i>Net Centric Enterprise Services (NCES)</i>	Project (Number/Name) T57 / <i>Net Centric Enterprise Services (NCES)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Net Centric Enterprise Services (NCES)</i>				
Net Centric Enterprise Services (NCES)	1	2019	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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>Joint Information Environment</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	7.339	7.657	16.269	9.728	-	9.728	2.945	3.019	3.075	3.140	Continuing	Continuing
JE1: <i>Joint Regional Security Stacks</i>	7.339	7.657	16.269	9.728	-	9.728	2.945	3.019	3.075	3.140	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Information Environment (JIE) construct is a consolidated secure and defensible environment across Department of Defense (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.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	7.947	18.077	2.882	-	2.882
Current President's Budget	7.657	16.269	9.728	-	9.728
Total Adjustments	-0.290	-1.808	6.846	-	6.846
• Congressional General Reductions	-	-1.808			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.290	-			
• Adjustment	-	-	6.846	-	6.846

Change Summary Explanation

Decrease in FY 2019 of -\$0.290 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 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303228K / <i>Joint Information Environment</i>
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Decrease in FY 2020 of -\$1.808 is due to a Congressional general reduction.

Increase in FY 2021 of \$6.846 is due to transferring funds from the Services to DISA for planned deployment and operations.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0303228K / Joint Information Environment				Project (Number/Name) JE 1 / Joint Regional Security Stacks			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
JE1: Joint Regional Security Stacks	7.339	7.657	16.269	9.728	-	9.728	2.945	3.019	3.075	3.140	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Regional Security Stack (JRSS) is a joint Department of Defense (DoD) security architecture deployed regionally throughout the world. Each of the 23 Non-Secure Internet Protocol Router (NIPR) and 25 Secure Internet Protocol Router (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 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 Cyber Command (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 2019	FY 2020	FY 2021
Title: Joint Regional Security Stacks	7.657	16.269	9.728
<p>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.</p> <p>FY 2020 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.</p> <p>FY 2021 Plans:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Will provide integration, testing, and development of JRSS/JMS hardware/software to support tech refresh of end-of-support/end-of-life appliances. Support pathfinder efforts associated with JRSS optimization and evolution. <i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The decrease of -\$6.541 from FY 2020 to FY 2021 is attributed to efficiencies from the integration of CSAAC capabilities into JRSS and a decrease in tech refresh/functionality testing requirements.			
Accomplishments/Planned Programs Subtotals	7.657	16.269	9.728

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

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303228K / Joint Information Environment	Project (Number/Name) JE 1 / Joint Regional Security Stacks
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Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total		Cost To Complete	Total Cost	Target Value of Contract
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			
Certification Testing	Various	Various : Various	1.532	0.000		-		-		-		-	0.000	1.532	-	
Test and Evaluation Support	Various	JITC : Various	1.068	1.000	Oct 2018	0.500	Oct 2019	0.500	Oct 2021	-		0.500	Continuing	Continuing	-	
Integration Test and Modification	Various	Multiple : Various	1.300	0.947	Dec 2018	0.537	Dec 2019	0.682	Dec 2020	-		0.682	Continuing	Continuing	-	
Tech Refresh/Functionality Testing	Various	Multiple : Various	3.439	1.900	Dec 2018	0.750	Dec 2019	0.700	Dec 2020	-		0.700	Continuing	Continuing	-	
Analytic Development & Testing (CSAAC)	Various	Multiple : Various	0.000	3.810	Dec 2018	1.010	Dec 2019	-		-		-	0.000	4.820	-	
Next generation JRSS	Various	TBD : TBD	-	-		13.472	Dec 2019	7.846	Dec 2020	-		7.846	Continuing	Continuing	-	
Subtotal			7.339	7.657		16.269		9.728		-		9.728	Continuing	Continuing	N/A	

Project Cost Totals	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.339	7.657	16.269	9.728	-	9.728	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency			Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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>																												
JIE																												

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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>																												
JIE																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
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	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 0303267K / <i>Auctioned Spectrum Relocation Fund</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	15.804	24.600	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
JS1: <i>Auctioned Spectrum Relocation Fund</i>	15.804	24.600	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)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	24.600	0.000	0.000	-	0.000
Total Adjustments	24.600	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	24.600	-	-	-	-

Change Summary Explanation

Increase of +\$24.600 in FY 2019 represent funds received during execution through a transfer from Office of Management and Budget.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>JS1: Auctioned Spectrum Relocation Fund</i>	15.804	24.600	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 2019	FY 2020	FY 2021
Title: Auctioned Spectrum Relocation Fund	24.600	0.000	-
Description: Funding supports Spectrum relocation and sharing activities			
FY 2020 Plans: N/A			
FY 2020 to FY 2021 Increase/Decrease Statement: N/A			
Accomplishments/Planned Programs Subtotals	24.600	0.000	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency										Date: February 2020				
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0303267K / Auctioned Spectrum Relocation Fund					Project (Number/Name) JS1 / Auctioned Spectrum Relocation Fund				

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 spectrum relocation and sharing activities	Various	Various : Various	15.804	24.600		-		-		-		-	-	-	-
Subtotal			15.804	24.600		-		-		-		-	-	-	N/A
			Prior Years	FY 2019	FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			15.804	24.600		0.000		-		-		-	-	-	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2021 Defense Information Systems Agency		Date: February 2020
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	2019	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	116.743	59.870	44.001	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
KA1: <i>Federal Investigative Services Information Technology</i>	116.743	59.870	44.001	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

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 Department of Defense (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 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	55.400	44.001	14.500	-	14.500
Current President's Budget	59.870	44.001	0.000	-	0.000
Total Adjustments	4.470	0.000	-14.500	-	-14.500
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.467	-			
• Reprogramming	5.937	-	-	-	-
• Adjustments	-	-	-14.500	-	-14.500

Change Summary Explanation

The net increase of +\$4.470 in FY 2019 is attributed to (1) a decrease of -\$1.467 which reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs and (2) an increase of +\$5.937 for additional support required for eApplication (eAPP) development which is the replacement for Electronic Questionnaires for Investigations Processing (eQIP) and additional prototype development to support investigations management.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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Decrease of -\$14.500 in FY 2021 is due to the transfer of the National Background Investigation Services (NBIS) Program Executive Office (PEO) manpower and funding from DISA to Defense Counterintelligence and Security Agency (DCSA). Ensures compliance with National Defense Authorization Act (NDAA) for Fiscal Year 2018, Section 925.

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

	FY 2019	FY 2020	FY 2021
Title: Background Investigation Information Technology Systems 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. 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 FY 2020 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. FY 2021 Plans: N/A FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of -\$44.001 in FY 2021 is due to the transfer of the National Background Investigation Services (NBIS) Program Executive Office (PEO) manpower and funding from DISA to Defense Counterintelligence and Security Agency (DCSA). Ensures compliance with National Defense Authorization Act (NDAA)for Fiscal Year 2018, Section 925.	59.870	44.001	0.000
Accomplishments/Planned Programs Subtotals	59.870	44.001	0.000

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• 0303430K, O&M: <i>Background Investigation Information Technology Systems</i>	64.745	82.046	0.000	-	0.000	0.000	0.000	0.000	0.000	146.791	146.791

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency Date: February 2020

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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E. Acquisition Strategy

- Leverage existing secure infrastructure/capabilities coordinated with United States Cyber Command (USCYBERCOM) and Department of Defense (DoD) security functions
- Assess Key Performance Parameter (KPP) of existing Government-Off-The-Shelf (GOTS)/Commercial Off-the-Shelf (COTS) products for enterprise scaling
- Establish support agreements with capability/data providers
- Transition to Cloud Infrastructure and development, security and operations (DevSecOps) pipeline and refactor necessary capabilities for Cloud
- Incrementally test and release the 7 core capabilities using Agile software development methodology
- Government is the Lead System Integrator
- Contract Strategy
 - Integrated Management (IM) prototype capability using Other Transactional Authority (Section 815 NDAA 2015/2016)
 - Re-use / extend successes from the IM prototype
 - Leverage investment in Defense Manpower Data Center (DMDC) developed capabilities for initial deployments:
 - Fingerprint and biometrics processing (Continue to leverage)
 - Automated records checking (ARC) (Transition to system agnostic data broker & Sunset)
 - Adjudication (Transition to integrated architecture with case management and Sunset)
 - Continuous evaluation (CE) (Transition to system agnostic data broker & Sunset)
- Initiate Security Enterprise Architecture leveraging IdAM, Modular Workflow Engines, Artificial Intelligence, Machine Learning, and Natural Language Processing capabilities
- Re-factor ARC, CE, and Adjudication capabilities

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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 Testing																												
IOC Implementation																												
FOC Development																												
FOC Testing																												
FOC Implementation																												
Post Deployment Improvement - Scheduled Releases																												
Post Deployment Improvement - Scheduled Releases																												

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 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 2021 Defense Information Systems Agency		Date: February 2020
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 Testing	3	2017	4	2020
IOC Implementation	4	2017	1	2020
FOC Development	4	2017	2	2020
FOC Testing	2	2017	3	2021
FOC Implementation	4	2017	4	2021
Post Deployment Improvement - Scheduled Releases				
Post Deployment Improvement - Scheduled Releases	1	2020	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 0303467K / <i>Spectrum Efficient National Surveillance Radar (SENSR) Pipeline Spectrum Relocation Fund</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.230	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
JS1: <i>SENSR Spectrum Pipeline SRF</i>	0.000	0.230	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

The Commercial Spectrum Enhancement Act (CSEA) of 2004 created the Spectrum Relocation Fund (CSEA, Title II of P.L. 108-494) to provide a centralized and streamlined funding mechanism through which Federal agencies can recover the costs associated with relocating their radio communications systems from certain spectrum bands, which were authorized to be auctioned for commercial purposes.

On January 29, 2015, the Federal Communications Commission completed an auction of Advanced Wireless Service licenses in the 1695-1710 Megahertz (MHz), 1755-1780 MHz, and 2155-2180 MHz bands (collectively, the "AWS-3" bands). On June 23, 2015, the Office of Management and Budget (OMB) notified Congress of the forthcoming transfer of \$5.030 billion to federal agencies with systems affected by the AWS-3 transition. Following the conclusion of the 30-day statutory waiting period, OMB transferred the funds to the federal agencies.

The Department of Defense (DoD) received \$3.500 billion of the auction proceeds and created a \$500 million Spectrum Access Research and Development Program (SAR&DP) to investigate new DoD technologies. The SAR&DP encompasses spectrum technology development that enables the DoD to perform its missions using spectrum-dependent systems in a manner that preferably enhances operational readiness and capability. Being able to operate in accordance with spectrum allocations resulting after the spectrum auction is a necessary, but not sufficient requirement for pursued technology solutions. DoD's transition out of or sharing of the auctioned bands can only be successful if the research and development solutions are sufficiently resilient (survivable and electronically protected) to operate in both the United States and congested/contested spectrum environments wherever forces will be deployed.

This program represents the DISA investment within the SAR&DP.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0303467K / <i>Spectrum Efficient National Surveillance Radar (SENSR) Pipeline Spectrum Relocation Fund</i>
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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.230	0.000	0.000	-	0.000
Total Adjustments	0.230	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments	0.230	-	-	-	-

Change Summary Explanation

Increase of +\$0.230 in FY 2019 due to DISA portion of the Department of Defense Spectrum Access Research and Development Program created from the auction of Advanced Wireless Service licenses.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303467K / <i>Spectrum Efficient National Surveillance Radar (SENSR) Pipeline Spectrum Relocation Fund</i>	Project (Number/Name) JS1 / <i>SENSR Spectrum Pipeline SRF</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
JS1: <i>SENSR Spectrum Pipeline SRF</i>	0.000	0.230	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 2019	FY 2020	FY 2021
Title: SENSR Spectrum Pipeline SRF	0.230	0.000	-
Description: Funding supports SENSR Spectrum Pipeline relocation and sharing activities			
FY 2020 Plans: N/A			
FY 2020 to FY 2021 Increase/Decrease Statement: N/A			
Accomplishments/Planned Programs Subtotals	0.230	0.000	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303467K / <i>Spectrum Efficient National Surveillance Radar (SENSR) Pipeline Spectrum Relocation Fund</i>	Project (Number/Name) JS1 / <i>SENSR Spectrum Pipeline SRF</i>

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 SENSR Spectrum Pipeline relocation activities	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303467K / <i>Spectrum Efficient National Surveillance Radar (SENSR) Pipeline Spectrum Relocation Fund</i>	Project (Number/Name) JS1 / <i>SENSR Spectrum Pipeline SRF</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Auctioned Spectrum Relocation Fund</i>				
Support SENSR Spectrum Pipeline relocation activities	1	2019	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	56.127	2.848	2.981	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
NF1: <i>Distributed Common Ground/Surface Systems</i>	56.127	2.848	2.981	0.000	-	0.000	0.000	0.000	0.000	0.000	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	2.970	2.981	3.050	-	3.050
Current President's Budget	2.848	2.981	0.000	-	0.000
Total Adjustments	-0.122	0.000	-3.050	-	-3.050
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustment	-0.122	-	-3.050	-	-3.050

Change Summary Explanation

Decrease of -\$0.122 in FY19 achieved through efficiencies gained in evolving T&E infrastructure.

The decrease of -\$3.050 in FY 2021 is due to transfer of program from Budget Activity (BA) 7 to BA 6 to accurately align the mission of the program.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
NF1: <i>Distributed Common Ground/Surface Systems</i>	56.127	2.848	2.981	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 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 2019	FY 2020	FY 2021
Title: Distributed Common Ground/Surface Systems (DCGS)	2.848	2.981	-
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			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p>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.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The decrease of -\$2.981 from FY 2020 to FY 2021 is due to transfer of program from BA 7 to BA 6 to accurately align the mission of the program.</p>			
Accomplishments/Planned Programs Subtotals	2.848	2.981	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	22.963	1.000	Oct 2018	1.000	Oct 2019	-		-		-	0.000	24.963	-
Subtotal			22.963	1.000		1.000		-		-		-	0.000	24.963	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	2.173	-		-		-		-		-	0.000	2.173	-
Engineering & Technical Services 5	C/CPFF	TASC : Andover, MA	9.887	-		-		-		-		-	0.000	9.887	-
Engineering & Technical Services 6	MIPR	Various : Various	0.802	1.848	Dec 2018	1.981	Dec 2019	-		-		-	0.000	4.631	-
Subtotal			33.164	1.848		1.981		-		-		-	0.000	36.993	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
	Project Cost Totals		56.127	2.848	2.981	-	-	0.000	61.956

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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	

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2021 Defense Information Systems Agency		Date: February 2020
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	2020
Connectivity to Other Testbeds & Test Event Conduct	1	2018	4	2020
DDT&E Operation and Maintenance Support	1	2018	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0708012K / Logistics Support Activities
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	1.317	1.361	1.654	-	1.654	1.710	1.701	1.742	1.779	Continuing	Continuing
LSA: Logistics Support Activities	0.000	1.317	1.361	1.654	-	1.654	1.710	1.701	1.742	1.779	Continuing	Continuing

Note

N/A

A. Mission Description and Budget Item Justification

Classified

B. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	1.317	1.361	1.406	-	1.406
Current President's Budget	1.317	1.361	1.654	-	1.654
Total Adjustments	0.000	0.000	0.248	-	0.248
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	0.000	-			
• Adjustment	0.000	-	0.248	-	0.248

Change Summary Explanation

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

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
LSA: Logistics Support Activities	0.000	1.317	1.361	1.654	-	1.654	1.710	1.701	1.742	1.779	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Classified.

A. Mission Description and Budget Item Justification

Classified.

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

	FY 2019	FY 2020	FY 2021
Title: LSA	1.317	1.361	1.654
Description: Classified.			
FY 2020 Plans: Classified.			
FY 2021 Plans: Classified.			
FY 2020 to FY 2021 Increase/Decrease Statement: Classified.			
Accomplishments/Planned Programs Subtotals	1.317	1.361	1.654

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

N/A

Remarks

Classified.

D. Acquisition Strategy

Classified.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

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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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Classified	Various	Classified : Classified	-	1.317	Oct 2018	1.361	Oct 2019	1.654	Oct 2020	-		1.654	Continuing	Continuing	-
Subtotal			-	1.317		1.361		1.654		-		1.654	Continuing	Continuing	N/A
Project Cost Totals			-	1.317		1.361		1.654		-		1.654	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2021 Defense Information Systems Agency **Date:** February 2020

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	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	46.584	0.706	5.542	3.239	-	3.239	1.273	1.286	1.311	1.339	Continuing	Continuing
NS01: <i>Teleport Generation 1/2</i>	46.584	0.706	1.042	1.240	-	1.240	1.273	1.286	1.311	1.339	Continuing	Continuing
NS03: <i>SATCOM Gateway</i>	0.000	0.000	4.500	1.999	-	1.999	0.000	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 2021 Defense Information Systems Agency **Date:** February 2020

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 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.723	6.158	3.241	-	3.241
Current President's Budget	0.706	5.542	3.239	-	3.239
Total Adjustments	-0.017	-0.616	-0.002	-	-0.002
• Congressional General Reductions	-	-0.616			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.017	-			
• Adjustment	-	-	-0.002	-	-0.002

Change Summary Explanation

The decrease of -\$0.017 in FY 2019 of reflects a transfer of funding to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

The decrease of -\$0.616 in FY 2020 reflects a congressional general reduction.

The decrease of -\$0.002 in FY 2021 is attributed to a very small reduction in planned test activity for technology refresh and technology insertions including MLGC Allied Support.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
NS01: <i>Teleport Generation 1/2</i>	46.584	0.706	1.042	1.240	-	1.240	1.273	1.286	1.311	1.339	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 2019	FY 2020	FY 2021
Title: Teleport Program	0.706	1.042	1.240
Description: Department of Defense (DoD) Teleport system is a satellite communications (SATCOM) gateway that links the deployed warfighter to the Department of Defense Information Network (DODIN). The Teleport program supports the warfighter with a world-wide, net-centric set of communication and information capabilities.			
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 2021 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 to FY 2021 Increase/Decrease Statement: Increase of +\$0.198 from FY 2020 to FY 2021 is attributed to an increase in research and development activity at the Joint Satellite Communications Engineering Center (JSEC) lab.			
Accomplishments/Planned Programs Subtotals	0.706	1.042	1.240

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• O&M, DW/ PE1203610K: <i>O&M, DW</i>	10.449	10.335	11.375	-	11.375	11.505	10.973	11.121	11.294	Continuing	Continuing
• Procurement, DW/ PE1203610K: <i>Procurement, DW</i>	21.112	22.324	26.655	-	26.655	31.814	29.879	30.453	31.092	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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2021 Defense Information Systems Agency **Date:** February 2020

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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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	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
NS03: <i>SATCOM Gateway</i>	0.000	0.000	4.500	1.999	-	1.999	0.000	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 2019	FY 2020	FY 2021
Title: SATCOM Gateway	0.000	4.500	1.999
Description: The SATCOM Gateway is an enterprise system that adheres to the Joint Information Environment (JIE) architecture in support of SATCOM operations. The SATCOM Gateway system supports the warfighter to include strategic and tactical users by providing DoD satellite communication requirements over satellite trunks through the DoD Information Network (DODIN).			
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 2021 Plans: Funding will be used to build out software research and development for Full Motion Video (FMV).			
FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of -\$2.501 from FY 2020 to FY 2021 is attributed to completion of the development phase and transfer of the requirement into sustainment.			
Accomplishments/Planned Programs Subtotals	0.000	4.500	1.999

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• O&M, DW/ PE1203610K: <i>O&M, DW</i>	6.436	7.651	7.999	-	7.999	7.956	7.174	7.220	7.371	Continuing	Continuing
• Procurement, DW/ PE1203610K: <i>Procurement, DW</i>	11.405	1.633	2.037	-	2.037	5.447	1.771	1.804	1.842	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency	Date: February 2020
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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>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency **Date:** February 2020

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>
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FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2021 Defense Information Systems Agency **Date:** February 2020

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>
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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	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 8: Software and Digital Technology Pilot Programs</i>					PE 0303150K / <i>Global Command and Control System Software and Digital Technology Pilot Program</i>							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	86.750	-	86.750	37.928	33.364	33.097	34.934	Continuing	Continuing
CC01: <i>Global Command and Control</i>	-	0.000	0.000	86.750	-	86.750	37.928	33.364	33.097	34.934	Continuing	Continuing

A. Mission Description and Budget Item Justification

This is not a new start. Effort continues from FY 2020, funded in PE 0303150K, Global Command and Control System. 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.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	86.750	-	86.750
Total Adjustments	0.000	0.000	86.750	-	86.750
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Reprogrammings	-	-	86.750	-	86.750

Change Summary Explanation

The increase of +\$86.750 in FY 2021 is due to realigning funds from O&M appropriation and RDT&E BA 7 to the newly created BA 8: Software and Digital Technology for the Software Pilot Program.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency										Date: February 2020		
Appropriation/Budget Activity 0400 / 8					R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System Software and Digital Technology Pilot Program</i>					Project (Number/Name) CC01 / <i>Global Command and Control</i>		
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
CC01: <i>Global Command and Control</i>	-	0.000	0.000	86.750	-	86.750	37.928	33.364	33.097	34.934	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.

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

	FY 2019	FY 2020	FY 2021
Title: Development and Strategic Planning	0.000	-	86.750
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 • 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 			
FY 2021 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 8	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System Software and Digital Technology Pilot Program</i>	Project (Number/Name) CC01 / <i>Global Command and Control</i>

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

	FY 2019	FY 2020	FY 2021
<p>FY 2021 O&M Plans: \$63.724</p> <p>In FY21, continue to support the Operational Community by incrementally developing, testing, and fielding additional GCCS-J 6.0 capabilities, as identified and prioritized by the Joint Staff and User community. Most notably, this will involve enhancements to the following capability sets: 1) Identification Friend or Foe (IFF), 2) Personnel Recovery Report & Locate (PRRL), and 3) Early Missile Warning. In addition, in FY21, continue to support the Operational Community by incrementally developing, testing, and fielding upgrades to modernize, and enhance the cyber security posture of, the existing baseline in the following areas: 1) pursue IPv6 compliance, 2) modernize the server deployment, 3) enhance cyber security by addressing high priority focus areas, and 4) conducting database consolidation to increase overall system efficiency and performance. These activities will be accomplished utilizing the GCCS-J 4 - 8 weeks Maintenance Release Process (MRP).</p> <p>FY 2021 RDT&E Plans: \$23.026</p> <p>Cyber security analysis 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.</p> <p>Continue the development of the GCCS-JE Framework to meet the programs Initial Operational Capability. In addition we will execute a development, integration and sustainment contract that will develop the functional capability that will be integrated in the framework design and sustain the capability as it is operationally deployed to the warfighter.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p> <p>The increase from FY 2020 to FY 2021 is due to the implementation of a pilot Budget Authority that combines the GCCS-J funding lines to better support the movement of GCCS-JE System capabilities from development and testing to implementation and sustainment.</p>			
Accomplishments/Planned Programs Subtotals	0.000	-	86.750

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

Line Item	FY 2019	FY 2020	FY 2021	FY 2021	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PE 0303150K: <i>Operation & Maintenance, Defense-Wide</i>	0.000	0.000	27.426	0.000	27.426	26.829	27.199	25.825	25.932	Continuing	Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 8	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System Software and Digital Technology Pilot Program</i>	Project (Number/Name) CC01 / <i>Global Command and Control</i>

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 8	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System Software and Digital Technology Pilot Program</i>	Project (Number/Name) CC01 / <i>Global Command and Control</i>
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPFF	NMGS: GCCS-J Sustainment : Reston, VA	-	-		-		45.400	Dec 2020	-		45.400	Continuing	Continuing	-
Product Development	C/CPFF	C2 Systems Engineering : TBD	-	-		-		5.200	Dec 2021	-		5.200	Continuing	Continuing	-
Product Development	C/CPFF	GCCS-J Development : TBD	-	-		-		19.575	Jan 2021	-		19.575	Continuing	Continuing	-
Product Development	C/FFP	Configuration Management : Montgomery	-	-		-		1.000	Oct 2020	-		1.000	Continuing	Continuing	-
Product Development	C/FFP	Milcloud Hosting : TBD	-	-		-		3.000	Jan 2021	-		3.000	Continuing	Continuing	-
Product Development	C/FFP	Software Maintenance GEMFIRE : TBD	-	-		-		1.214	Apr 2021	-		1.214	Continuing	Continuing	-
Product Development	C/FFP	Software Maintenance: VMWare : TBD	-	-		-		0.150	Apr 2021	-		0.150	Continuing	Continuing	-
Product Development	C/FFP	Software Maitenance: Redhat : TBD	-	-		-		0.487	Dec 2020	-		0.487	Continuing	Continuing	-
Product Development	C/FFP	Software Maintenance Sybase : TBD	-	-		-		0.652	Sep 2021	-		0.652	Continuing	Continuing	-
Product Development	C/FFP	Software Maintenance : TBD	-	-		-		2.500	Jan 2021	-		2.500	Continuing	Continuing	-
Subtotal			-	-		-		79.178		-		79.178	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Information Systems Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 8	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System Software and Digital Technology Pilot Program</i>	Project (Number/Name) CC01 / <i>Global Command and Control</i>
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Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Cost	C/FFP	TBD : TBD	-	-		-		1.300	May 2021	-		1.300	Continuing	Continuing	-
Subtotal			-	-		-		1.300		-		1.300	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 : Various	-	-		-		2.500	Oct 2020	-		2.500	Continuing	Continuing	-
Test & Evaluation	MIPR	DAA : STRATCOM:Various	-	-		-		0.672	Oct 2020	-		0.672	Continuing	Continuing	-
Test & Evaluation	MIPR	RME : Variuos	-	-		-		2.500	Oct 2020	-		2.500	Continuing	Continuing	-
Subtotal			-	-		-		5.672		-		5.672	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 : Various	-	-		-		0.600	Oct 2020	-		0.600	Continuing	Continuing	-
Subtotal			-	-		-		0.600		-		0.600	Continuing	Continuing	N/A

			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-	0.000	86.750	-	86.750	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 8	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System Software and Digital Technology Pilot Program</i>	Project (Number/Name) CC01 / <i>Global Command and Control</i>

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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>Development and Strategic Planning</i>																												
Development and Strategic Planning																												
<i>Integration and Test</i>																												
Integration and Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Information Systems Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 8	R-1 Program Element (Number/Name) PE 0303150K / <i>Global Command and Control System Software and Digital Technology Pilot Program</i>	Project (Number/Name) CC01 / <i>Global Command and Control</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Development and Strategic Planning</i>				
Development and Strategic Planning	1	2020	4	2025
<i>Integration and Test</i>				
Integration and Test	1	2020	4	2025

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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



Defense Logistics Agency

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation -----	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Research, Development, Test & Eval, DW	332,136	315,202			315,202
Total Research, Development, Test & Evaluation	332,136	315,202			315,202

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	206,947				206,947
Total Research, Development, Test & Evaluation	206,947				206,947

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	273,449	268,152			268,152
System Development & Demonstration	40,674	31,773			31,773
Management Support	14,569	10,027			10,027
Operational Systems Development	3,444	5,250			5,250
Total Research, Development, Test & Evaluation	332,136	315,202			315,202
<u>Summary Recap of FYDP Programs</u>					
Research and Development	328,692	309,952			309,952
Central Supply and Maintenance	3,444	5,250			5,250
Total Research, Development, Test & Evaluation	332,136	315,202			315,202

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	174,309				174,309
System Development & Demonstration	23,552				23,552
Management Support					
Operational Systems Development	9,086				9,086
Total Research, Development, Test & Evaluation	206,947				206,947
<u>Summary Recap of FYDP Programs</u>					
Research and Development	197,861				197,861
Central Supply and Maintenance	9,086				9,086
Total Research, Development, Test & Evaluation	206,947				206,947

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	273,449	268,152			268,152
System Development & Demonstration	40,674	31,773			31,773
Management Support	14,569	10,027			10,027
Operational Systems Development	3,444	5,250			5,250
Total Research, Development, Test & Evaluation	332,136	315,202			315,202
<u>Summary Recap of FYDP Programs</u>					
Research and Development	328,692	309,952			309,952
Central Supply and Maintenance	3,444	5,250			5,250
Total Research, Development, Test & Evaluation	332,136	315,202			315,202

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Feb 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	174,309				174,309
System Development & Demonstration	23,552				23,552
Management Support					
Operational Systems Development	9,086				9,086
Total Research, Development, Test & Evaluation	206,947				206,947
<u>Summary Recap of FYDP Programs</u>					
Research and Development	197,861				197,861
Central Supply and Maintenance	9,086				9,086
Total Research, Development, Test & Evaluation	206,947				206,947

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation -----	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO) -----
Defense Logistics Agency	332,136	315,202			315,202
Total Research, Development, Test & Evaluation	332,136	315,202			315,202

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Defense Logistics Agency	206,947				206,947
Total Research, Development, Test & Evaluation	206,947				206,947

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

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

Line No	Element Number	Program Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
50	0603680S	Manufacturing Technology Program	03	62,396	51,002			51,002 U
52	0603712S	Generic Logistics R&D Technology Demonstrations	03	18,127	16,620			16,620 U
54	0603720S	Microelectronics Technology Development and Support	03	192,926	200,530			200,530 U
Advanced Technology Development				273,449	268,152			268,152
133	0605070S	DOD Enterprise Systems Development and Demonstration	05	3,057	2,291			2,291 U
135	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	20,384	23,114			23,114 U
136	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	17,233	6,368			6,368 U
System Development & Demonstration				40,674	31,773			31,773
166	0605502S	Small Business Innovative Research	06	10,715	10,027			10,027 U
179	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06	3,854				U
Management Support				14,569	10,027			10,027
253	0708012S	Pacific Disaster Centers	07	1,705	1,705			1,705 U
254	0708047S	Defense Property Accountability System	07	1,739	3,545			3,545 U
Operational Systems Development				3,444	5,250			5,250
Total Research, Development, Test & Eval, DW				332,136	315,202			315,202

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se c
50	0603680S	Manufacturing Technology Program	03	40,025				40,025	U
52	0603712S	Generic Logistics R&D Technology Demonstrations	03	10,235				10,235	U
54	0603720S	Microelectronics Technology Development and Support	03	124,049				124,049	U
		Advanced Technology Development		174,309				174,309	
133	0605070S	DOD Enterprise Systems Development and Demonstration	05	1,377				1,377	U
135	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	20,537				20,537	U
136	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	1,638				1,638	U
		System Development & Demonstration		23,552				23,552	
166	0605502S	Small Business Innovative Research	06						U
179	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06						U
		Management Support							
253	0708012S	Pacific Disaster Centers	07	1,785				1,785	U
254	0708047S	Defense Property Accountability System	07	7,301				7,301	U
		Operational Systems Development		9,086				9,086	
Total Research, Development, Test & Eval, DW				206,947				206,947	

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 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	c
D									
50	0603680S	Manufacturing Technology Program	03	62,396	51,002			51,002	U
52	0603712S	Generic Logistics R&D Technology Demonstrations	03	18,127	16,620			16,620	U
54	0603720S	Microelectronics Technology Development and Support	03	192,926	200,530			200,530	U
		Advanced Technology Development		273,449	268,152			268,152	
133	0605070S	DOD Enterprise Systems Development and Demonstration	05	3,057	2,291			2,291	U
135	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	20,384	23,114			23,114	U
136	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	17,233	6,368			6,368	U
		System Development & Demonstration		40,674	31,773			31,773	
166	0605502S	Small Business Innovative Research	06	10,715	10,027			10,027	U
179	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06	3,854					U
		Management Support		14,569	10,027			10,027	
253	0708012S	Pacific Disaster Centers	07	1,705	1,705			1,705	U
254	0708047S	Defense Property Accountability System	07	1,739	3,545			3,545	U
		Operational Systems Development		3,444	5,250			5,250	
Total Defense Logistics Agency				332,136	315,202			315,202	

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Defense Logistics Agency
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13 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
50	0603680S	Manufacturing Technology Program	03	40,025				40,025	U
52	0603712S	Generic Logistics R&D Technology Demonstrations	03	10,235				10,235	U
54	0603720S	Microelectronics Technology Development and Support	03	124,049				124,049	U
Advanced Technology Development				174,309				174,309	
133	0605070S	DOD Enterprise Systems Development and Demonstration	05	1,377				1,377	U
135	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	20,537				20,537	U
136	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	1,638				1,638	U
System Development & Demonstration				23,552				23,552	
166	0605502S	Small Business Innovative Research	06						U
179	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06						U
Management Support									
253	0708012S	Pacific Disaster Centers	07	1,785				1,785	U
254	0708047S	Defense Property Accountability System	07	7,301				7,301	U
Operational Systems Development				9,086				9,086	
Total Defense Logistics Agency				206,947				206,947	

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
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 (Dollars in Thousands)

13 Feb 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Research, Development, Test & Eval, DW	332,136	315,202			315,202
Total Research, Development, Test & Evaluation	332,136	315,202			315,202

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Department of Defense
 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	206,947				206,947
Total Research, Development, Test & Evaluation	206,947				206,947

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Department of Defense
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 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Summary Recap of Budget Activities	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Advanced Technology Development	273,449	268,152			268,152
System Development & Demonstration	40,674	31,773			31,773
Management Support	14,569	10,027			10,027
Operational Systems Development	3,444	5,250			5,250
Total Research, Development, Test & Evaluation	332,136	315,202			315,202
Summary Recap of FYDP Programs					
Research and Development	328,692	309,952			309,952
Central Supply and Maintenance	3,444	5,250			5,250
Total Research, Development, Test & Evaluation	332,136	315,202			315,202

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Department of Defense
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	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	174,309				174,309
System Development & Demonstration	23,552				23,552
Management Support					
Operational Systems Development	9,086				9,086
Total Research, Development, Test & Evaluation	206,947				206,947
<u>Summary Recap of FYDP Programs</u>					
Research and Development	197,861				197,861
Central Supply and Maintenance	9,086				9,086
Total Research, Development, Test & Evaluation	206,947				206,947

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Defense-Wide
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 (Dollars in Thousands)

13 Feb 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	273,449	268,152			268,152
System Development & Demonstration	40,674	31,773			31,773
Management Support	14,569	10,027			10,027
Operational Systems Development	3,444	5,250			5,250
Total Research, Development, Test & Evaluation	332,136	315,202			315,202
<u>Summary Recap of FYDP Programs</u>					
Research and Development	328,692	309,952			309,952
Central Supply and Maintenance	3,444	5,250			5,250
Total Research, Development, Test & Evaluation	332,136	315,202			315,202

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Defense-Wide
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	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	174,309				174,309
System Development & Demonstration	23,552				23,552
Management Support					
Operational Systems Development	9,086				9,086
Total Research, Development, Test & Evaluation	206,947				206,947
<u>Summary Recap of FYDP Programs</u>					
Research and Development	197,861				197,861
Central Supply and Maintenance	9,086				9,086
Total Research, Development, Test & Evaluation	206,947				206,947

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Defense-Wide
 FY 2021 President's Budget
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 Total Obligational Authority
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Appropriation -----	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Defense Logistics Agency	332,136	315,202			315,202
Total Research, Development, Test & Evaluation	332,136	315,202			315,202

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Defense-Wide
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 (Dollars in Thousands)

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Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Defense Logistics Agency	206,947				206,947
Total Research, Development, Test & Evaluation	206,947				206,947

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Defense-Wide
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 (Dollars in Thousands)

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

Line No	Element Number	Program Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	c
50	0603680S	Manufacturing Technology Program	03	62,396	51,002			51,002	U
52	0603712S	Generic Logistics R&D Technology Demonstrations	03	18,127	16,620			16,620	U
54	0603720S	Microelectronics Technology Development and Support	03	192,926	200,530			200,530	U
		Advanced Technology Development		273,449	268,152			268,152	
133	0605070S	DOD Enterprise Systems Development and Demonstration	05	3,057	2,291			2,291	U
135	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	20,384	23,114			23,114	U
136	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	17,233	6,368			6,368	U
		System Development & Demonstration		40,674	31,773			31,773	
166	0605502S	Small Business Innovative Research	06	10,715	10,027			10,027	U
179	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06	3,854					U
		Management Support		14,569	10,027			10,027	
253	0708012S	Pacific Disaster Centers	07	1,705	1,705			1,705	U
254	0708047S	Defense Property Accountability System	07	1,739	3,545			3,545	U
		Operational Systems Development		3,444	5,250			5,250	
Total Research, Development, Test & Eval, DW				332,136	315,202			315,202	

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
50	0603680S	Manufacturing Technology Program	03	40,025				40,025	U
52	0603712S	Generic Logistics R&D Technology Demonstrations	03	10,235				10,235	U
54	0603720S	Microelectronics Technology Development and Support	03	124,049				124,049	U
		Advanced Technology Development		174,309				174,309	
133	0605070S	DOD Enterprise Systems Development and Demonstration	05	1,377				1,377	U
135	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	20,537				20,537	U
136	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	1,638				1,638	U
		System Development & Demonstration		23,552				23,552	
166	0605502S	Small Business Innovative Research	06						U
179	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06						U
		Management Support							
253	0708012S	Pacific Disaster Centers	07	1,785				1,785	U
254	0708047S	Defense Property Accountability System	07	7,301				7,301	U
		Operational Systems Development		9,086				9,086	
Total Research, Development, Test & Eval, DW				206,947				206,947	

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
50	0603680S	Manufacturing Technology Program	03	62,396	51,002			51,002 U
52	0603712S	Generic Logistics R&D Technology Demonstrations	03	18,127	16,620			16,620 U
54	0603720S	Microelectronics Technology Development and Support	03	192,926	200,530			200,530 U
	Advanced Technology Development			273,449	268,152			268,152
133	0605070S	DOD Enterprise Systems Development and Demonstration	05	3,057	2,291			2,291 U
135	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	20,384	23,114			23,114 U
136	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	17,233	6,368			6,368 U
	System Development & Demonstration			40,674	31,773			31,773
166	0605502S	Small Business Innovative Research	06	10,715	10,027			10,027 U
179	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06	3,854				
	Management Support			14,569	10,027			10,027
253	0708012S	Pacific Disaster Centers	07	1,705	1,705			1,705 U
254	0708047S	Defense Property Accountability System	07	1,739	3,545			3,545 U
	Operational Systems Development			3,444	5,250			5,250
Total Defense Logistics Agency				332,136	315,202			315,202

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

Line No	Element Number	Program Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
50	0603680S	Manufacturing Technology Program	03	40,025				40,025	U
52	0603712S	Generic Logistics R&D Technology Demonstrations	03	10,235				10,235	U
54	0603720S	Microelectronics Technology Development and Support	03	124,049				124,049	U
Advanced Technology Development				174,309				174,309	
133	0605070S	DOD Enterprise Systems Development and Demonstration	05	1,377				1,377	U
135	0605080S	Defense Agency Initiatives (DAI) - Financial System	05	20,537				20,537	U
136	0605090S	Defense Retired and Annuitant Pay System (DRAS)	05	1,638				1,638	U
System Development & Demonstration				23,552				23,552	
166	0605502S	Small Business Innovative Research	06						U
179	0606942S	Assessments and Evaluations Cyber Vulnerabilities	06						U
Management Support									
253	0708012S	Pacific Disaster Centers	07	1,785				1,785	U
254	0708047S	Defense Property Accountability System	07	7,301				7,301	U
Operational Systems Development				9,086				9,086	
Total Defense Logistics Agency				206,947				206,947	

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52	03	0603712S	Logistics Research and Development Technology (Log R&D).....	Volume 5 - 387
54	03	0603720S	Microelectronics Technology Development and Support (DMEA).....	Volume 5 - 397

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Line #	Budget Activity	Program Element Number	Program Element Title	Page
133	05	0605070S	DoD Enterprise Systems Development and Demonstration.....	Volume 5 - 405
135	05	0605080S	Defense Agencies Initiative (DAI) - Financial System.....	Volume 5 - 411
136	05	0605090S	Defense Retired and Annuitant Pay System 2 (DRAS2).....	Volume 5 - 421

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166	06	0605502S	Small Business Innovative Research (SBIR).....	Volume 5 - 425
179	06	0606942S	Cyber Vulnerability Assessment and Mitigation.....	Volume 5 - 429

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254	07	0708012S	Pacific Disaster Center.....	Volume 5 - 437

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Defense Agencies Initiative (DAI) - Financial System	0605080S	135	05.....	Volume 5 - 411
Defense Property Accountability System (DPAS)	0708047S	252	07.....	Volume 5 - 431
Defense Retired and Annuitant Pay System 2 (DRAS2)	0605090S	136	05.....	Volume 5 - 421
DoD Enterprise Systems Development and Demonstration	0605070S	133	05.....	Volume 5 - 405
Logistics Research and Development Technology (Log R&D)	0603712S	52	03.....	Volume 5 - 387
Manufacturing Technology Program (ManTech)	0603680S	50	03.....	Volume 5 - 371
Microelectronics Technology Development and Support (DMEA)	0603720S	54	03.....	Volume 5 - 397
Pacific Disaster Center	0708012S	254	07.....	Volume 5 - 437
Small Business Innovative Research (SBIR)	0605502S	166	06.....	Volume 5 - 425

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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 0603680S / <i>Manufacturing Technology Program (ManTech)</i>							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	58.826	62.396	51.002	40.025	-	40.025	40.029	41.465	42.480	43.457	Continuing	Continuing
IBMP: <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i>	26.544	30.637	28.572	17.205	-	17.205	16.796	17.194	17.306	17.724	Continuing	Continuing
AAA: <i>Maintaining Viable Supply Sources (formerly High Quality Sources)</i>	22.076	26.296	17.229	17.854	-	17.854	18.192	19.151	19.232	19.677	Continuing	Continuing
OOO: <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i>	10.206	5.463	5.201	4.966	-	4.966	5.041	5.120	5.942	6.056	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 2021 Defense Logistics Agency **Date:** February 2020

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.

DLA’s focus for this budget cycle highlights advanced capabilities in digital and technical data modernization, management and analytics to fulfill the DLA role in the DOD Digital Engineering Strategy and improve sharing of data with the industrial base and supported organizations. Investment explores technologies to lower the Agency’s material acquisition and operations costs and improve weapons systems support. This effort spans across both DLA R&D Program Elements and multiple Strategic Focus Areas, impacting across the DOD Joint Defense Manufacturing Technology Panel and DLA Enterprise logistics processes.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	62.396	42.834	43.045	-	43.045
Current President's Budget	62.396	51.002	40.025	-	40.025
Total Adjustments	0.000	8.168	-3.020	-	-3.020
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-1.832			
• Inflation for Civilian Pay	-	-	0.027	-	0.027
• Inflation for Non-Pay/Non-Fuel Purchases	-	-	-0.037	-	-0.037
• Defense Wide Review Reduction	-	-	-2.280	-	-2.280
• Internal Realignment	-	-	-0.730	-	-0.730

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: *Congressional add to improve steel performance initiative in Castings.*

	FY 2019	FY 2020
	5.000	-
	10.000	-
	-	10.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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

	FY 2019	FY 2020
Congressional Add Subtotals for Project: IBMP	15.000	10.000
Congressional Add Totals for all Projects	15.000	10.000

Change Summary Explanation

FY2020, increased baseline by \$10.000 million for program increase steel performance initiative in Castings.
 FY2020, Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$1.832 million.
 FY2021, internal realignment decreased program baseline by \$0.730 million for critical Defense Property Accountability System redesign and upgrade requirements.
 The FY 2021 funding request was reduced by \$2.280 million during the Defense-Wide Review to free up resources for higher priority Department needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
IBMP: <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i>	26.544	30.637	28.572	17.205	-	17.205	16.796	17.194	17.306	17.724	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 2021 Defense Logistics Agency		Date: February 2020
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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 2019	FY 2020	FY 2021
Title: Improving Industrial Base Manufacturing Processes (formerly Material Availability)	15.637	18.572	17.205
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. DLA R&D SUBNET is currently researching and testing areas utilizing drones technology, food irradiation and plasma technology for fresh fruits and vegetables			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>shelf-life extension, and block chain use cases in the subsistence supply chain. SUBNET plans to research and execute projects in FY2020 regarding RFID sensors, cybersecurity, quality assurance processes, phytosanitary requirements, and food waste. The program will also continue to pursue Small Business Innovation Research (SBIR) topics in Subsistence. The SUBNET program will work with community partners to leverage the latest technologies, encourage innovation and modernization, and promote manufacturing improvements in the subsistence supply chain.</p> <p>The Casting program will complete work for the On-Demand Melting for Small Quantity Castings for die castings and the Digital Radiographic Reference Standards for Copper Alloys projects. We will continue to monitor the existing projects. 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 Broad Agency Announcement (BAA) that is planned for release in late FY19 or early FY20. The BAA will solicit projects from industry to improve the materials and processes used within the forging industry. Contract awards are anticipated during the fiscal year.</p> <p>The Battery Network (BATTNET) program will initiate new projects for improving the production readiness, transition, and standardization of soldier and system batteries within the DLA supply chain. Areas of focus will be for critical non-rechargeable soldier batteries, bipolar lead-acid battery capabilities, and lithium-ion formats for aviation batteries. The program will also continue addressing requirements for manufacturing and material improvements in the low power, vacuum electron tube supply base.</p> <p>The Additive Manufacturing (AM) program plans to finance collaborative technical efforts from the military departments, 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 support DOD-wide efforts to baseline risk categorization of AM parts and acceptability criteria that will accelerate AM integration into the DOD Supply Chain. DLA R&D will fund efforts to identify the best methods for converting models and technical drawings that predate Computer-Aided Design and Drafting software into digital format in order 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. 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: exploration of improved reverse engineering processes for AM purposes, and optimization of</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>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 2021 Plans: The Subsistence Network (SUBNET) program will continue to research and execute short-term innovative projects to improve the subsistence supply chain. SUBNET will work with community partners (military services, industry, and academia) to leverage the latest innovations. SUBNET plans to research and execute projects in FY2021 regarding mobile distribution facilities around the battlefield, modernization of government subsistence warehouses, assessment of materiel handling capabilities, and integrating robotics into current processes. The program will also continue to pursue Small Business Innovation Research (SBIR) topics in Subsistence, and 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 on 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 monitor contracts awarded under the Broad Agency Announcement (BAA) offered in FY20 and award any remaining proposed projects that could be funded. 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. Forgings baseline was reduced by approximately \$0.500 million resulting from overall MANTECH \$3.020 million in directed reductions. Impact of the baseline reduction will cause project cancellation or delays in the Forgings program.</p> <p>The Battery Network (BATTNET) program will continue 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. BATTNET baseline was reduced by approximately \$0.500 million resulting from overall MANTECH \$3.020 million in directed reductions.</p>			

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

	FY 2019	FY 2020	FY 2021
Impact of the baseline reduction will cause project cancellation or delays for improvements to warfighter weapon system battery performance and cost.			
<p>The Additive Manufacturing (AM) program, using market research, requests for information/proposals, Broad Agency Announcements (BAA), DLA R&D will fund analysis of alternatives for the best cognitive computing solutions to integrate information from several logistics, engineering, legal, and supplier data sources into an efficient AM decisional framework. These augmented analytics efforts will help identify unseen patterns in the utilization of AM resources such as machines, materials, manufacturing expertise, and manufacturing data to shape an efficient AM distributive manufacturing ecosystem. Desired outcomes include: optimization of polymer and metal AM production to obtain land, air and sea and expeditionary platform spare parts. The Additive Manufacturing (AM) program plans to finance collaborative technical efforts from the military departments, industry, and academic institutions that enhance the customer engagement with the AM product management workflows. Overall DLA Enterprise AM efforts will identify the best AM applications to 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 the expeditionary sea, land or air bases. AM baseline was reduced by approximately \$0.943 million resulting from overall MANTECH \$3.020 million in directed reductions. Impact of the baseline reduction will cause project cancellation or delays to support one of the DLA Strategic Imperatives.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Adjustments of \$2.130 million in reductions due to DLA Fiscal Guidance reduction, civilian pay inflation, inflation for non-pay/non-fuel purchases and internal realignment. Reduction impacts: \$0.500 million to Forgings; \$0.500 million to Battery Network; \$0.943 million to Additive Manufacturing Programs.</p>			
Accomplishments/Planned Programs Subtotals	15.637	18.572	17.205

	FY 2019	FY 2020
<p>Congressional Add: Digital Innovation Design for Reliable Castings Performance</p> <p>FY 2019 Accomplishments: This project developed 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.</p>	5.000	-
<p>Congressional Add: Battery Network for All Solid-State Battery Development</p> <p>FY 2019 Accomplishments: Focused on the production development and transition of solid-state electrolyte technology for military lithium-ion batteries that demonstrates a significant increase in available energy</p>	10.000	-

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	FY 2019	FY 2020
density and safety, eliminates the need for toxic flammable electrolyte, and reduces the complexity of battery management systems. Projects enabled 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.		
Congressional Add: Congressional add to improve steel performance initiative in Castings.	-	10.000
FY 2020 Plans: Conduct projects in Casting to improve steel performance.		
Congressional Adds Subtotals	15.000	10.000

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 2021 Defense Logistics Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
AAA: <i>Maintaining Viable Supply Sources (formerly High Quality Sources)</i>	22.076	26.296	17.229	17.854	-	17.854	18.192	19.151	19.232	19.677	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 FY2020 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 2019	FY 2020	FY 2021
Title: Maintaining Viable Supply Sources (formerly High Quality Sources)	26.296	17.229	17.854
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 expand process development at the 350 nanometer technology node into % Volt devices and continue process development for Linear/Analog Microcircuits. It will begin additional Linear/Analog emulation projects for types/groups of parts, prioritized based on customer requirements.			
FY 2021 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 its first Linear/Analog technology, 20 Volt Operational Amplifier, into full scale production. It will continue development of Additive Manufacturing techniques to address Microcircuit Cases. It will begin additional Linear/Analog emulation projects for types/groups of parts, prioritized based on customer requirements.			
FY 2020 to FY 2021 Increase/Decrease Statement:			
No significant change.			
Accomplishments/Planned Programs Subtotals	26.296	17.229	17.854

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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>

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 2021 Defense Logistics Agency **Date:** February 2020

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>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
OOO: <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i>	10.206	5.463	5.201	4.966	-	4.966	5.041	5.120	5.942	6.056	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 Defense Logistics Information Research (DLIR) program researches core technology to improve the quality, security, and interoperability of logistics data acquisition and management to enable and streamline DLA operations. DLA enables transformation of 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 transformational shift for DLA is driven by the Model-Based Enterprise (MBE) approach, 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 DLA’s Major Subordinate Commands (MSCs) 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 2019	FY 2020	FY 2021
Title: Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)	5.463	5.201	4.966

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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 2020 Plans:

The Military Unique Sustainment Technology (MUST) program will finalize development for MUST I and begin transition of contract deliverables: Supply Request Package for introduction of new items into DLA sustainment; Product Test Center fabric and color inspection tools for improved quality reporting; and digital models of requirement documents (TexSpecs) for the MUST knowledge base. These tools are in validation testing with key DLA Troop Support Clothing and Textile(C&T) and Service Stakeholders. Validation will be completed in 2021 and test results will be documented in the Functional Requirements Document(FRD). The next phase of the program, MUST II, will build on MUST I results and continue technical data modernization with extended focus on integration of manufacturing and testing processes. It will enable combat uniform and individual equipment technical data to be seamlessly communicated and applied throughout the DLA C&T Supply Chain. For example, settings would be directly fed into the test equipment and results would be accurately communicated to quality assurance. A new broad agency announcement (BAA) will be released for an anticipated FY 2021 award.

The Defense Logistics Information Research (DLIR) program will continue with the Connecting the Model-Based Enterprise (MBE) project which will operationally test different methods and processes to obtain technical data packages for selected Class IX weapon system parts directly from ESA/PMO's PLM system in lieu of the 339 process. The DLIR program will also initiate the 3D Technical Data Solutions and Digital Rights Management (DRM) projects. The 3D Technical Data Solutions project will identify one or more commercial viewers that provide the ability to view multiple data formats that may simplify DLA employees work processes, or give DLA additional capabilities to view data provided by the Military Services; and develop standard guidance or advice to Military Service organizations, ESAs and PMOs, to guide and influence their generation of 3D model based TDPs in order to ensure that they support the needs of DLA and its vendor base. The DRM project will benchmark the DRM technologies currently practiced in the private and public sectors, conduct analyses to determine the right solution for DLA, develop a prototype to validate the requirement, and develop a transition plan. Additionally, the DLIR program will continue to support DLA's Technical Data Management Transformation (TDMT) efforts.

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

FY 2019	FY 2020	FY 2021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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	FY 2020	FY 2021
<p>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>FY 2021 Plans: The Military Unique Sustainment Technology (MUST) program will award multiple MUST II contracts. The technical roadmap will be developed. Building on MUST I results, the MUST II objective is to complete tech data modernization for the MUST Knowledge base and to extend its impact across the C&T industrial base.</p> <p>The Defense Logistics Information Research (DLIR) program will continue the Connecting the Model-Based Enterprise (MBE) project and begin efforts to improve the Federal Catalog in combination with 3D Scanning capabilities. This project would define the requirements and develop the prototype of the next generation of the federal catalog, including advanced search functions, geometric data representation, and autonomous data validation. An enhanced catalog would promote the digital twin, i.e., the digital representation of systems and their components, and the use of digital artifacts to design, test and sustain national defense systems. These capabilities could significantly improve DLA and DOD operations in acquisition, quality control, customer support, and other areas. Additionally, the DLIR program will continue efforts to collaborate and develop a cyber-physical model that will evaluate the resiliency of OT systems after a cyber-attack and continue to support DLA's Technical Data Management Transformation (TDMT) efforts.</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. EMT baseline was reduced by approximately \$0.353 million resulting from overall MANTECH \$3.020 million in directed reductions. Impact of the baseline reduction will result in limited availability of funds for emergent technology requirements in execution years.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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	FY 2020	FY 2021
Adjustments of \$0.459 million in reductions due to DLA Fiscal Guidance reduction, civilian pay inflation, inflation for non-pay/non-fuel purchases and internal realignment. Most significant impact of reduction is \$0.353 million decrease in EMT baseline.			
Accomplishments/Planned Programs Subtotals	5.463	5.201	4.966

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-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	45.739	18.127	16.620	10.235	-	10.235	10.355	10.679	10.920	11.171	Continuing	Continuing
<i>EMM: Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)</i>	8.754	3.758	2.075	2.729	-	2.729	2.775	2.886	2.900	2.970	Continuing	Continuing
<i>GLTD: Improving Logistics Processes (formerly Logistics Process)</i>	19.502	3.568	2.588	4.044	-	4.044	4.114	4.258	4.277	4.376	Continuing	Continuing
<i>04: Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)</i>	17.483	10.801	11.957	3.462	-	3.462	3.466	3.535	3.743	3.825	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 2021 Defense Logistics Agency **Date:** February 2020

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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DLA's focus for this budget cycle highlights advanced capabilities in digital and technical data modernization, management and analytics to fulfill the DLA role in the DOD Digital Engineering Strategy and improve sharing of data with the industrial base and supported organizations. Investment explores technologies to lower the Agency's material acquisition and operations costs and improve weapons systems support. This effort spans across both DLA R&D Program Elements and multiple Strategic Focus Areas, impacting across the DOD Joint Defense Manufacturing Technology Panel and DLA Enterprise logistics processes.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	18.127	10.817	10.998	-	10.998
Current President's Budget	18.127	16.620	10.235	-	10.235
Total Adjustments	0.000	5.803	-0.763	-	-0.763
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.600			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-0.597			
• Defense Wide Review Reduction	-	-	-0.583	-	-0.583
• Inflation for Civilian Pay	-	-	0.017	-	0.017
• Inflation for Non-Pay/Non-Fuel Purchases	-	-	-0.010	-	-0.010
• Internal Realignment	-	-	-0.187	-	-0.187

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

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 Subtotals for Project: 04

Congressional Add Totals for all Projects

	FY 2019	FY 2020
Congressional Add Subtotals for Project: 04	7.000	10.000
Congressional Add Totals for all Projects	7.000	10.000

Change Summary Explanation

FY2020, \$3.600 million reduction OSD Enacted FY2020 adjustments due to prior year carryover.

FY2020, \$10.000 million Congressional Addition for program increase steel performance initiative in Castings.

FY2020, the Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$0.597 million.

FY2021, internal realignment decreased program baseline by \$0.186 million for critical Defense Property Accountability System redesign and upgrade requirements.

The FY 2021 funding request was reduced by \$0.583 million during the Defense-Wide Review to free up resources for higher priority Department needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
EMM: <i>Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)</i>	8.754	3.758	2.075	2.729	-	2.729	2.775	2.886	2.900	2.970	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.

The Strategic Distribution & Disposition (SDD) Program collaborates with DLA Distribution and Disposition Services to identify legacy capabilities that are inadequate for emerging worldwide distribution and disposition requirements. A key objective of the SDD Program is to anticipate, assess, and meet the current and future Warfighter requirements by leveraging R&D to infuse innovation into solutions. Long-term objectives include mitigating the DoD Supply Chain Management high risk issues identified by the Government Accountability Office (GAO), 2018 (Inventory Management, Material Distribution and Asset Visibility).

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

	FY 2019	FY 2020	FY 2021
Title: Enhancing Analysis, Modeling, and Decision Support	3.758	2.075	2.729
FY 2020 Plans:			
The Medical Logistics Network (MLN) 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. Assessments are currently being conducted for viable R&D projects for the budgeted amounts. MLN baseline was reduced by approximately \$0.165 million resulting from overall LOG R&D \$3.600 million reduction OSD Enacted FY2020 adjustments due to prior year carryover. No planned projects are impacted.			
The Strategic Distribution and Disposition (SDD) 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			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p>areas of research such as Blockchain, Artificial Intelligence, Machine Learning, Internet of Things (IoT), Augmented Reality, and Autonomous/Robotics systems. SDD baseline was reduced by approximately \$0.907 million resulting from overall LOG R&D \$3.600 million reduction OSD Enacted FY2020 adjustments due to prior year carryover. Impact of the baseline reduction will cause project delays or cancellations in support of the DLA Distribution Modernization Program initiatives, one of DLA Strategic Imperatives.</p> <p>FY 2021 Plans: Due to directed fiscal reductions, the Medical Logistics Network (MLN) program baseline was reduced to zero. Currently, there are no planned projects that will be impacted by the reduction.</p> <p>The Strategic Distribution and Disposition (SDD) program will continue to provide applied research, analytical and decision support to DLA Distribution and Disposition Services and provide support to the Distribution Modernization Program (DMP). 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. SDD will continue to incorporate Integrate Project Teams (IPT) for project collaboration and Integrated System Engineering concepts (test and evaluation) into Distribution projects.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Adjustments of \$0.566 million due to DLA Fiscal Guidance reduction, civilian pay inflation, inflation for non-pay/non-fuel purchases and internal realignment. Reduction zeroed-out the Medical Logistics Network Program baseline, no projects currently planned.</p>			
Accomplishments/Planned Programs Subtotals	3.758	2.075	2.729

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 2021 Defense Logistics Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
GLTD: <i>Improving Logistics Processes (formerly Logistics Process)</i>	19.502	3.568	2.588	4.044	-	4.044	4.114	4.258	4.277	4.376	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 support DLA business functional units through applied research and development of advanced technologies to improve business processes and operational methods, leverage the application of leading edge logistics “out-of-the box” concepts using disruptive technology business tools, and support DLA’s technological transformation effort. 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 for this budget cycle is in Procurement, Planning, Technical Quality and the Major Subordinate Commands.

Innovative process changes and new technologies will be researched in these areas to drive improvements to internal costs, reduce award delays, and improve material availability, supply chain security, demand forecasting and logistical planning. This will be accomplished through the use of artificial intelligence/machine learning, blockchain technology, and research of emerging commercial best practices and technologies.

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

	FY 2019	FY 2020	FY 2021
Title: Improving Logistics Processes (ILP)	3.568	2.588	4.044
FY 2020 Plans:			
The Weapon Systems Sustainment (WSS) program will continue to explore new use case studies for disruptive technologies. Additional areas of interest for the five year artificial intelligence roadmap include the ability to effectively manage metadata in DLA systems to enable enterprise-wide adoption of new capabilities, development of a predictive analytics capability for backorders, and using machine learning techniques to improve operation plan logistic estimates. Projects are planned to research incorporating internet-based purchases and a contract quality control program into DLA’s acquisition processes as well as expansion of capabilities to gather and utilize market intelligence. WSS baseline was reduced by approximately \$1.335 million resulting from overall LOG R&D \$3.600 million reduction OSD Enacted FY2020 adjustments due to prior year carryover. Impact of the baseline reduction will cause project delays or cancellations in support of the DLA Strategic Imperatives for exploring AI/ML technologies for Predictive Analytics as well as Market Intelligence and Supply Chain security projects.			
FY 2021 Plans:			
The Weapon System Sustainment (WSS) program will continue research of artificial intelligence / machine learning capabilities to identify readiness drivers for retail parts support and predict vendor / distributor vulnerabilities that will impact the supply chain.			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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)	FY 2019	FY 2020	FY 2021
Projects to leverage the Services' advances in predictive maintenance and condition based maintenance programs will continue to identify opportunities to improve DLA planning processes and retail operations. In addition, the program will collaborate with academia to research capabilities to improve the ability to acquire items with diminishing manufacturing sources or material shortages. FY 2020 to FY 2021 Increase/Decrease Statement: No significant change.			
Accomplishments/Planned Programs Subtotals	3.568	2.588	4.044

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 2021 Defense Logistics Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>04: Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)</i>	17.483	10.801	11.957	3.462	-	3.462	3.466	3.535	3.743	3.825	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 2019	FY 2020	FY 2021
Title: Emergent Logistics R&D Requirements	3.801	1.957	3.462
FY 2020 Plans:			
The Energy Readiness Program (ERP) 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.			
The Supply Chain Management (SCM) program will continue to address the emerging capabilities shortfalls that occur in the supply chain through major research opportunities.			
FY 2021 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p>The Energy Readiness Program (ERP) 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 (SCM) program will continue to address emergent and out of budget cycle requirements and opportunities within DLA's supply chains. The SCM program will expand blockchain projects across the Joint Deployment and Distribution Enterprise (JDDE). SCM baseline was reduced by approximately \$0.477 million resulting from overall LOG R&D \$3.600 million reduction OSD Enacted FY2020 adjustments due to prior year carryover. Impact of the baseline reduction will decrease the availability of funds for emergent technology solutions for the LOG R&D Program, to include blockchain technologies.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: No significant change.</p>			
Accomplishments/Planned Programs Subtotals	3.801	1.957	3.462

	FY 2019	FY 2020
Congressional Add: Energy Readiness Program for Liquid Hydrocarbon Fuels	7.000	10.000
FY 2019 Accomplishments: Developed innovative technologies to produce hydrocarbon biofuels from cellulosic (plant/vegetable) matter. This effort further developed the upscaling of woody biomass-to-fuel processes.		
FY 2020 Plans: \$5.000 million program increase for fuel conversion and \$5.000 million for liquid hydro-carbon fuel.		
Congressional Adds Subtotals	7.000	10.000

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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>

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-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	722.502	192.926	200.530	124.049	-	124.049	126.051	138.442	142.730	146.709	Continuing	Continuing
001: <i>Technology Development</i>	374.198	71.819	110.657	45.429	-	45.429	46.503	48.229	49.857	50.808	Continuing	Continuing
003: <i>Trusted Foundry</i>	348.304	121.107	89.873	78.620	-	78.620	79.548	90.213	92.873	95.901	Continuing	Continuing

A. Mission Description and Budget Item Justification

DMEA's mission is to leverage advanced technologies to provide microelectronics solutions across the entire spectrum of technology development and system acquisition phases. It is critical to National Security for the Department to maintain technological superiority through microelectronics solutions even when industry is unable or unwilling to provide them. DMEA provides an in-house capability to quickly develop and deliver timely, cost-effective, technically appropriate solutions to sustain weapon systems, to modernize their capabilities, increase their lethality, address new threats, and meet operational demands. DMEA augments its in-house capability through extensive industry and government partnerships that enable streamlined access to a variety of microelectronics technologies and engineering services to enhance responsiveness, and that develop sources for Trusted microelectronics.

DMEA's capabilities are critical in an atmosphere of diminishing domestic semiconductor manufacturing capability and increasing worldwide supply chain risks. The Department has very little influence over the microelectronics industry; the defense market represents less than 0.1% share of the total global semiconductor market. Assured access to Legacy, State of the Practice (SOTP) and State of the Art (SOTA) technologies is therefore a major and growing challenge. Threats to defense microelectronics include counterfeiting, Trojan horses, specific reliability issues in military environments, consolidation and off-shoring of manufacturing, rapid obsolescence and diminishing technology availability coming from an unpredictable and unsecured supply chain. In addition, as the Department maintains its weapon systems longer than originally planned, extended use increases demand for sustainment and modernization, which further intensifies the need for DMEA's unique capabilities.

The Technology Development program (P001) provides the Department with DMEA engineering expertise and laboratories to address the myriad microelectronics issues and to meet military requirements across the entire spectrum of technology research and development, acquisition, and long-term support. DMEA applies its specialized capabilities to resolve microelectronics issues for hundreds of distinct Department programs across the acquisition lifecycle every year. In addition, DMEA assists the Combatant Commands (COCOMs) including Special Ops, Cyber, Intelligence, and the Radiation-Hard communities.

The Trusted Foundry program (P003) 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 Trusted Foundry 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	192.926	171.771	156.427	-	156.427
Current President's Budget	192.926	200.530	124.049	-	124.049
Total Adjustments	0.000	28.759	-32.378	-	-32.378
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	35.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-6.241			
• Inflation for Civilian Pay	-	-	0.613	-	0.613
• Inflation for Non-Pay/Non-Fuel Purchases	-	-	-0.135	-	-0.135
• Internal Realignment	-	-	-32.653	-	-32.653
• Fourth Estate Network Optimization (4ENU)	-	-	-0.203	-	-0.203

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

Project: 001: Technology Development

Congressional Add: *Cyber Accelerator Increase*

Congressional Add: *GaN-on-Si-Based RF Front-end Increase*

Congressional Add Subtotals for Project: 001

Project: 003: Trusted Foundry

Congressional Add: *Trusted Foundry*

Congressional Add Subtotals for Project: 003

Congressional Add Totals for all Projects

	FY 2019	FY 2020
	-	30.000
	-	5.000
Congressional Add Subtotals for Project: 001	-	35.000
	30.000	-
Congressional Add Subtotals for Project: 003	30.000	-
Congressional Add Totals for all Projects	30.000	35.000

Change Summary Explanation

FY2020, program received Congressional Add of \$30.000 million for cyber accelerator and a \$5.000 million increase for GaN-on-Si-Based RF Front-end. FY2020, the Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$6.241 million. FY2021, internal realignment decreased baseline by \$32.653 million. \$30.000 million was realigned for Research & Engineering (R&E) prioritization and \$2.653 million for critical Defense Property Accountability System redesign and upgrade requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
001: <i>Technology Development</i>	374.198	71.819	110.657	45.429	-	45.429	46.503	48.229	49.857	50.808	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Technology Development funds provide DMEA with the resources to maintain an in-house ability to quickly develop and deliver timely, cost-effective, technically appropriate solutions to sustain weapon systems, to modernize their capabilities, increase their lethality, address new threats, and meet operational demands. These funds also support DMEA's ability to partner with industry, other government agencies, and academia to enable streamlined access to a variety of microelectronics technologies and engineering services.

These funds enable DMEA to provide increasingly rare government microelectronics design, fabrication, and test expertise to DoD programs. DMEA's knowledge of varying military requirements across a broad and diverse range of combatant environments and missions—along with its unique technical perspective—allows it to develop, manage and deliver novel, decisive, quick turn microelectronics solutions for defense, intelligence, special operations, and cyber and combat missions.

These funds allow DMEA to maintain and enhance critical, Trusted microelectronics design, aggregation, fabrication, post-processing, assembly and analysis capabilities to ensure that the Department is provided with solutions that enable or maintain the warfighter's technological superiority over potential adversaries. These solutions use high mix, low volume, unique microelectronics that are endemic to military requirements but are not commercially available. In addition, funding provides for the research, development and support necessary to ensure availability of microelectronics technologies for weapon systems, particularly as the technologies advance and industry is increasingly unable or unwilling to provide them.

DMEA looks to industry to see if it can provide the required solutions. If industry cannot or will not, only then does DMEA provide the necessary solutions using its in-house capabilities. A critical element required to enable continued success is DMEA's protection of the industry partners' valuable Intellectual Property (IP) and processes. DMEA is a small, agile government-owned and operated organization, providing the structure and confidence necessary to assure them that commercial 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.

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. Programs that DMEA has recently provided critical support to include Counter-Rocket, Artillery, and Mortar (C-RAM) System, C-5, V-22, F-15, F-35, RQ-4 Global Hawk, AEGIS Advanced Surface Missile System, Advanced Medium-Range Air-to-Air Missile (AMRAAM), HH-60G Pave Hawk Helicopter, OSD Joint Fuze Technology Program, among many others. DMEA assists the Combatant Commands (COCOMs) including Special Operations, Intelligence, and the Radiation-Hard communities.

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

	FY 2019	FY 2020	FY 2021
Title: Technology Development Accomplishments/Plans	71.819	75.657	45.429

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p><i>FY 2020 Plans:</i> 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), Special Operations, and the Intelligence Community 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 extend capability by recapitalizing and modernizing its aging laboratory infrastructure, 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.</p> <p><i>FY 2021 Plans:</i> 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), Special Operations, and the Intelligence Community 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 extend and refresh capability by recapitalizing and modernizing its aging laboratory infrastructure, 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.</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The FY2020 to FY2021 decrease is due to reduction in funding of the top four FY2018 microelectronics initiatives, and also in association with the Fourth Estate IT optimization.</p>			
Accomplishments/Planned Programs Subtotals	71.819	75.657	45.429

	FY 2019	FY 2020
<i>Congressional Add:</i> Cyber Accelerator Increase	-	30.000
<i>FY 2020 Plans:</i> \$30M increase for cyber accelerator		
<i>Congressional Add:</i> GaN-on-Si-Based RF Front-end Increase	-	5.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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>
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	FY 2019	FY 2020
FY 2020 Plans: \$5M increase for GaN-on-Si-Based RF Front-end		
Congressional Adds Subtotals	-	35.000

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 2021 Defense Logistics Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
003: <i>Trusted Foundry</i>	348.304	121.107	89.873	78.620	-	78.620	79.548	90.213	92.873	95.901	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 2019	FY 2020	FY 2021
Title: Trusted Foundry	91.107	89.873	78.620
FY 2020 Plans: Facilitate the availability of Trusted and commercial state-of-the-art semiconductor technology to Department 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			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p>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 2021 Plans: Facilitate the availability of Trusted and commercial state-of-the-art semiconductor technology to Department 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 2020 to FY 2021 Increase/Decrease Statement: FY2020 to FY2021 program reflects a continuation in funding for FY2019 microelectronics initiatives, including access to the GlobalFoundries 14 nm foundry.</p>			
Accomplishments/Planned Programs Subtotals	91.107	89.873	78.620

	FY 2019	FY 2020
Congressional Add: Trusted Foundry	30.000	-
FY 2019 Accomplishments: DMEA funded GlobalFoundries US2 (GFUS2) in Burlington, VT, to accomplish Multi-Project Wafer (MPW) runs in 5G-capable processes and at the 14nm node. DMEA also funded GFUS2 to accomplish qualification of a domestic 14nm mask manufacturing capability. In addition, DMEA conducted an assessment of machine vision and counterfeit detection tools in accordance with section 843 of the 2019 National Defense Authorization Act.		
Congressional Adds Subtotals	30.000	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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 0605070S / <i>DoD Enterprise Systems Development and Demonstration</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	27.058	3.057	2.291	1.377	-	1.377	0.687	0.712	0.728	0.745	Continuing	Continuing
09: <i>Enterprise Funds Distribution</i>	27.058	3.057	2.291	1.377	-	1.377	0.687	0.712	0.728	0.745	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). DoD's business enterprise must be closer to its warfighting customers than ever before, and Joint military requirements drive the need for greater commonality and integration of business and financial operations.

B. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	3.057	2.378	1.481	-	1.481
Current President's Budget	3.057	2.291	1.377	-	1.377
Total Adjustments	0.000	-0.087	-0.104	-	-0.104
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-0.087			
• Defense Wide Review Reduction	-	-	-0.078	-	-0.078
• Internal Realignment	-	-	-0.025	-	-0.025
• Inflation for Non-Pay/Non-Fuel Purchases	-	-	-0.001	-	-0.001

Change Summary Explanation

FY2020, the Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$0.087 million.

FY2021, internal realignment decreased program baseline by \$0.025 million for critical Defense Property Accountability System redesign and upgrade requirements.

The FY 2021 funding request was reduced by \$0.078 million during the Defense-Wide Review to free up resources for higher priority Department needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
09: Enterprise Funds Distribution	27.058	3.057	2.291	1.377	-	1.377	0.687	0.712	0.728	0.745	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Enterprise Funds Distribution (EFD) is a multi-service/multi-agency process improvement and modernization solution, initiated to provide full visibility of the OUSD(C) funds distributed through echelon I and II for the Military Departments, and at all levels for the Defense Agencies. 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 2019	FY 2020	FY 2021
Title: Enterprise Funds Distribution (EFD)	3.057	2.291	1.377
Description: EFD will distribute funds to the Military Departments and the Defense Agencies.			
FY 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p>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 2021 Plans: The program will continue the development and deployment of EFD post Wave 3 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 2020 to FY 2021 Increase/Decrease Statement: FY2021 is lower due to the majority of EFD's development to be completed in FY2020.</p>			
Accomplishments/Planned Programs Subtotals	3.057	2.291	1.377

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

N/A

Remarks

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Logistics Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	14.158	14.158
TeraThink Corporation	C/FFP	TeraThink Corporation : Reston, VA	11.408	3.057	Dec 2018	2.291	Dec 2019	1.377	Dec 2020	-		1.377	Continuing	Continuing	Continuing
TBD	C/FFP	TBD : TBD	1.492	0.000		-		-		-		-	0.000	1.492	1.492
Prior Year Contracts	Option/Various	Multiple : Multiple	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			27.058	3.057		2.291		1.377		-		1.377	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	27.058	3.057	2.291	1.377	-	1.377	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Logistics Agency		Date: February 2020
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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

Enterprise Funds Distribution (EFD)	
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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Logistics Agency		Date: February 2020
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

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Wave 1 Deployment				
Development Activities using Momentum Financials ERP	1	2017	4	2018
Wave 2 Deployment				
The program will continue the development and deployment of EFD post Wave 2 requirements based on user group migration strategy. Also deploy additional accounts and dev activities.	1	2019	4	2019
Wave 3 Deployment				
The program will continue the development and deployment of EFD post Wave 3 requirements based on user group migration strategy. Also deploy additional accounts and dev activities.	1	2020	4	2020
Post Waves 1, 2 and 3 Development				
SCRs, Momentum Upgrade Development, Break-Fix Development	4	2020	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	161.063	20.384	23.114	20.537	-	20.537	23.390	24.242	24.844	24.919	Continuing	Continuing
01: Defense Agencies Initiative - Financial System	161.063	20.384	23.114	20.537	0.000	20.537	23.390	24.242	24.844	24.919	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 0491

A. Mission Description and Budget Item Justification

Defense Agencies Initiative (DAI) provides capability to produce timely, auditable reports. This program supports continued development and fielding of Increment 3, a Category I Defense Business System. Previous funding for DAI Increments 1 and 2 was 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)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	20.384	27.944	22.102	-	22.102
Current President's Budget	20.384	23.114	20.537	-	20.537
Total Adjustments	0.000	-4.830	-1.565	-	-1.565
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-4.000	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-	-0.830	-	-	-
• Defense Wide Review Reduction	-	-	-1.171	-	-1.171
• Inflation for Non-Pay/Non-Fuel Purchases	-	-	-0.019	-	-0.019
• Internal Realignment	-	-	-0.375	-	-0.375

Change Summary Explanation

FY2020, \$4.000 million reduction due to prior year carryover. The \$4.000 million reduction will delay the planned implementation of DAI to the Defense Finance & Accounting Service (DFAS) and will critically hinder the development maturation of Budget Formulation and access control along with major delay in answering audit findings across the Enterprise.

FY2020, the Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$0.830 million.

FY2021, internal realignment decreased baseline by \$0.375 million for critical Defense Property Accountability System redesign and upgrade requirements.

The FY 2021 funding request was reduced by \$1.171 million during the Defense-Wide Review to free up resources for higher priority Department needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
01: <i>Defense Agencies Initiative - Financial System</i>	161.063	20.384	23.114	20.537	0.000	20.537	23.390	24.242	24.844	24.919	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. DAI has replaced several different non-compliant financial management systems supporting diverse operational functions and the warfighter in decision-making and financial reporting. DAI currently provides the capability to produce timely, auditable reports as noted in three consecutive annual unmodified Statement on Standards for Attestation Engagements No. 18 (SSAE 18) engagements.

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 supports 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 fully 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 deploys 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 2018 National Defense Strategy (NDS) Strategic Goal 3, "Reform the Department's Business Practices for Greater Performance and Affordability as well as Strategic Objectives (SO) 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 2021 Defense Logistics Agency	Date: February 2020
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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>
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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)).

DAI is currently implemented at 23 Defense Agencies and the Office of the Under Secretary of Defense, Comptroller (OUSD(C)). DAI supports over 62,000 personnel including, 45,600 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 SSAE 18 assertion packages. In 2017, 2018, and 2019, the system received an unmodified SAE 18 report with no comments.

The benefits of DAI are:

- 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.

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.

DLA provides the Milestone Decision Authority (DLA Acquisition), and 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) data centers 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p>Title: Defense Agencies Initiative (DAI) - Financial System</p> <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 and two smaller ones (over 19,000 users). • Development/Testing for DWCF and agency unique requirements and complete the study of 4th Estate common/core capabilities. • Work instructions and training materials. • Mature the Financial Management (FM) & time/labor operations for over 45,000 users at over 23 Agencies, Field Activities and organizations. • Support the DoD Risk Management Framework (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 Designated Approving Authority (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. • Mature 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 Defense Enterprise Computing Center (DECC) enclaves; & the daily operation of several interfaces with external systems leveraging DLA Defense Automated Addressing System (DAAS), 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 2021 Plans: In FY2021, the DAI PMO will:</p> <ul style="list-style-type: none"> • Field DAI Increment 3 Rel 3 DWCF accounting maturation to users at existing agencies DCSA, DISA and Defense Finance Accounting Service (DFAS) (over 19k users). • Development/Testing for DWCF and agency unique requirements and complete the study of 4th Estate common/core capabilities. • Work instructions and training materials. • Mature the Financial Management (FM) & time/labor operations for over 65k users at over 26 Agencies, Field Activities and organizations. 	20.384	23.114	20.537

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p>Work instructions and training materials.</p> <ul style="list-style-type: none"> • 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 as well as Transactions supporting audit findings, recommendations & CAPs. • Mature 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 Defense Automated Addressing System (DAAS), as well as established Federal Enterprise system web services. <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> FY 2021 development will complete developing DWCF accounting requirements, necessary to serve as core and meet DeCA requirements, Joint Chiefs of Staff (JCS) and National Defense University (NDU) integrations or objects. In FY 2020, DAI will also deploy to DeCA, JCS and NDU.</p>			
Accomplishments/Planned Programs Subtotals	20.384	23.114	20.537

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

N/A

Remarks

D. Acquisition Strategy

DAI is 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.

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Logistics Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	31.280	0.000		5.854	Jun 2020	5.000	Jun 2021	0.000		5.000	Continuing	Continuing	0.000
DAI Compliance Support Follow-on	C/TBD	TBD : TBD	0.000	5.911	Jun 2019	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
DAI Implementation Support	Option/CPAF	CACI Inc Federal : Chantilly, VA	28.402	0.000		5.496	Mar 2020	4.970	Mar 2021	0.000		4.970	Continuing	Continuing	0.000
DAI Implementation Support Follow-on	C/TBD	TBD : TBD	0.000	6.336	Mar 2019	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
DAI Infrastructure Support	Option/FFP	CACI ISS Inc : Fairfax, VA	14.476	0.000		4.000	May 2020	2.118	May 2021	0.000		2.118	Continuing	Continuing	0.000
DAI Infrastructure Support Follow-on	C/TBD	TBD : TBD	0.000	1.985	May 2019	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Global Model P2P Follow-on	C/TBD	TBD : TBD	3.418	0.000		2.408	Aug 2020	2.542	Aug 2021	0.000		2.542	Continuing	Continuing	Continuing
Global Model A2R Follow-on	C/TBD	TBD : TBD	2.333	2.403	Apr 2019	1.342	Apr 2020	2.336	Apr 2021	0.000		2.336	Continuing	Continuing	Continuing
Requirements Management (RM) Support	MIPR	DISA : Fort Meade, MD	1.113	0.159	Oct 2019	0.262	Oct 2020	0.256	Oct 2021	0.000		0.256	Continuing	Continuing	Continuing
DCPDS/DAI Interface File Changes	MIPR	DLA Finance : Fort Belvoir, VA	0.027	0.010	Feb 2019	0.008	Feb 2020	0.008	Feb 2021	0.000		0.008	Continuing	Continuing	Continuing
Prior Year Contracts	Option/Various	MULTI : MULTI	54.057	-		-		-		-		-	0.000	54.057	54.057
Subtotal			135.106	16.804		19.370		17.230		0.000		17.230	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 2021 Defense Logistics Agency												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
0400 / 5				PE 0605080S / Defense Agencies Initiative (DAI) - Financial System				01 / Defense Agencies Initiative - Financial System							
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Estimated SBIR/STTR:	TBD	TBD : TBD	2.004	0.785	Jun 2019	0.864	Jun 2020	0.807	Jun 2021	0.000		0.807	Continuing	Continuing	Continuing
Subtotal			2.004	0.785		0.864		0.807		0.000		0.807	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
DISA Hosting: Test and Development	MIPR	DISA : Pensacola, FL	12.938	0.894	Oct 2018	2.245	Oct 2019	2.000	Oct 2021	0.000		2.000	Continuing	Continuing	Continuing
Interoperability	MIPR	JITC : Fort Meade, MD	3.688	0.290	May 2019	0.222	May 2020	0.200	May 2021	0.000		0.200	Continuing	Continuing	Continuing
Performance and Regression Testing	MIPR	JITC : Fort Huachuca, AZ	3.367	0.600	Oct 2018	0.313	Oct 2019	0.300	Oct 2021	0.000		0.300	Continuing	Continuing	Continuing
Operational Test and Evaluation	MIPR	JITC : Fort Huachuca, AZ	3.731	1.011	Dec 2018	0.000	Dec 2019	0.000	Dec 2021	0.000		0.000	Continuing	Continuing	Continuing
DCPS Testing	MIPR	DFAS : Indianapolis, IN	0.229	0.000	Oct 2018	0.100	Oct 2019	0.000		0.000		0.000	Continuing	Continuing	Continuing
Subtotal			23.953	2.795		2.880		2.500		0.000		2.500	Continuing	Continuing	N/A
Project Cost Totals			161.063	20.384		23.114		20.537		0.000		20.537	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Logistics Agency		Date: February 2020
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>				
DAI - - See schedule exhibit for more details	1	2018	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605090S / Defense Retired and Annuitant Pay System 2 (DRAS2)
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	45.566	10.339	6.368	1.638	-	1.638	1.664	1.726	1.770	1.775	Continuing	Continuing
01: Defense Retired and Annuitant Pay System 2 (DRAS2)	45.566	10.339	6.368	1.638	-	1.638	1.664	1.726	1.770	1.775	Continuing	Continuing

A. Mission Description and Budget Item Justification

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	10.339	6.609	1.763	-	1.763
Current President's Budget	10.339	6.368	1.638	-	1.638
Total Adjustments	0.000	-0.241	-0.125	-	-0.125
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-0.241			
• Internal Realignment	-	-	-0.030	-	-0.030
• Defense Wide Review Reduction	-	-	-0.093	-	-0.093
• Inflation for Non-Pay/Non-Fuel Purchases	-	-	-0.002	-	-0.002

Change Summary Explanation

FY2020, the Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$0.241 million.

FY2021, internal realignment decreased baseline by \$0.029 million for critical Defense Property Accountability System redesign and upgrade requirements.

The FY 2021 funding request was reduced by \$0.093 million during the Defense-Wide Review to free up resources for higher priority Department needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605090S / Defense Retired and Annuitant Pay System 2 (DRAS2)	Project (Number/Name) 01 / Defense Retired and Annuitant Pay System 2 (DRAS2)
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
01: Defense Retired and Annuitant Pay System 2 (DRAS2)	45.566	10.339	6.368	1.638	-	1.638	1.664	1.726	1.770	1.775	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DRAS2 will streamline processes and provide auditable, sustainable and flexible retiree and annuitant pay capability to meet user's needs. 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 2019	FY 2020	FY 2021
Title: Defense Retired and Annuitant Pay System 2 (DRAS2)	10.339	6.368	1.638
FY 2020 Plans: Data migration from the legacy DRAS to the new DRAS2 will begin in FY2020. It is anticipated the data migration may extend the schedule. FY2019 funding delays resulted in an 80% staffing reduction which compounded the schedule delay.			
FY 2021 Plans: DRAS2 formal testing will begin in early FY2021 and is scheduled to conclude in early FY2022. The current FY2021 budget will support development through October 2020.			
FY 2020 to FY 2021 Increase/Decrease Statement: Current FY2020 to FY2021 exhibit was based on the expectation that DRAS2 would be in sustainment in FY2021.			
Accomplishments/Planned Programs Subtotals	10.339	6.368	1.638

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-3, RDT&E Project Cost Analysis: PB 2021 Defense Logistics Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605090S / Defense Retired and Annuitant Pay System 2 (DRAS2)	Project (Number/Name) 01 / Defense Retired and Annuitant Pay System 2 (DRAS2)
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	23.410	4.505	Oct 2018	5.568	Oct 2019	1.638	Oct 2020	-		1.638	Continuing	Continuing	Continuing
DRAS2 COTS License Purchase	Option/ IDIQ	CSRA/Oracle : To be Determined	14.029	0.000		0.000		0.000		-		0.000	Continuing	Continuing	14.110
DISA Hosting	MIPR	Virtual Operating Environment : Mechanicsburg, PA	1.769	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	4.202	0.000		0.000		0.000		-		0.000	Continuing	Continuing	4.162
Transaction Services Interface Development & Testing	Option/ IDIQ	Northrop Grumman DLA Transaction Services : Chambersburg, PA	1.354	0.720	Jul 2019	0.800	Jul 2020	0.000		-		0.000	Continuing	Continuing	Continuing
DRAS2 System Development & Integration	Option/ IDIQ	CSRA : Chantilly, VA	0.802	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	1.542	Oct 2018	0.000	Oct 2019	0.000		-		0.000	Continuing	Continuing	Continuing
Training Effort	C/TBD	To be determined : To be determined	0.000	1.410	Jun 2019	0.000	Jun 2020	0.000		-		0.000	Continuing	Continuing	2.196
Subtotal			45.566	10.339		6.368		1.638		-		1.638	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		45.566	10.339	6.368	1.638	-	1.638	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Logistics Agency

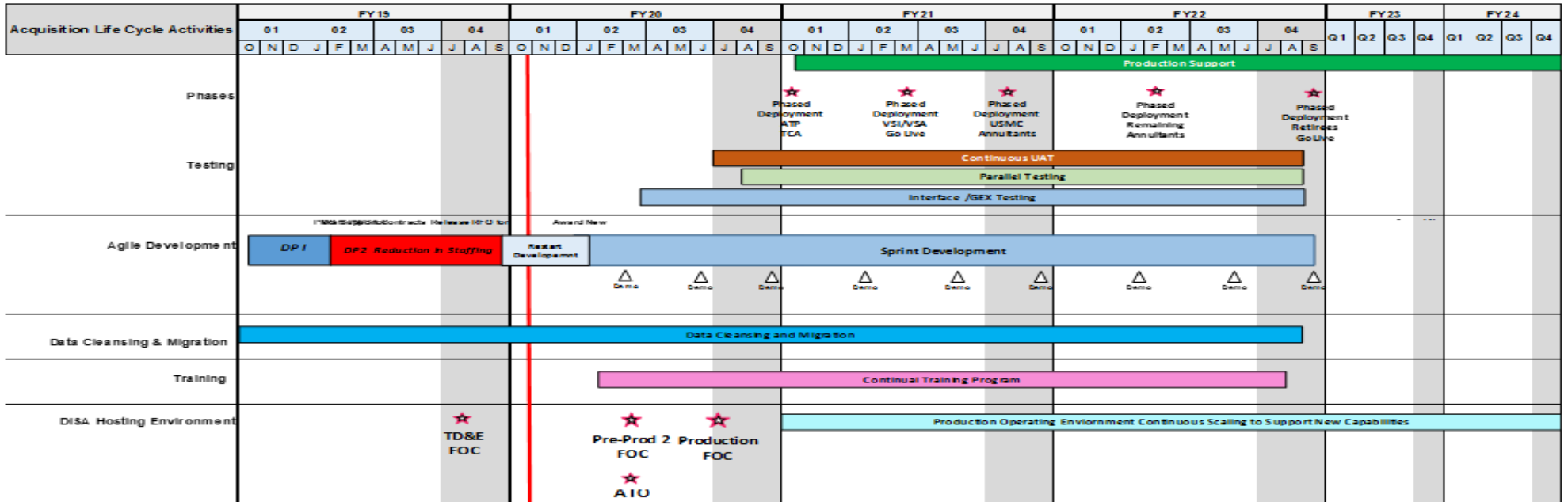
Date: February 2020

Appropriation/Budget Activity
0400 / 5

R-1 Program Element (Number/Name)
PE 0605090S / Defense Retired and
Annuitant Pay System 2 (DRAS2)

Project (Number/Name)
01 / Defense Retired and Annuitant Pay
System 2 (DRAS2)

DRAS2 Schedule



As of October 30, 2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)											
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support</i>	PE 0605502S / <i>Small Business Innovative Research (SBIR)</i>											
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	39.228	10.454	10.027	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
SBIR: <i>Small Business Innovative Research</i>	39.228	10.454	10.027	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	10.454	0.000	0.000	-	0.000
Current President's Budget	10.454	10.027	0.000	-	0.000
Total Adjustments	0.000	10.027	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	10.027			

Change Summary Explanation

FY2020 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 \$3.787 million.

FY2020, in addition to the DLA portion, Defense Microelectronics Agency (DMEA) funds \$6.241 million.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
SBIR: <i>Small Business Innovative Research</i>	39.228	10.454	10.027	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
- Seamless Self Sealing Fuel Bladders and Inflatables
- Advanced Battery Manufacturing
- Advanced Aircraft Braking Systems
- Anti-Counterfeiting Technologies
- Strategic Materials Rare Earth Element Source Development
- Warehouse Modernization Technologies
- Subsistence Supply Chain Solutions

DMEA

- Advanced microelectronics concepts, technologies, and applications

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

	FY 2019	FY 2020	FY 2021
Title: SBIR Accomplishments/Plans	10.454	10.027	0.000
FY 2020 Plans: DLA SBIR/STTR:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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 2019	FY 2020	FY 2021
<p>Continue execution of all active Phase I and Phase II SBIR/STTR Projects. Work with other R&D Programs and other divisions with 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 2021 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 with 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: Continue to seek innovative technical solutions to DoD microelectronics research and development needs and increase private-sector commercialization of these innovations.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: SBIR and STTR tax amounts are based on enacted budgets so FY2020 amounts have not been established.</p>			
Accomplishments/Planned Programs Subtotals	10.454	10.027	0.000

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)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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 0606942S / <i>Cyber Vulnerability Assessment and Mitigation</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	3.854	0.000	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	3.854	0.000	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 Network by conducting cyber vulnerability assessments.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	3.854	0.000	0.000	-	0.000
Current President's Budget	3.854	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

This DLA PE was created in FY 2019 and was utilized for only that year. DLA has not funded this initiative since 2019, and currently the follow-on efforts for this program are funded utilizing the OUSD(C) PE 0604942D8Z, titled "Assessments and Evaluation."

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>CVAM: Cyber Vulnerability Assessment and Mitigation</i>	0.000	3.854	0.000	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 Network by conducting cyber vulnerability assessments.

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

	FY 2019	FY 2020	FY 2021
Title: Cyber Vulnerability Assessment and Mitigation	3.854	-	-
Accomplishments/Planned Programs Subtotals	3.854	-	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0708047S / Defense Property Accountability System (DPAS)
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	4.892	1.739	3.545	7.301	-	7.301	6.914	2.967	3.043	3.052	Continuing	Continuing
ABC: DPAS	4.892	1.739	3.545	7.301	-	7.301	6.914	2.967	3.043	3.052	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Property Accountability System (DPAS) provides the Department an asset 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)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	1.739	3.679	3.489	-	3.489
Current President's Budget	1.739	3.545	7.301	-	7.301
Total Adjustments	0.000	-0.134	3.812	-	3.812
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-0.134			
• Internal Realignment	-	-	4.000	-	4.000
• Defense Wide Review Reduction	-	-	-0.185	-	-0.185
• Inflation for Non-Pay/Non-Fuel Purchases	-	-	-0.003	-	-0.003

Change Summary Explanation

FY2020, the Small Business Innovation Research and Small Technology Transfer Research tax amounted to \$0.134 million.
 FY2021, internal realignment increased DPAS baseline by \$4.000 million for critical program redesign and upgrade requirements.
 The FY 2021 funding request was reduced by \$0.185 million during the Defense-Wide Review to free up resources for higher priority Department needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
ABC: DPAS	4.892	1.739	3.545	7.301	-	7.301	6.914	2.967	3.043	3.052	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 operation, and provide solutions for process gaps as they are discovered. The greater enhancements to DPAS allow the DoD to sunset legacy systems as DPAS assimilates the legacy functionality into the overall operations.

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

	FY 2019	FY 2020	FY 2021
<p>Title: Release DPAS v 7</p> <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>	1.739	-	-
<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 where DPAS can assist with capabilities to close audit identified deficiencies.</p> <p>FY 2021 Plans: DPAS will transform it's base architecture to facilitate sharing of asset and financial data elements across the three major DPAS modules improving system efficiency and streamlining its use.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: No significant change.</p>	-	3.545	7.301
Accomplishments/Planned Programs Subtotals	1.739	3.545	7.301

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Logistics Agency **Date:** February 2020

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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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	4.892	1.739	Jun 2019	0.000		0.000		-		0.000	0.000	6.631	6.631
DPAS Version 8 Development	C/FFP	Leidos Inc : Camp Hill PA	0.000	0.000		3.545	Jun 2020	0.000		0.000		0.000	0.000	3.545	3.545
DPAS Development Version 2021.1	SS/FFP	Leidos, Inc. : Camp Hill Pa	0.000	0.000		0.000		7.301	Apr 2021	0.000		7.301	Continuing	Continuing	-
Subtotal			4.892	1.739		3.545		7.301		0.000		7.301	Continuing	Continuing	N/A

Remarks
Funding was reduced by \$1.142 million in FY2019 and increased by half the amount of the decrease in FY2020.

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.892	1.739	3.545	7.301	0.000	7.301	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Logistics Agency		Date: February 2020
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

Fiscal Year	FY2020				FY2021				FY2022				FY2023				FY2024				FY2025			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Research																								
Design																								
Development																								
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Implementation																								
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Implementation																								

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Logistics Agency		Date: February 2020
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

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Defense Property Accountability System (DPAS)</i>				
Defense Property Accountability System (DPAS)	4	2020	3	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	9.198	1.705	1.705	1.785	-	1.785	1.821	1.856	1.889	1.889	Continuing	Continuing
03: <i>Pacific Disaster Center</i>	9.198	1.705	1.705	1.785	-	1.785	1.821	1.856	1.889	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 and Sustainment) (OUSD(A&S)) 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 monitoring, early warning and decision support system, called RAPIDS, for the Department.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	1.705	1.770	1.785	-	1.785
Current President's Budget	1.705	1.705	1.785	-	1.785
Total Adjustments	0.000	-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			

Change Summary Explanation

FY2020, 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 2021 Defense Logistics Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
03: <i>Pacific Disaster Center</i>	9.198	1.705	1.705	1.785	-	1.785	1.821	1.856	1.889	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 2019	FY 2020	FY 2021
Title: Pacific Disaster Center (PDC)	1.705	1.705	1.785
Description: The USD(P) will continue to be the Operational Sponsor and functional OSD Principal Staff Assistant (PSA) for the program. USD(A&S) 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 and Sustainment) (OUSD(A&S)) 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 develops and provides policy, oversight and guidance, and jointly develops strategic guidelines, programmatic content and			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>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>FY 2020 Plans: The following 2020 projects and activities are designed to enhance the Center's applications and applied research enhancing operational readiness and analytical capabilities for the DoD and Stakeholders. - Situational Awareness & Decision Support Applications and Tools. Develop and enhance DisasterAWARE platform, and related applications, and tools that directly support operational readiness for effective multi-hazard early warning, monitoring, and evidence-based decision support functions. - Automation and Modeling for Disaster Monitoring, Warning, Exposure & Impact. Enhance automation and modeling services supporting comprehensive and integrated multi-hazard monitoring, situational awareness, notification/warning, exposure estimation, and impact modeling and assessments. - Analytics and Anticipatory Sciences. Advance analytical capabilities to better understand and project (or estimate) severity of impacts to population by characterizing the socio-economic, political, health, cultural, and environmental factors that are influencing risk and resilience to support more effective decision-making. - Disaster Response, Exercise Plan and Training Services. Provide direct 24/7 operational support to DoD, the interagency and other stakeholders before, during, and after disasters. - Data Management Services. Manage and maintain the most robust global data sets and related services to directly support DoD in meeting their interagency support requirements. - Partner Engagement and Liaison Services. Improve operational efficacy and efficiency of key DoD stakeholders DoD stakeholders by assisting in utilization and institutionalization of PDC's risk reduction expertise into their operations. - Cybersecurity and IT Infrastructure Services. Manage, administer, and maintain PDCs internal and external cyber infrastructure (including all computers, networks, systems, and applications) and provide a highly-available and secure computing and communication systems required for delivering reliable services and products to the stakeholders and the clients.</p> <p>FY 2021 Plans: Continue FY2020 operations.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: No significant change.</p>			
Accomplishments/Planned Programs Subtotals	1.705	1.705	1.785

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

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Logistics Agency **Date:** February 2020

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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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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Logistics Agency **Date:** February 2020

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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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>Pacific Disaster Center</i>	
Pacific Disaster Center (PDC)	

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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



Defense Security Cooperation Agency

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Department of Defense
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Feb 2020

Appropriation	FY 2019	FY 2020	FY 2020	FY 2020	FY 2020	FY 2020
	(Base + OCO)	Base Enacted	Emergency	OCO Enacted	OCO Enacted	Total Enacted (Base+Emerg+ OCO)
Research, Development, Test & Eval, DW	7,734	14,257				14,257
Total Research, Development, Test & Evaluation	7,734	14,257				14,257

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	6,294				6,294
Total Research, Development, Test & Evaluation	6,294				6,294

Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Summary Recap of Budget Activities					
Operational Systems Development	7,734	14,257			14,257
Total Research, Development, Test & Evaluation	7,734	14,257			14,257
Summary Recap of FYDP Programs					
Research and Development	7,734	14,257			14,257
Total Research, Development, Test & Evaluation	7,734	14,257			14,257

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities					
Operational Systems Development	6,294				6,294
Total Research, Development, Test & Evaluation	6,294				6,294
Summary Recap of FYDP Programs					
Research and Development	6,294				6,294
Total Research, Development, Test & Evaluation	6,294				6,294

Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Feb 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Summary Recap of Budget Activities					
Operational Systems Development	7,734	14,257			14,257
Total Research, Development, Test & Evaluation	7,734	14,257			14,257
Summary Recap of FYDP Programs					
Research and Development	7,734	14,257			14,257
Total Research, Development, Test & Evaluation	7,734	14,257			14,257

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Feb 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities					
Operational Systems Development	6,294				6,294
Total Research, Development, Test & Evaluation	6,294				6,294
Summary Recap of FYDP Programs					
Research and Development	6,294				6,294
Total Research, Development, Test & Evaluation	6,294				6,294

Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Feb 2020

Appropriation	FY 2019	FY 2020	FY 2020	FY 2020	FY 2020	FY 2020
	(Base + OCO)	Base Enacted	Emergency	OCO Enacted	OCO Enacted	Total Enacted (Base+Emerg+ OCO)
Defense Security Cooperative Agency	7,734	14,257				14,257
Total Research, Development, Test & Evaluation	7,734	14,257				14,257

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Feb 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
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Defense Security Cooperative Agency 6,294

Total Research, Development, Test & Evaluation 6,294

Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

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

Program Line Element No	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ OCO) c
201 0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	2,745	1,947			1,947 U
202 0605147T	Overseas Humanitarian Assistance Shared Information System (OHAISIS)	07	304	310			310 U
205 0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	4,685	12,000			12,000 U
	Operational Systems Development		7,734	14,257			14,257
	Total Research, Development, Test & Eval, DW		7,734	14,257			14,257

Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

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

Line No	Program Element No	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	U
201	0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	1,986				1,986	U
202	0605147T	Overseas Humanitarian Assistance Shared Information System (OHAISIS)	07	316				316	U
205	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	3,992				3,992	U
Operational Systems Development									
Total Research, Development, Test & Eval, DW				6,294				6,294	

Defense Security Cooperative Agency
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

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

Line No	Program Element No	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emergency+OCO)	
201	0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	2,745	1,947			1,947	U
202	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS)	07	304	310			310	U
205	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	4,685	12,000			12,000	U
Operational Systems Development				7,734	14,257			14,257	
Total Defense Security Cooperative Agency				7,734	14,257			14,257	

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Defense Security Cooperative Agency
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

13 Feb 2020

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

Program Line No	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total e (Base + OCO) c
201 0605127T	Regional International Outreach (RIO) and Partnership for Peace Information Mana	07	1,986				1,986 U
202 0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS)	07	316				316 U
205 0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	07	3,992				3,992 U
	Operational Systems Development		6,294				6,294
	Total Defense Security Cooperative Agency		6,294				6,294

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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
201	07	0605127T	Partner Outreach and Collaboration Support (POCS).....	Volume 5 - 463
202	07	0605147T	Overseas Humanitarian Assistance Shared Information System (OHASIS).....	Volume 5 - 471
205	07	0607327T	Global Theater Security Cooperation Management Information Systems (G-TSCMIS)..	Volume 5 - 477

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Defense Security Cooperation Agency • Budget Estimates FY 2021 • RDT&E Program

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

Program Element Title	Program Element Number	Line #	BA	Page
Global Theater Security Cooperation Management Information Systems (G-TSCMIS)	0607327T	205	07.....	Volume 5 - 477
Overseas Humanitarian Assistance Shared Information System (OHASIS)	0605147T	202	07.....	Volume 5 - 471
Partner Outreach and Collaboration Support (POCS)	0605127T	201	07.....	Volume 5 - 463

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Security Cooperation Agency **Date:** February 2020

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 <i>Partner Outreach and Collaboration Support (POCS)</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	17.327	2.415	1.947	1.986	-	1.986	1.977	2.017	2.057	2.098	Continuing	Continuing
000204: <i>Partner Outreach and Collaboration Support</i>	17.327	2.415	1.947	1.986	-	1.986	1.977	2.017	2.057	2.098	Continuing	Continuing

A. Mission Description and Budget Item Justification

Partner Outreach and Collaboration Support (POCS) provides a common information technology platform (GlobalNET) for the Department of Defense (DoD) to improve international partner outreach and collaboration efforts in a federated environment. (characterized by the capacity of DoD institutions and Partners to directly share participants and content across proprietary community websites). The POCS initiative - fosters networks of partner influencers and enables better use of DoD resources through collaboration among the Regional Centers for Security Studies, Partnership for Peace (PfP) and international partners, and other DoD educational institutions and communities. GlobalNET currently supports over 80,000 users. The program uses spiral methodology to speed the delivery of open source collaboration technologies the user community. 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 Commanders (COCOMs), the 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. This support is important to achieve the interoperability/integration outlined in the Guidance for the Employment of the Force. POCS additionally supports internet-based education, collaboration, exercise simulations, and training center requirements.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Security Cooperation Agency **Date:** February 2020

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>
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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	1.855	1.947	1.986	-	1.986
Current President's Budget	2.415	1.947	1.986	-	1.986
Total Adjustments	0.560	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustment	0.560	-	-	-	-

Change Summary Explanation

No change explanation required.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Security Cooperation Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
000204: <i>Partner Outreach and Collaboration Support</i>	17.327	2.415	1.947	1.986	-	1.986	1.977	2.017	2.057	2.098	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Partner Outreach and Collaboration Support (POCS) provides a common information technology platform (GlobalNET) for the Department of Defense (DoD) to improve international partner outreach and collaboration efforts in a federated environment. (characterized by the capacity of DoD institutions and Partners to directly share participants and content across proprietary community websites). The POCS initiative - fosters networks of partner influencers and enables better use of DoD resources through collaboration among the Regional Centers for Security Studies, Partnership for Peace (PfP) and international partners, and other DoD educational institutions and communities. GlobalNET currently supports over 80,000 users. The program uses spiral methodology to speed the delivery of open source collaboration technologies the user community. 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 2019	FY 2020	FY 2021
Title: Partner Outreach and Collaboration Support (POCS)	2.415	1.947	1.986
FY 2020 Plans: Continue to update the GlobalNET implementation to the newest platform stable release - allowing greater functionality and better security across all members of the platform. Complete transfer to a Government-approved cloud platform, thus improving stability and security. Conduct the research and define the requirements for a gaming and exercise simulation module.			
FY 2021 Plans: Continue updates to the GlobalNET platform: functionality, security, e-Learning, and design. Update and expand capabilities of the Ilias learning management system. Develop the gaming and simulation module.			
FY 2020 to FY 2021 Increase/Decrease Statement: The increase from FY20 to FY21 is due to price growth within the program.			
Accomplishments/Planned Programs Subtotals	2.415	1.947	1.986

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Security Cooperation Agency		Date: February 2020
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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Security Cooperation Agency			Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Security Cooperation Agency		Date: February 2020
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>GlobelNet Update</i>				
Upgrade Core and Maintenance Releases	1	2016	4	2025
Deploy to Other Institutions	3	2014	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Security Cooperation Agency **Date:** February 2020

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>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	1.997	0.304	0.310	0.316	-	0.316	0.323	0.329	0.336	0.343	Continuing	Continuing
000204: <i>Overseas Humanitarian Assistance Shared Information System</i>	1.997	0.304	0.310	0.316	-	0.316	0.323	0.329	0.336	0.343	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Overseas Humanitarian Assistance Shared Information System (OHASIS) provides stakeholders of Department of Defense (DoD) Humanitarian Assistance (HA) programs, including embassy staff, the Combatant Commands (COCOMs), the Defense Security Cooperation Agency (DSCA), and a broad range of DoD and interagency partners, the capability to manage, support, and visualize Overseas Humanitarian, Disaster, and Civic Aid (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.

Under the direction of DSCA, the U.S. Army Corps of Engineers, Army Geospatial Center (AGC) is responsible for the entire lifecycle--from system definition to development, support, training, and product improvement of OHASIS. The AGC has been responsible for the OHASIS system since 2005 and has evolved it to the present system, which contains more than 16,000 active projects (7,000 of which have been completed) valued at more than \$2.3 billion, with a community of over 6,000 users. The OHASIS system is a critical and mission essential means for thousands of military and civilian users to develop, staff, coordinate, approve, fund, implement, manage, and evaluate projects intended to assist the COCOMs in accomplishing theater campaign plan objectives and achieve strategic ends states in support of U.S. national security and foreign policy interests support of U.S. national security and foreign policy interests.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.304	0.310	0.316	-	0.316
Current President's Budget	0.304	0.310	0.316	-	0.316
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 2021 Defense Security Cooperation Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
000204: Overseas Humanitarian Assistance Shared Information System	1.997	0.304	0.310	0.316	-	0.316	0.323	0.329	0.336	0.343	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Overseas Humanitarian Assistance Shared Information System (OHASIS) provides stakeholders of Department of Defense (DoD) Humanitarian Assistance (HA) programs, including embassy staff, the Combatant Commands (COCOMs), the Defense Security Cooperation Agency (DSCA), and a broad range of DoD and interagency partners, the capability to manage, support, and visualize Overseas Humanitarian, Disaster, and Civic Aid (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.

Under the direction of DSCA, the U.S. Army Corps of Engineers, Army Geospatial Center (AGC) is responsible for the entire lifecycle--from system definition to development, support, training, and product improvement of OHASIS. The AGC has been responsible for the OHASIS system since 2005 and has evolved it to the present system, which contains more than 16,000 active projects (7,000 of which have been completed) valued at more than \$2.3 billion, with a community of over 6,000 users. The OHASIS system is a critical and mission essential means for thousands of military and civilian users to develop, staff, coordinate, approve, fund, implement, manage, and evaluate projects intended to assist the COCOMs in accomplishing theater campaign plan objectives and achieve strategic ends states in support of U.S. national security and foreign policy interests support of U.S. national security and foreign policy interests.

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

	FY 2019	FY 2020	FY 2021
Title: Overseas Humanitarian Assistance Shared Information System	0.304	0.310	0.316
FY 2020 Plans: Expand the format and availability of OHASIS to other O&M programs			
Improve usability of project nomination and explore software optimization techniques to reduce load times and improve user experience			
Develop software infrastructure for CAC-enabled capability (full OHASIS or limited capability) contingent on evolving access requirements			
Continue to find more efficient ways of integrating with other systems including Pacific Disaster Center, Reachback Engineering			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Security Cooperation Agency		Date: February 2020
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

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>Data Integration (REDi), Cooperation Security JCTD, Global Theater Security Cooperation Management Information System (G-TSCMIS), United States Agency for International Development (USAID), CAOS, Foreign Assistance Dashboard, Marine Civil Information Management System (MARCIMS), etc.</p> <p>FY 2021 Plans: Manage the configuration control, generate change request documentation for all new features, acquire appropriate signature and maintain the System Version Description document for the OHASIS system. Develop full functional and standardized regression testing to guide validation of new software releases in coordination with Security Technical Implementation Guides (STIGs) or Security Requirement Guides (SRGs), which will re-assess the compliance and provide updated assessment results for the OHASIS application and database. Assess the OHASIS application, Intelligence Information System (IIS) and database compliance with any applicable execute order (EXORD), operation order (OPORD), or task order (TASKORD) published by: DSCA, US Cyber Command (CYBERCOM), Headquarters Department of the Army (HQDA), CIO/G-6, ARCYBER/2A, 2RCC, US Army Network Enterprise Technology Command (NETCOM), 7th Signal Command (T), 93rd Signal Brigade and Regional Network Enterprise Center - National Capital Region (RNEC-NCR); as well as implement any required configuration changes or provide reports or mitigations for OHASIS. Run regular Security Content Automation Protocol (SCAP) scans prior and after all software releases and resolve all findings rated "Critical" or "high" immediately for the OHASIS application, IIS and database. FY 2020 to FY 2021 Increase/Decrease Statement:</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase of \$6,000 from FY2020 to FY2021 is due to a price growth within the program.</p>			
Accomplishments/Planned Programs Subtotals	0.304	0.310	0.316

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 also 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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Security Cooperation Agency											Date: February 2020		
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					

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Geospatial Research Integration Development and Support (GRIDS)	MIPR	SAIC : Alexandria, VA	1.997	0.304	Feb 2019	0.310	Feb 2020	0.316	Feb 2021	-		0.316		-	-	Continuing
Subtotal			1.997	0.304		0.310		0.316		-		0.316		-	-	N/A
Project Cost Totals			1.997	0.304		0.310		0.316		-		0.316		-	-	N/A

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Security Cooperation Agency		Date: February 2020
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	2020	3	2023
Update System and Database Compliance	1	2021	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Security Cooperation Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	22.396	6.519	12.000	3.992	-	3.992	1.996	2.036	2.077	2.118	Continuing	Continuing
000205: <i>Global Theater Security Cooperation Management Information Systems (G-TSCMIS)</i>	22.396	6.519	12.000	3.992	-	3.992	1.996	2.036	2.077	2.118	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Global Theater Security Cooperation Management Information System (G-TSCMIS) Program was initially an Office of the Secretary of Defense (OSD) initiative to develop and deploy a common web-based, centrally hosted Management Information System (MIS) that will serve as the information focus point for the Nation's Security Cooperation (SC) efforts by providing decision makers, SC planners and other users with the ability to view, manage, assess, and report SC activities and events. February 11, 2019, OSD assigned the Defense Security Cooperation Agency (DSCA) as the lead for G-TSCMIS and any successor comprehensive security management information system. G-TSCMIS was adopted from a theater specific system, originally developed in 1999, and has been updated at least three times. Nevertheless, it still lacks basic functionality that the SC enterprise, consisting of Geographical Combatant Commands (GCCs), Military Departments, and Defense Agencies, have called for since 2010, including but not limited to SC activity life-cycle management, alignment of activities to strategic guidance, institutionalizing a common operational picture, adaptability and scalability to encompass all SC organizations, and interfacing with other SC-relevant authoritative data sources. Additionally, the 2017 National Defense Authorization Act enacted a number of reforms to the Department of Defense's security cooperation (SC) enterprise, consolidating various security cooperation authorities under a single chapter in Title 10 to provide greater clarity to the scope of these programs and to improve management and oversight of these programs. Through these reforms the Department now manages more than 100,000 SC activities per year at a cost of more than \$10 billion, consisting of 40 distinct programs and support to dozens of different organizations and relies on an antiquated system, the G-TSCMIS to manage them. To meet the FY2017 NDAA requirements, DSCA is developing a successor system to replace G-TSCMIS after migrating the data.

DSCA requires an innovative prototype capable of meeting the needs of the SC enterprise and developing an enterprise-wide technology to facilitate and integrate planning, budgeting, collaboration, program design, assessment, monitoring, evaluation, and reporting in support of all U.S. security cooperation activities and. The successor system (Socium) prototype must perform each function in a manner that meets the mandate of the FY17 NDAA reforms including; Planning, Assessment, Monitoring, and Evaluation (AM&E) and Defense Institution Building.

For this effort, DSCA developed a new, innovative acquisition strategy for the successor system in consultation with the Defense Innovation Board and other IT acquisition experts. The strategy will increase competition, maximizing savings, and leverage flexible development approaches. DSCA is utilizing a phased approach to develop the successor system. The first phase, which is scheduled to be completed by September 2019, will gather industry driven solutions to develop a system that provides a modernized, versatile platform. DSCA, through Washington Headquarter Services, will then issue a competitive prototyping award for the second phase and is tentatively planned for completion in January 2020. The final phase will issue a production release that deploys the new solution to the SC enterprise in FY 2021.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Security Cooperation Agency **Date:** February 2020

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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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	5.869	14.800	15.050	-	15.050
Current President's Budget	6.519	12.000	3.992	-	3.992
Total Adjustments	0.650	-2.800	-11.058	-	-11.058
• Congressional General Reductions	-	-2.800			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.294	-			
• Program Adjustment	0.944	-	-11.058	-	-11.058

Change Summary Explanation

In FY 2020, the successor system will have deployed a minimally viable product (MVP) to users to begin inputting data, which requires a substantial initial investment. The FY 2021 request of \$4M (a decrease of \$8M) will be used incorporate initial feedback from users to create a limited number of new features (a new functionality) and make software enhancements (existing functionality more user friendly) to the MVP and improve user satisfaction. Additionally, these funds will be used for continued engineering for defects, fixes, and evaluation.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Security Cooperation Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
000205: <i>Global Theater Security Cooperation Management information Systems (G-TSCMIS)</i>	22.396	6.519	12.000	3.992	-	3.992	1.996	2.036	2.077	2.118	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Global Theater Security Cooperation Management Information System (G-TSCMIS) Program was initially an Office of the Secretary of Defense (OSD) initiative to develop and deploy a common web-based, centrally hosted Management Information System (MIS) that would serve as the information focus point for the Nation's Security Cooperation (SC) efforts by providing decision makers, SC planners and other users with the ability to view, manage, assess, and report SC activities and events. On February 11, 2019, OSD assigned the Defense Security Cooperation Agency (DSCA) as the lead for G-TSCMIS and any successor comprehensive security management information system. G-TSCMIS was adopted from a theater specific system, originally developed in 1999, and has been updated at least three times. Nevertheless, it still lacks basic functionality that the SC enterprise, consisting of Geographical Combatant Commands (GCCs), Military Departments, and Defense Agencies, have called for since 2010, including but not limited to SC activity life-cycle management, alignment of activities to strategic guidance, institutionalizing a common operational picture, adaptability and scalability to encompass all SC organizations, and interfacing with other SC-relevant authoritative data sources. Additionally, the 2017 National Defense Authorization Act enacted a number of reforms to the Department of Defense's security cooperation (SC) enterprise, consolidating various security cooperation authorities under a single chapter in Title 10 to provide greater clarity to the scope of these programs and to improve management and oversight of these programs. Through these reforms the Department now manages more than 100,000 SC activities per year at a cost of more than \$10 billion, consisting of 40 distinct programs and support to dozens of different organizations and relies on an antiquated system, the G-TSCMIS to manage them. To meet the FY2017 NDAA requirements, DSCA is developing a successor system to replace G-TSCMIS after migrating the data.

DSCA requires an innovative prototype capable of meeting the needs of the SC enterprise and developing an enterprise-wide technology to facilitate and integrate planning, budgeting, collaboration, program design, assessment, monitoring, evaluation, and reporting in support of all U.S. security cooperation activities and. The successor system (Socium) prototype must perform each function in a manner that meets the mandate of the FY17 NDAA reforms including; Planning, Assessment, Monitoring, and Evaluation (AM&E) and Defense Institution Building.

For this effort, DSCA developed a new, innovative acquisition strategy for the successor system in consultation with the Defense Innovation Board and other IT acquisition experts. The strategy will increase competition, maximizing savings, and leverage flexible development approaches. DSCA is utilizing a phased approach to develop the successor system. The first phase, which is scheduled to be completed by September 2019, will complete G-TSCMIS Release 3 as the final capability enhancements to G-TSCMIS. Phase II will gather industry driven solutions to develop a system that provides a modernized, versatile platform. Towards this goal, DSCA, through Washington Headquarter Services, will then issue a competitive prototyping award. DSCA will issue a production release that deploys the new solution

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Security Cooperation Agency **Date:** February 2020

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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to the SC enterprise in FY 2021. The third phase will continue to add new capabilities and functional enhancements to the successor system that can include new SC programs and processes, an expanded data model, refined AM&E capabilities, and two-way interfacing with other systems.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>Title: Global Theater Security Cooperation Management Information System (G-TSCMIS)</p> <p>FY 2020 Plans: Complete development of two prototypes for the successor system. Utilizing the KUC, recommend one prototype to go into production. Complete production phase (phase III) and have a fully operational successor system (Socium).</p> <p>FY 2021 Plans: Migrate data from G-TSCMIS into successor system. Retire G-TSCMIS. Continue to improve successor system through capability and functional enhancements.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: In FY 2020, the successor system will have deployed a minimally viable product (MVP) to users to begin inputting data, which requires a substantial initial investment. The FY 2021 request will be used incorporate initial feedback from users to create a limited number of new features (a new functionality) and make software enhancements (existing functionality more user friendly) to the MVP and improve user satisfaction. Additionally, these funds will be used for continued engineering for defects, fixes, and evaluation.</p>	6.519	12.000	3.992
Accomplishments/Planned Programs Subtotals	6.519	12.000	3.992

C. Other Program Funding Summary (\$ in Millions)										
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete Total Cost
• 1002200T: <i>Other DoD Programs - G-TSCMIS</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	Continuing Continuing

Remarks

D. Acquisition Strategy

DSCA conducted extensive market research. DSCA concluded that there is not a single Commercial Off-The-Shelf (COTS) or Government Off-The-Shelf (GOTS) solution that meets all of the SC enterprise needs. The two main challenges are: stitching together multiple software solutions into one application, and sophisticated customization. DSCA developed an innovative acquisition strategy for the successor system in consultation with the Defense Innovation Board and other IT acquisition experts and determined that utilizing an Other Transaction Agreement (OTA) through a Consortium is the best option. The strategy will increase competition, maximizing savings, and leverage flexible development approaches. DSCA is utilizing a phased approach to develop the successor system. The first phase, which is scheduled to be completed by September 2019, will complete G-TSCMIS Release 3 as the final capability enhancements to G-TSCMIS. Phase II will gather industry

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Security Cooperation Agency		Date: February 2020
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>

driven solutions to develop a system that provides a modernized, versatile platform. Towards this goal, DSCA, through Washington Headquarter Services, will then issue a competitive prototyping award. DSCA will issue a production release that deploys the solution to the entire SC enterprise in FY 2021. The third phase will continue to add new capabilities and functional enhancements to the successor system that can include new SC programs and processes, an expanded data model, refined AM&E capabilities, and two-way interfacing with other systems.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Security Cooperation Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 LANT : Charleston, SC	20.140	1.754	Aug 2019	0.620	Aug 2020	0.000		-		0.000	Continuing	Continuing	-
Systems Development	C/CPIF	DSCA HQ : Arlington, VA	0.300	0.000	Oct 2019	0.660	Oct 2020	0.300	Oct 2021	-		0.300	Continuing	Continuing	-
Systems Development	C/FFP	Prototype Development : Arlington, VA	0.000	2.964	Aug 2019	0.000		0.000		-		0.000	Continuing	Continuing	-
Training Development	TBD	TBD : TBD	0.000	0.000	Jan 2020	10.090	Jan 2020	3.342	Jan 2021	-		3.342	Continuing	Continuing	-
Data Architecture	MIPR	Various : Arlington, VA	0.000	0.355	Sep 2019	-		-		-		-	Continuing	Continuing	-
Business Process Mapping	MIPR	Various : Arlington, VA	0.000	1.066	Sep 2019	-		-		-		-	Continuing	Continuing	-
Subtotal			20.440	6.139		11.370		3.642		-		3.642	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	SSC LANT : Charleston, SC	1.956	0.190	Aug 2019	0.190	Aug 2020	0.000		-		0.000	Continuing	Continuing	-
Program Management Support	MIPR	TBD : Arlington, VA	0.000	-		0.250	Jan 2020	0.100		-		0.100	Continuing	Continuing	-
Subtotal			1.956	0.190		0.440		0.100		-		0.100	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	MIPR	TBD : Arlington, VA	0.000	0.000		0.000		0.250	Jan 2021	-		0.250	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Security Cooperation Agency		Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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																												

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 Defense Security Cooperation Agency		Date: February 2020
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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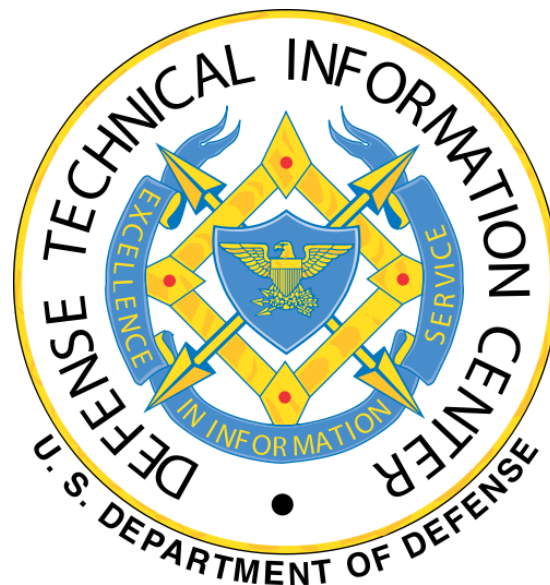
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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



Defense Technical Information Center

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

09 Jan 2020

Appropriation -----	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted
-----	-----	-----	-----	-----	-----
Research, Development, Test & Eval, DW	60,977	60,743			60,743
Total Research, Development, Test & Evaluation	60,977	60,743			60,743

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

09 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	62,206				62,206
Total Research, Development, Test & Evaluation	62,206				62,206

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

09 Jan 2020

Summary Recap of Budget Activities	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted
Management Support	60,977	60,743			60,743
Total Research, Development, Test & Evaluation	60,977	60,743			60,743
Summary Recap of FYDP Programs					
Research and Development	60,977	60,743			60,743
Total Research, Development, Test & Evaluation	60,977	60,743			60,743

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

09 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Management Support	62,206				62,206
Total Research, Development, Test & Evaluation	62,206				62,206
<u>Summary Recap of FYDP Programs</u>					
Research and Development	62,206				62,206
Total Research, Development, Test & Evaluation	62,206				62,206

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 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

09 Jan 2020

Summary Recap of Budget Activities	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted

Management Support	60,977	60,743			60,743
Total Research, Development, Test & Evaluation	60,977	60,743			60,743
Summary Recap of FYDP Programs					

Research and Development	60,977	60,743			60,743
Total Research, Development, Test & Evaluation	60,977	60,743			60,743

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 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

09 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Management Support	62,206				62,206
Total Research, Development, Test & Evaluation	62,206				62,206
Summary Recap of FYDP Programs -----					
Research and Development	62,206				62,206
Total Research, Development, Test & Evaluation	62,206				62,206

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

09 Jan 2020

<u>Appropriation</u>	<u>FY 2019</u> <u>(Base + OCO)</u>	<u>FY 2020</u> <u>Base Enacted</u>	<u>FY 2020</u> <u>OCO Enacted</u>	<u>FY 2020</u> <u>Emergency</u>	<u>FY 2020</u> <u>Total Enacted</u>
Defense Technical Information Center	60,977	60,743			60,743
Total Research, Development, Test & Evaluation	60,977	60,743			60,743

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

09 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Defense Technical Information Center	62,206				62,206
Total Research, Development, Test & Evaluation	62,206				62,206

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

09 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted	Se
170	0605801KA	Defense Technical Information Center (DTIC)	06	56,853	57,716			57,716	U
174	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	4,124	3,027			3,027	U
		Management Support		60,977	60,743			60,743	
Total Research, Development, Test & Eval, DW				60,977	60,743			60,743	

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Defense-Wide
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 (Dollars in Thousands)

09 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
170	0605801KA	Defense Technical Information Center (DTIC)	06	59,369				59,369	U
174	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	2,837				2,837	U
		Management Support		62,206				62,206	
Total Research, Development, Test & Eval, DW				62,206				62,206	

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Defense Technical Information Center
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

09 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 OCO Enacted	FY 2020 Emergency	FY 2020 Total Enacted	Se
170	0605801KA	Defense Technical Information Center (DTIC)	06	56,853	57,716			57,716	U
174	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	4,124	3,027			3,027	U
		Management Support		60,977	60,743			60,743	
Total Defense Technical Information Center				60,977	60,743			60,743	

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Defense Technical Information Center
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

09 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
170	0605801KA	Defense Technical Information Center (DTIC)	06	59,369				59,369	U
174	0605998KA	Management HQ - Defense Technical Information Center (DTIC)	06	2,837				2,837	U
		Management Support		62,206				62,206	
Total Defense Technical Information Center				62,206				62,206	

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Management HQ - Defense Technical Information Center (DTIC)	0605998KA	174	06.....	Volume 5 - 523

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Technical Information Center **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	262.894	56.853	57.716	59.369	-	59.369	61.308	62.408	64.328	65.691	Continuing	Continuing
001: <i>Defense Technical Information Center</i>	233.523	51.837	52.700	54.353	-	54.353	56.292	57.392	59.312	60.675	Continuing	Continuing
002: <i>Information Analysis Centers</i>	29.371	5.016	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 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. DTIC provides USD(R&E) the capability to develop and deliver new information products and tools to share knowledge and enhance decision making.

This Program Element (PE) provides for DTIC mission operations, which are focused on three core efforts: Collection, Dissemination, and Information Analysis Centers (IACs):

- 1) Collect, curate, and preserve science and technical information resulting from DoD’s \$14B annual investment. Build upon past work to avoid costly and time-delaying rework.
- 2) Share and disseminate information as required by statute; provide access to more than 4.4 Million technical records. Provide DoD users improved situational awareness. Simplify and reduce expertise needed to discover the most relevant of information - provide role based content, research results, budget investment, where work is being done, by who, and what level of maturity.
- 3) Operate the DoD Information Analysis Centers (IACs), centered on Defense Systems; Cyber Security and Information Systems; and Homeland Defense and Security. The IACs provide the Department with an R&D contracting vehicle to support PEO and PM insertion of technical innovation into systems of record.

Other priority DTIC mission activities are described below:

- 1) Foster collaboration across communities, researchers, warfighters, industry, academia, Federal agencies, and Allies. Increase collaboration between S&T/RDT&E and warfighters.
- 2) Ensure information protection, document marking, authenticate and validate users, enforce access controls.
- 3) Develop and manage DoD’s Science Technology Information Policy (STIP).
- 4) Agile software development, secure (cyber), and host applications supporting R&E initiatives and activities.
- 5) Maintain compliance with existing public law, regulations, and guidelines.
- 6) Implement congressionally-mandated programs, as directed within the FY 2019 National Defense Authorization Act (NDAA):

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Technical Information Center Date: February 2020

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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- Innovators Information Repository (IIR): increase awareness of Small Business Innovation Research (SBIR)/ Small Business Technology Transfer (STTR) and other small business innovative technology capability and improve transition to systems of record. DTIC is creating a database with reports, proposals, and vendor information.
- Global Research Watch (GRW) Program: provide decision quality analysis of open source information. The Strategic Intelligence & Analysis Cell (SIAC) program is evaluating potential algorithms that will analyze journal literature and other open source information from both allies and competitors. DTIC will manage and host in the cloud a tool based on promising algorithms.
- Datasets and Data Repositories: establish database of datasets created during research activities to support reuse; encourage data management planning with each research project. DTIC is creating a dataset directory to direct users to organizations holding relevant datasets.

In support of these mission operations, DTIC purchases space and critical shared services (e.g., human resources (HR); financial management; contracting; common-use IT services and security; communications; and civilian payroll services) from expert and efficient DoD service-providers.

DTIC MISSION RESULTS

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 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 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 Management Office (IAC PMO) provides core funding, management and oversight of three IACs, which are chartered by DoD to collect, research, analyze, and disseminate scientific and technical information in specialized fields to DoD researchers and acquisition professionals. In addition, the IAC PMO manages several multiple award contracts to make possible new research that builds on prior investments and incorporates the innovations of government, industry, and academia. For the last several years, competition inherent in the IAC model has produced savings of 10-16% under projected costs, while still delivering vetted technical expertise to address DoD's complex challenges. Providing DoD labs and program managers access to thousands of industry subject matter experts, the IACs performed \$2 Billion of customer-funded research and analysis in FY 2019. 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. 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 recommended use of the IAC contracts across DoD as "vehicles of first choice."

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Technical Information Center **Date:** February 2020

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>
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NATIONAL DEFENSE STRATEGY

The DTIC and IAC mission operations described above 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: Develop and implement machine learning and semantic language algorithms to simplify discovery of relevant information – reduce search time and user expertise, provide tailored and actionable results, provide ability for S&T communities to collaborate with stakeholders and partners.
- 2) Strengthen alliances as we attract new partners: Modernize user validation technology, implement White House directed Controlled Unclassified Information (CUI) markings while continuing to support legacy distribution code marking, support White House Open Science mandate and provide information to allies while preventing release of sensitive documents and data.
- 3) Reform the Department’s business practices for greater performance and affordability: Increase ability and reduce time and cost to respond to current and future R&E support needs. Migrate application hosting to the cloud; develop modular components; leverage Open Source, commercial, and Small Business Innovative Research (SBIR) technology; leverage the Information Analysis Center contracting model.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	56.853	57.716	59.778	-	59.778
Current President's Budget	56.853	57.716	59.369	-	59.369
Total Adjustments	0.000	0.000	-0.409	-	-0.409
• Congressional General Reductions	0.000	-			
• Congressional Directed Reductions	0.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Changes	-	-	-0.409	-	-0.409

Change Summary Explanation

Program Change: The FY 2021 Base program reduction (-\$0.409 Million), as compared to the Previous President’s Budget FY 2021 Base, reflects a net change resulting from the following adjustments:

- 1) A Defense-wide Review (DWR) program adjustment (decrease) of \$0.100 Million to reduce cost and manage risk of DTIC Public Internet materials.
- 2) A Defense-wide Review (DWR) program adjustment (decrease) of \$0.446 Million as part of the Fourth Estate Network Optimization (4ENO) effort. Funds are realigned to the Defense Information Systems Agency (DISA).
- 3) Miscellaneous adjustments related to economic assumptions, inflation, and civilian payroll pricing.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Technical Information Center **Date:** February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
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FY 2021 Service Requirements Review Board (SRRB) Reduction: The FY 2021 Base program includes a \$0.740 Million reduction in accordance with the Department's recent service contract downsizing effort.

The FY 2021 Base program also includes a \$0.032 Million reduction attributable to Fourth Estate Information Technology (4E IT) Reform savings.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Technical Information Center										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
001: <i>Defense Technical Information Center</i>	233.523	51.837	52.700	54.353	-	54.353	56.292	57.392	59.312	60.675	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 (OUSD(R&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 goal 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. The Department 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. DTIC's information assets, tools and community interaction capabilities foster innovation, competition and identification of solutions in an access-controlled environment.

Within this budget project, DTIC's organizational efforts are focused on the Collection and Dissemination core mission areas, along with the following critical activities:

- 1) Search: Develop new algorithms and tailored search mechanisms 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 customized collaboration platforms and tools 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Technical Information Center	Date: February 2020
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9) Public Access/Open Science (for articles and digital data): Acquire and disseminate DoD-funded, openly published journal articles, increasing access and encouraging innovation. Develop a catalog of digital datasets supporting the conclusions of journal articles.

10) FY 2019 NDAA Section 202 and Section 905 new mission activities: Dataset management, the Global Research Watch (GRW) program, and Innovators Information Repository (IIR).

SUPPORTING USER COMMUNITIES

DTIC supports user communities on the network where they work, i.e., NIPRNet, SIPRNet, and the 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.

- Warfighter: Improving coordination between the acquisition enterprise and warfighter communities, DTIC hosts a subset of information assets and tools on the SIPRNet. DTIC is actively working to expand the availability of science and technology (S&T) information, to include Independent Research and Development (IR&D), on the SIPRNet. DTIC continues 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.

SUMMARY

DTIC provides interactive tools and advanced tailored search engines to leadership, scientists and engineers, PMs and PEOs, warfighters and budget analysts. Furthermore, 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 2019	FY 2020	FY 2021
Title: Defense Technical Information Center	51.837	52.700	54.353
FY 2020 Plans: - Implement improved search features for geolocation, visualization and graphing, and search of multimedia to give users and researchers the capability for broader discovery and ability to follow the research from funding to completion.			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Technical Information Center		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> - Improve search and discovery efficiency and accuracy through implementation of machine learning including tagging of all documents and search using semantic key word expansion, thus reducing user expertise needed to find the most relevant information. - Advance mobile capabilities; refine application development and delivery for the most dynamic services requiring frequent updates. -- Field DTIC tools compatible with mobile platforms used by the customer base. -- Enhance security through continuous updates needed to maintain currency with mobile devices and technologies. - Deploy a Commercial-off-the-Shelf (CoTS) user Access and Identity Management tool, replacing a custom in-house application. -- Improve user access and cyber security; enable new identity mechanisms supporting mobile devices and emerging identity tokens. -- Improve the customer experience for access and registration through the implementation of self-service trouble shooting, Frequently Asked Questions (FAQs), and visual aids regarding the process of credentialing and seamless registration. - Continue maturation of DTIC's Data Warehouse (i.e., the Master Data Repository, or MDR). -- Complete effort to surface richer metadata describing Information Analysis Center (IAC) Technical Reports (TRs). -- Establish links across data, enabling integrated displays of project, organization, topic, and user data. -- Integrate budget data into DTIC's Data Warehouse to enable increased search capability. -- Evaluate out-of-the-box advanced security and compatibility with Controlled Unclassified Information (CUI) policies and off-the-shelf Access and Identity Management System. - Implement 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--proceed with the integration of Unified Research & Engineering Database (URED) into DTIC's common submission system (i.e., the Enterprise Content Management System, or 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 the DTIC environment. -- Implement and deploy Document Similarity capability to further combat Fraud, Waste and Abuse (FW&A); strengthen FW&A detection capabilities. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Technical Information Center		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> - 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, data management plans, and datasets to DTIC. -- Implement an automatic authentication method for contractors/grantees journal article input. -- Begin to accept voluntary input of metadata pointing to datasets for internal DoD use. -- Create a Data Management Plan building tool for documentation of planning for storage and preservation of data sets throughout the research life cycle, to lessen the burden of compliance for intramural and extramural researchers, including the flexibility for different templates for different subject areas. - Expand R&E engagement and outreach to the Research and Engineering customer base. - Continue efforts to achieve SIPRNet parity for core products. - Implement failover capabilities of core applications for IT Continuity of Operations (COOP) support systems using common security, authentication, and identity management solutions. -- Fully implement COOP failover with cloud services as the primary, where appropriate. -- Explore dynamic failover capabilities, load balancing, and high availability models for COOP support. - 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 Information Repository (IIR), Global Research Watch (GRW) Program, and Datasets and Data Repositories. - Deploy the Initial Operating Capability (IOC) for the Innovators Information Repository (IIR), which will include the following: <ul style="list-style-type: none"> -- Search and visualization of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) contract awards allowing an IIR user to see responses to DoD needs. -- Capability to view all prior contract awards by year and see full company contact information with web address. -- Provide access to Company Commercialization Reports (CCRs) which present detail on actual matured products available for acquisition. -- Initiate the revision of DoD 3200.14 requiring the use of the IIR to determine whether technology exists or is in development before Department organizations initiate a Request for Information (RFI) or Request for Proposal (RFP). - Mature the Global Research Watch (GRW) Program. 			

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> -- Add collections to the GRW tools on NIPR with data from the Small Business Innovation Research (SBIR) Office, Strategic Intelligence Analysis Cell (SIAC), AFWERX, and others. -- Explore partnering with SIAC to host commercial analytics and horizon scanning GRW tools at DTIC/on DTIC cloud environment. -- Partner with SIAC to pilot the GRW tools for storing and serving large volumes of data to commercial analytics and horizon scanning tools. -- Enhance technology scouting/trip reporting capability to include offline submission form that enables global technology scouts to complete reports in the field without a connection to a DoD network. -- Expand the search capabilities on data within the GRW tools. -- Continue partnership with the Office of Naval Research (ONR) to incorporate additional basic and applied research activities and capabilities of foreign nations, to include both allies and competitors, in areas of military interest. - Expand Datasets and Data Repositories; create a DoD Research Data Catalog, which is searchable as part of the R&E Gateway search. -- Develop requirements for a compliance tool for use in analyzing when a journal article or data set submission is expected, identifying potential gaps in what DTIC has received. -- Work with DoD Labs to point to the location their datasets are hosted. -- Link datasets to Technical Reports and Unified Research and Engineering Database (URED) projects to enable users to follow a research projects work in progress to the various results of the research. -- Working within the Department's direction, continue to mature selected implementing technologies and tools; continue to develop the necessary partnerships with the Services and DoD Agencies. - Continue to publish the Journal of DoD Research and Engineering (JDRE), which presents DoD's best opportunity for the best scientists and researchers in the DoD to publish their work, in a protected environment, to the larger S&T community for the purpose of creating increased visibility, opportunity to be peer reviewed, opportunity to do peer reviewing. -- Continue to publish the JDRE at the CUI and Classified levels in order to share information throughout the R&E community. -- Support the Communities of Interest (Cols) and increase visibility into the Department's best research on Microelectronics, Advanced Electronics, Hypersonics, and Cyber with the publication of supplemental and special edition issues. - Implement the DISA-sponsored and managed Interactive Customer Evaluation (ICE) system for the DTIC Research and Reference the Access and Identity Management Customer Service Desks to gain specific customer feedback on DTIC products and services, which may be addressed immediately or translated to future requirements to improve overall value of DTIC services. <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Provide users with the ability to analyze search results using visual and graphical displays. - Support mobile device access to DTIC products and services. - Utilize commercial tools to upgrade Access and Identity Management on the DTIC secret network (SIPRNet). 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Technical Information Center		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> -- Simplify user access, enhance cyber security, and support new ways for users to access securely. - Continue integration of the common submission system and the Data Warehouse to bypass and decommission legacy databases. -- Initiate development of an Application Programming Interface (API) for organizations to pull data from the Data Warehouse; explore federated searches to the warehouse. - Increase collection capacity by 25 percent, increasing the ability to add new technical reports into the DTIC Collection for use by DoD and partners. -- Automate standard data fields, saving user time with collection submissions, by incorporating a unique identifier for authors through the use of the ORCID tool. This will result in a better search experience for DTIC customers. -- Incorporate unique identifiers for documents (DOI) with collection submissions to create a persistent link for consistency and increased accuracy in the search experience. - 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, data management plans, and datasets to DTIC. -- Create a compliance tool for use in analyzing when a journal article or data set is expected, identifying potential gaps in what DTIC has received. -- Integrate the work flows between DTIC's technical reports collection and PubDefense for public access materials, so each system feeds into the other. - Continue R&E engagement and outreach by meeting with DoD labs, conducting site visits to R&E organizations, and attending conferences to further extend the use of DTIC resources. - Deliver information on Warfighter networks to improve access and engagement with the R&E community. - Improve IT Continuity of Operations (COOP) capabilities to provide critical information to customers during a crisis. -- Implement dynamic failover capabilities for critical applications that demand high availability and performance. -- Develop operations framework to minimize workload for ad hoc implementation of essential services in COOP environments. - Migrate 90% of traditional data center computing/storage capabilities with cloud services for more agile operations; complete IT modernization goal to migrate all mission applications within three years. - The National Defense Authorization Act (NDAA-19) Programs include: Innovators Information Repository (IIR), Global Research Watch (GRW) Program, and Datasets and Data Repositories. - Expand the Innovators Information Repository (IIR). -- Explore, in partnership with Services and CCMDs, the development of a capability for companies, academia, and startups to submit portfolios of innovation activities and company information. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Technical Information Center		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> -- Complete the revision of DoD 3200.14 requiring the use of the IIR to determine whether technology exists or is in development before Department organizations initiate a Request for Information (RFI) or Request for Proposal (RFP). -- Partner with Services and DoD Agencies to identify a strategy to address classification due to compilation of information. - Expand the Global Research Watch (GRW) Program. -- Explore language identification and translation capabilities of foreign research literature to facilitate the comparative analysis of foreign nations in relations to the research capabilities of the United States. -- Expand the GRW tools on the secret network. -- Partner with the Services, DoD Agencies, and Intelligence Communities to identify and incorporate Classified foreign research and technologies. - Expand the Department's Datasets and Data Repositories. -- Migrate dataset input capability to DTIC enterprise input system to reduce software maintenance costs. -- Address datasets requiring applications for use. -- Work with basic research areas to help determine data exchange standards, dissemination protocols, inter-operability, reusability, and administration requirements. -- Continue partnering efforts with DoD Labs to point users to their dataset hosting location. -- Investigate automated processes to help evaluate the sensitivity of datasets, and apply appropriate security controls. - Continue to publish the Journal of DoD Research and Engineering (JDRE) two times each year, and seek opportunities for special editions. -- Manage peer reviewers from across entire R&E community; manage vetting of restricted and classified articles submitted from across the entire R&E community. - Implement customer satisfaction benchmarks based on results and feedback from the Interactive Customer Evaluation (ICE). <p>FY 2020 to FY 2021 Increase/Decrease Statement: In the FY 2018 President's Budget, the Department recapitalized DTIC across the FYDP. The \$1.653 Million increment in the current FY 2021 PB builds upon FY 2018-20 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. - 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. 			

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
- Implement, expand, and mature programs directed by the National Defense Authorization Act (NDAA-19), to include: Innovators Information Repository (IRR), Global Research Watch (GRW) Program, and Datasets and Data Repositories. 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.			
Accomplishments/Planned Programs Subtotals	51.837	52.700	54.353

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 2021 Defense Technical Information Center										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
002: <i>Information Analysis Centers</i>	29.371	5.016	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, program 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 Task Order processing, Basic Center of 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 2019	FY 2020	FY 2021
Title: Information Analysis Centers	5.016	5.016	5.016
FY 2020 Plans:			
- Collect and provide a minimum of 10,000 new technical reports to DTIC for DoD use.			
- 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 2021 Defense Technical Information Center		Date: February 2020
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 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> - Answer approximately 3,600 technical inquiries with timely and in-depth science and technology (S&T) analysis; create and provide STI results via three 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. - Award, manage and support at least 50 new Task Orders requested by DoD customers; provide program strategy and ensure alignment with Department goals/direction. - Assess first year of the new indefinite-delivery/indefinite-quantity (IDIQ), the IAC multiple award contract (MAC), and its usage; adjust processes as necessary. - Provide acquisition services to new DoD customers, ensuring that new users exceed departing customers, and support research in new technologies as needed to align to USD(R&E) priorities. - Award a consolidated contract for the operation of the program's three Basic Centers of Operation (Cyber, Defense systems, Homeland Defense), consolidating three current small business contracts into one at a value of \$99 million. <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Collect and provide a minimum of 12,000 new technical reports to DTIC for DoD use, increasing collection efforts over the previous year. - Answer approximately 3,600 technical inquiries with timely and in-depth science and technology (S&T) analysis; create and provide STI results via three 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. - Award, manage and support at least 50 new Technical Area Tasks (TATs) ordered by the DoD and non-DoD customers; provide program strategy and ensure alignment with Department goals/direction. - Assess second year of the usage of the IDIQ, the IAC MAC; adjust processes as necessary. - Provide acquisition services to new DoD customers, ensuring that new users exceed departing customers, and support research in new technologies as needed to align to USD(R&E) priorities. - Increase the number of registered users of the IAC program by at least 1,500. <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p> <ul style="list-style-type: none"> - There is no change in the FY 2021 Base, as compared to the FY 2020 Base. 			
Accomplishments/Planned Programs Subtotals	5.016	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 2021 Defense Technical Information Center		Date: February 2020
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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Technical Information Center **Date:** February 2020

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 0605998KA / <i>Management HQ - Defense Technical Information Center (DTIC)</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	8.587	4.124	3.027	2.837	-	2.837	3.504	3.438	3.526	3.600	Continuing	Continuing
001: <i>Management HQ - Defense Technical Information Center (DTIC)</i>	8.587	4.124	3.027	2.837	-	2.837	3.504	3.438	3.526	3.600	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), a DoD Field Activity assigned to the Under Secretary of Defense for Research and Engineering (USD(R&E)). The PE supports personnel compensation for HQ-assigned civilians, along with related administrative support costs. DTIC's second RDT&E 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 MHA staffing levels continue, reducing civilian full time equivalents (FTEs) below FY 2020 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 staff 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.
- 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 2021 Defense Technical Information Center **Date:** February 2020

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 0605998KA / <i>Management HQ - Defense Technical Information Center (DTIC)</i>
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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	4.124	3.027	2.779	-	2.779
Current President's Budget	4.124	3.027	2.837	-	2.837
Total Adjustments	0.000	0.000	0.058	-	0.058
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Changes	-	-	0.058	-	0.058

Change Summary Explanation

Program Change: In comparing the Current President's Budget FY 2021 Base program against the Previous President's Budget FY 2021 PB Base, there is a nominal increase of \$0.058 Million. This reflects a payroll expense adjustment associated with civilian manpower.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Title: Management HQ - Defense Technical Information Center	4.124	3.027	2.837
FY 2020 Plans: - Execute the program, activities and functions as described above in Section A, Mission Description of PE 0605998KA.			
FY 2021 Plans: - Execute the program, activities and functions as described above in Section A, Mission Description of PE 0605998KA.			
FY 2020 to FY 2021 Increase/Decrease Statement: The change between FY 2020 and the FY 2021 Base (a net decrease of \$0.190 Million in FY 2021) reflects a net reduction in the number of civilian authorizations assigned to the Management Headquarters element of DTIC.			
Accomplishments/Planned Programs Subtotals	4.124	3.027	2.837

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

N/A

Remarks

E. Acquisition Strategy

N/A

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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



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 2021 • RDT&E Program

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**Exhibit R-1, RDT&E Programs
Defense Threat Reduction Agency
Fiscal Year (FY) 2021 Budget Estimates**

Appropriation: RDT&E, Defense-Wide

Date: February 2020

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 danger posed by the networks and capabilities of foreign weapons of mass destruction (WMD) and improvised threats. These threats present an immediate, persistent, and evolving risk to our nation's security.

Detecting, deterring and defeating these threats is a DoD priority, and DTRA's mission. DTRA's RDT&E portfolio addresses these threats, and is driven by overarching National, Department and Agency level strategic policy. This RDT&E portfolio is structured to align with the strategic objectives of the 2018 National Defense Strategy (NDS) and Nuclear Posture Review (NPR).

DTRA's RDT&E portfolio spans the technology spectrum from basic through applied research and, where applicable, includes the capability to test new advanced technology capabilities or, to validate with experimental data, computer simulations, or models. The portfolio balances scientific exploration and discovery with near- and mid-term priorities and facilitates innovative solutions and technologies that transition to cost-effective capabilities. The portfolio not only focuses on sensor development, other advanced components, prototype development, and capability transition, but also on leveraging the application of leading information science and the development of advanced analytic capabilities that provide the warfighters with operational and near real-time decision support and capabilities.

This portfolio is a risk balanced effort to address complex problems in DTRA's mission space, including understanding the environment, threats, and vulnerabilities; controlling, defeating, disabling, and disposing of threats; and enhancing DoD's ability to safeguard the force and manage consequences and outcomes.

- Understand the Environment, Threats, and Vulnerabilities: Provides the technical underpinnings to anticipate, detect, identify, locate, characterize, and assess WMD and improvised threat networks. DTRA's portfolio will prioritize capabilities that enable U.S. forces to more effectively operate in environments where their traditional strengths in battlespace awareness are being actively countered.
- Control, Defeat, Disable, and Dispose of Threats: Provides the technical underpinnings to counter threat networks, WMD threats/proliferation, counter improvised threats, and combat threats posed by Unmanned Aerial Systems (UASs). DTRA's portfolio will prioritize capabilities that permit warfighters to defeat, interrupt, or otherwise render useless threat networks well ahead of actual threat employment.
- Safeguard the Force and Manage Consequences and Outcomes: Support operating forces capability to monitor and respond to chemical, biological, radiological, or nuclear incidents; mitigate hazards and their effects; and allow military personnel and other mission-critical personnel to continue operating effectively. Operating forces must be prepared to recover casualties, decontaminate personnel and equipment, and establish a protective posture. In response to these emerging and other enduring challenges, the portfolio supports developing and transitioning innovative technologies to protect mission-essential personnel, capabilities, and associated control and support systems.

DTRA's enduring mission is to enable DoD, the U.S. Government, and international partners to counter and deter WMD and improvised- threat networks including those that pose risk to a credible and effective U.S. nuclear deterrent. The FY 2021 request reflects a reduction of -\$74.830 million resulting from the Defense-Wide Review (DWR) in which the SECDEF conducted program reviews across the Department's portfolio and made strategic decisions to transfer functions to the Military Services and reduce resources associated with lower priority efforts in order to resource higher priorities. DWR decisions included a reduction of -\$31.850 million to DTRA's lowest priority RDT&E programs and a reduction of -\$42.980 million in DTRA's C-IED programs to align RDT&E efforts with the Army as the C-IED mission holder. The Army assumes executive agent responsibilities for C-IED effective 1 October 2020. DTRA's budget continues to reflect Services Requirements Review Board (SRRB) reductions previously implemented across the Future Years Defense Program.

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

14 Feb 2020

Appropriation -----	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
-----	-----	-----	-----	-----	-----
Research, Development, Test & Eval, DW	663,254	543,261		164,795	708,056
Total Research, Development, Test & Evaluation	663,254	543,261		164,795	708,056

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 (Dollars in Thousands)

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Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	576,997		27,491	27,491	604,488
Total Research, Development, Test & Evaluation	576,997		27,491	27,491	604,488

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 FY 2021 President's Budget
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 (Dollars in Thousands)

14 Feb 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Summary Recap of Budget Activities					
-----	-----	-----	-----	-----	-----
Basic Research	36,148	26,000			26,000
Applied Research	150,040	174,096		1,677	175,773
Advanced Technology Development	288,894	330,065		49,528	379,593
Advanced Component Development & Prototypes	169,638			113,590	113,590
System Development & Demonstration	7,219	13,100			13,100
Management Support	11,315				
Total Research, Development, Test & Evaluation	663,254	543,261		164,795	708,056
Summary Recap of FYDP Programs					
-----	-----	-----	-----	-----	-----
Research and Development	663,254	543,261		164,795	708,056
Total Research, Development, Test & Evaluation	663,254	543,261		164,795	708,056

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Department of Defense
 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

14 Feb 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities					

Basic Research	14,617				14,617
Applied Research	174,571		3,699	3,699	178,270
Advanced Technology Development	366,659		3,861	3,861	370,520
Advanced Component Development & Prototypes			19,931	19,931	19,931
System Development & Demonstration	21,150				21,150
Management Support					
Total Research, Development, Test & Evaluation	576,997		27,491	27,491	604,488
Summary Recap of FYDP Programs					

Research and Development	576,997		27,491	27,491	604,488
Total Research, Development, Test & Evaluation	576,997		27,491	27,491	604,488

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 FY 2021 President's Budget
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 (Dollars in Thousands)

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Summary Recap of Budget Activities -----	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
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Advanced Technology Development	288,894	330,065		49,528	379,593
Advanced Component Development & Prototypes	169,638			113,590	113,590
System Development & Demonstration	7,219	13,100			13,100
Management Support	11,315				
Total Research, Development, Test & Evaluation	663,254	543,261		164,795	708,056
 Summary Recap of FYDP Programs -----					
Research and Development	663,254	543,261		164,795	708,056
Total Research, Development, Test & Evaluation	663,254	543,261		164,795	708,056

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 FY 2021 President's Budget
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 (Dollars in Thousands)

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	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Basic Research	14,617				14,617
Applied Research	174,571		3,699	3,699	178,270
Advanced Technology Development	366,659		3,861	3,861	370,520
Advanced Component Development & Prototypes			19,931	19,931	19,931
System Development & Demonstration	21,150				21,150
Management Support					
Total Research, Development, Test & Evaluation	576,997		27,491	27,491	604,488
<u>Summary Recap of FYDP Programs</u>					
Research and Development	576,997		27,491	27,491	604,488
Total Research, Development, Test & Evaluation	576,997		27,491	27,491	604,488

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 FY 2021 President's Budget
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 (Dollars in Thousands)

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Appropriation -----	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Defense Threat Reduction Agency	663,254	543,261		164,795	708,056
Total Research, Development, Test & Evaluation	663,254	543,261		164,795	708,056

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Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Defense Threat Reduction Agency	576,997		27,491	27,491	604,488
Total Research, Development, Test & Evaluation	576,997		27,491	27,491	604,488

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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 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	c
1	0601000BR	DTRA Basic Research	01	36,148	26,000			26,000	U
		Basic Research		36,148	26,000			26,000	
10	0602134BR	Counter Improvised-Threat Advanced Studies	02				1,677	1,677	U
21	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	150,040	174,096			174,096	U
		Applied Research		150,040	174,096		1,677	175,773	
28	0603134BR	Counter Improvised-Threat Simulation	03	13,648			49,528	49,528	U
29	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	275,246	330,065			330,065	U
		Advanced Technology Development		288,894	330,065		49,528	379,593	
97	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04	169,638			113,590	113,590	U
		Advanced Component Development & Prototypes		169,638			113,590	113,590	
128	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	7,219	13,100			13,100	U
137	0605141BR	Mission Assurance Risk Management System (MARMS)	05						U
		System Development & Demonstration		7,219	13,100			13,100	
162	0605502BR	Small Business Innovation Research Management Support	06	11,315					U
				11,315					

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 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

14 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
1	0601000BR	DTRA Basic Research	01	14,617				14,617	U
		Basic Research		14,617				14,617	
10	0602134BR	Counter Improvised-Threat Advanced Studies	02			3,699	3,699	3,699	U
21	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	174,571				174,571	U
		Applied Research		174,571		3,699	3,699	178,270	
28	0603134BR	Counter Improvised-Threat Simulation	03			3,861	3,861	3,861	U
29	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	366,659				366,659	U
		Advanced Technology Development		366,659		3,861	3,861	370,520	
97	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04			19,931	19,931	19,931	U
		Advanced Component Development & Prototypes				19,931	19,931	19,931	
128	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	15,650				15,650	U
137	0605141BR	Mission Assurance Risk Management System (MARMS)	05	5,500				5,500	U
		System Development & Demonstration		21,150				21,150	
162	0605502BR	Small Business Innovation Research Management Support	06						U

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 Total Obligational Authority
 (Dollars in Thousands)

14 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)
				663,254	543,261		164,795	708,056
Total Research, Development, Test & Eval, DW								

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Defense-Wide
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 Total Obligational Authority
 (Dollars in Thousands)

14 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
	Total Research, Development, Test & Eval, DW			576,997		27,491	27,491	604,488	

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Defense Threat Reduction Agency
 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

14 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
1	0601000BR	DTRA Basic Research	01	36,148	26,000			26,000 U
		Basic Research		36,148	26,000			26,000
10	0602134BR	Counter Improvised-Threat Advanced Studies	02				1,677	1,677 U
21	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	150,040	174,096			174,096 U
		Applied Research		150,040	174,096		1,677	175,773
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29	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	275,246	330,065			330,065 U
		Advanced Technology Development		288,894	330,065		49,528	379,593
97	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04	169,638			113,590	113,590 U
		Advanced Component Development & Prototypes		169,638			113,590	113,590
128	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	7,219	13,100			13,100 U
137	0605141BR	Mission Assurance Risk Management System (MARMS)	05					
		System Development & Demonstration		7,219	13,100			13,100
162	0605502BR	Small Business Innovation Research Management Support	06	11,315				
				11,315				

R-121PB: FY 2021 President's Budget (Published Version), as of February 14, 2020 at 09:16:50

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Defense Threat Reduction Agency
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

14 Feb 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
1	0601000BR	DTRA Basic Research	01	14,617				14,617	U
		Basic Research		14,617				14,617	
10	0602134BR	Counter Improvised-Threat Advanced Studies	02			3,699	3,699	3,699	U
21	0602718BR	Counter Weapons of Mass Destruction Applied Research	02	174,571				174,571	U
		Applied Research		174,571		3,699	3,699	178,270	
28	0603134BR	Counter Improvised-Threat Simulation	03			3,861	3,861	3,861	U
29	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development	03	366,659				366,659	U
		Advanced Technology Development		366,659		3,861	3,861	370,520	
97	0604134BR	Counter Improvised-Threat Demonstration, Prototype Development, and Testing	04			19,931	19,931	19,931	U
		Advanced Component Development & Prototypes				19,931	19,931	19,931	
128	0605000BR	Counter Weapons of Mass Destruction Systems Development	05	15,650				15,650	U
137	0605141BR	Mission Assurance Risk Management System (MARMS)	05	5,500				5,500	U
		System Development & Demonstration		21,150				21,150	
162	0605502BR	Small Business Innovation Research	06						U
		Management Support							

R-121PB: FY 2021 President's Budget (Published Version), as of February 14, 2020 at 09:16:50

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Defense Threat Reduction Agency • Budget Estimates FY 2021 • 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 - 555

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
10	02	0602134BR	Counter Improvised-Threat Advanced Studies.....	Volume 5 - 559
21	02	0602718BR	Counter Weapons of Mass Destruction Applied Research.....	Volume 5 - 565

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
28	03	0603134BR	Counter Improvised-Threat Simulation.....	Volume 5 - 589
29	03	0603160BR	Counter Weapons of Mass Destruction Advanced Technology Development.....	Volume 5 - 593

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Defense Threat Reduction Agency • Budget Estimates FY 2021 • RDT&E Program

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
97	04	0604134BR	Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing.....	Volume 5 - 621

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
128	05	0605000BR	Counter Weapons of Mass Destruction Systems Development.....	Volume 5 - 649
137	05	0605141BR	Mission Assurance Risk Management System (MARMS).....	Volume 5 - 681

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
162	06	0605502BR	Small Business Innovation Research.....	Volume 5 - 687

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Defense Threat Reduction Agency • Budget Estimates FY 2021 • RDT&E Program

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

Program Element Title	Program Element Number	Line #	BA	Page
Counter Improvised-Threat Advanced Studies	0602134BR	10	02.....	Volume 5 - 559
Counter Improvised-Threat Simulation	0603134BR	28	03.....	Volume 5 - 589
Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing	0604134BR	97	04.....	Volume 5 - 621
Counter Weapons of Mass Destruction Advanced Technology Development	0603160BR	29	03.....	Volume 5 - 593
Counter Weapons of Mass Destruction Applied Research	0602718BR	21	02.....	Volume 5 - 565
Counter Weapons of Mass Destruction Systems Development	0605000BR	128	05.....	Volume 5 - 649
DTRA Basic Research	0601000BR	1	01.....	Volume 5 - 555
Mission Assurance Risk Management System (MARMS)	0605141BR	137	05.....	Volume 5 - 681
Small Business Innovation Research	0605502BR	162	06.....	Volume 5 - 687

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ACRONYMS

AD	Agent Defeat
ANTS	Attack the Network Tool Suite
ATAC	Advanced Targeting Assessment Capability
ATAK	Android Tactical Assault Kit
ATD	Advanced Technology Development
BAA	Broad Agency Announcement
CBRNE	Chemical, Biological, Radiological, Nuclear, and High-yield Explosives
CCDR	Combatant Commander
CCMD	Combatant Command
C-IED	Counter-Improvised Explosive Device
COE	Consequence of Execution
CoE-NI	Consequence of Execution – Nuclear Integration
CONOPS	Concept of Operations
CONUS	Continental United States
C-sUAS	Counter-Small Unmanned Aerial Systems
CTBT	Comprehensive Nuclear Test Ban Treaty
CT/CP	Counterterrorism / Counterproliferation
CTS	Component Test Structure
C-UAS	Counter-Unmanned Aerial System

CWMD	Countering Weapons of Mass Destruction
CWMD-T	Combating Weapons of Mass Destruction –Terrorism
DAPSS	Denied Area Persistent Sensor System
DEL	DTRA Experimentation Lab
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
DPPG	Defense Policy and Planning Guidance
DRDC	Defense Research and Development Canada
DSCS	Defense Satellite Communications System
DTRA	Defense Threat Reduction Agency
DTRIAC	Defense Threat Reduction Information Analysis Center
DT&E	Development, Test, and Evaluation
ECA	Enhanced Consequence Analysis
ECBC	Edgewood Chemical Biological 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
FOC	Full Operational Capability
FREAK	Force-on-Force Evaluation and Analysis of Key Performance Parameters
FYDP	Future Years Defense Program
HDBT	Hard and Deeply Buried Target
HPC	High Performance Computing
IED	Improvised Explosive Device
IIRM	Interaction of Ionizing Radiation with Matter
IMAAC	Interagency Modeling and Atmospheric Assessment Center
IMEA	Integrated Munitions Effects Assessment
IMS	International Monitoring System
IoT	Internet of Things
IR	Infrared
ISS	Integrated Sensor System
IT	Information Technology
JWICS	Joint Worldwide Intelligence Communications System
LAMP	Loop-mediated Isothermal Amplification
LLE	Laboratory for Laser Energetics
LLNL	Lawrence Livermore National Laboratory
MACS	Modular Autonomous Countering WMD System

MAGICS	Modular Airborne Gaseous Isotope Collection System
MDA	Missile Defense Agency
M&S	Modeling and Simulation
MSEE	Materials Science in Extreme Environments
NACT	Nuclear Arms Control Technology
NLAN	Non-Classified Local Area Network
NuCS	Nuclear Capabilities Services
NWE	Nuclear Weapons Effects
sUAS	Small Unmanned Aerial Systems
TXL	Transportable Xenon Laboratory
UAS	Unmanned Aerial Systems
UCP	Unified Command Plan
UGF	Underground Facility
UGT	Underground Test
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
USNORTHCOM	U.S. Northern Command
USPACOM	U.S. Pacific Command
USSOCOM	U.S. Special Operations Command

USSTRATCOM	U.S. Strategic Command
UTAS	Underground Targeting and Analysis System
VAPO	Vulnerability Assessment Protection Option
VEO	Violent Extremist Organization
VIRTUS	Virtual Radiation Training through Ubiquity System
VMS	Virtual Management System
V&V	Verification and Validation
WEP	Weapon Effects Phenomenology
WMD	Weapons of Mass Destruction
WSMR	White Sands Missile Range

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 1: Basic Research</i>					PE 0601000BR / <i>DTRA Basic Research</i>							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	325.307	36.148	26.000	14.617	0.000	14.617	11.488	11.237	11.361	11.584	Continuing	Continuing
RU: <i>Basic Research for Countering WMD</i>	325.307	36.148	26.000	14.617	0.000	14.617	11.488	11.237	11.361	11.584	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) 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 Executive Office of the President, the Department of Defense (DoD), and the broader WMD threat reduction and consequence management communities. The portfolio addresses this through fundamental research focused on making revolutionary scientific discoveries relevant to emerging and future Counter Weapons of Mass Destruction and Improvised Threat Network (CWMDITN) challenges. Program managers drive interdisciplinary portfolios primarily drawing from physics, chemistry, biology, mathematics, and information and network sciences to: train the next-generation workforce; advance the fundamental knowledge and understanding in the sciences; promote university research to support the CWMDITN mission; and facilitate transition of research to support our warfighters.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	37.023	26.000	25.500	0.000	25.500
Current President's Budget	36.148	26.000	14.617	0.000	14.617
Total Adjustments	-0.875	0.000	-10.883	0.000	-10.883
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-0.875	-	-	-	-
• Realignments	-	-	-0.333	-	-0.333
• Defense Wide Review (DWR) Adjustments	-	-	-10.550	-	-10.550

Change Summary Explanation

The decrease in FY 2021 from the President's Budget submission is the result of:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 1: Basic Research</i>	PE 0601000BR / <i>DTRA Basic Research</i>

- (1) a realignment of funds to program element 0603160BR for investment in the Automated Solicitation Proposal Management System (ASPMS), a contract and grant management system, and
- (2) Defense-Wide Review (DWR) adjustment of -\$10.550 million resulting from reductions to DTRA's lowest priority RDT&E programs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RU: <i>Basic Research for Countering WMD</i>	325.307	36.148	26.000	14.617	0.000	14.617	11.488	11.237	11.361	11.584	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) 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 Executive Office of the President, the 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Project RU: Basic Research for Countering WMD	36.148	26.000	14.617	0.000	14.617
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 2020 Plans: - Down-select and award two cooperative agreements to initiate the first DTRA basic research university partnerships: Material Science in Extreme Environments; and Interaction of Ionizing Radiation with Matter - Establish partnership with two teams of universities and laboratories to improve multidisciplinary collaborations, increase engagement with the academic community, and develop the CWMD Science, Technology, Engineering, and Mathematics (STEM) workforce.					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601000BR / <i>DTRA Basic Research</i>	Project (Number/Name) RU / <i>Basic Research for Countering WMD</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>- Support the long-term development of a world-class STEM workforce focused on CWMD research.</p> <p>- 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 the broader basic research community.</p> <p><i>FY 2021 Base Plans:</i></p> <p>- Establish Initial Program Plans with the two university partnerships to map the first 12 months of research in the areas of: Material Science in Extreme Environments; and Interaction of Ionizing Radiation with Matter</p> <p>- Address basic research gaps and warfighters' emerging technical needs.</p> <p>- Support the long-term development of a world-class STEM workforce focused on CWMD research.</p> <p>- Promote university research to support Counter Weapons of Mass Destruction and Improvised Threat Network (CWMDITN) challenges.</p> <p><i>FY 2021 OCO Plans:</i> N/A</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The decrease from FY 2020 to FY 2021 is the result of: (1) a realignment of funds to program element 0603160BR for the Automated Solicitation Proposal Management System (ASPMS), a contract and grant management system, for Agency cost sharing with CBDP, and (2) Defense-Wide Review (DWR) adjustment of -\$10.550 million resulting from reductions to DTRA's lowest priority RDT&E programs.</p>					
Accomplishments/Planned Programs Subtotals	36.148	26.000	14.617	0.000	14.617

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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>Counter Improvised-Threat Advanced Studies</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	1.677	0.000	3.699	3.699	7.340	7.811	7.929	8.127	Continuing	Continuing
JC: <i>Enable Rapid Capability Delivery</i>	0.000	0.000	0.502	0.000	2.500	2.500	6.117	6.564	6.657	6.830	Continuing	Continuing
JS: <i>Assist Situational Understanding</i>	0.000	0.000	1.175	0.000	1.199	1.199	1.223	1.247	1.272	1.297	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Threat Reduction Agency (DTRA) Counter Improvised - Threat Advanced Studies program element (PE) funds technology outreach to produce studies that will drive earlier understanding of technologies and scientific theories for future programs to enhance the Department of Defense's ability to effectively counter asymmetric threats. Asymmetric threats are characterized by an environment in which an adversary employs a combination of conventional weapons, irregular tactics, and/or terrorism to obtain their objectives. The end-state of the PE is to evaluate the feasibility and practicality of research projects, taking the most promising proposals and translating them into practical prototypes for use against asymmetric threats.

Activities within this PE are driven by efforts to understand, anticipate, illuminate, isolate, and mitigate asymmetric threat networks and enable timely research that hastens the development of new capabilities for countering global asymmetric threats, their associated networks, and emerging technologies.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	1.677	0.000	1.711	1.711
Current President's Budget	0.000	1.677	0.000	3.699	3.699
Total Adjustments	0.000	0.000	0.000	1.988	1.988
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignments	-	-	0.000	3.988	3.988
• Defense Wide Review (DWR) adjustments	-	-	0.000	-2.000	-2.000

Change Summary Explanation

The increase from FY 2020 to FY 2021 reflects the net impact of:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 2: <i>Applied Research</i>	R-1 Program Element (Number/Name) PE 0602134BR / <i>Counter Improvised-Threat Advanced Studies</i>	
<p>(1) a realignment of funds from PE 0604134BR (Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing) to increase investment in developing materials, devices, and methods for eventual transition to Advanced Technology Development, and</p> <p>(2) Defense-Wide Review (DWR) reduction of -\$2.000 million resulting from the transfer of C-IED programs to the Army to better align RDT&E efforts with the C-IED mission holder. The Army assumes executive agent responsibilities for C-IED R&D programs effective 1 October 2020.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602134BR / Counter Improvised-Threat Advanced Studies	Project (Number/Name) JC / Enable Rapid Capability Delivery
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
JC: Enable Rapid Capability Delivery	0.000	0.000	0.502	0.000	2.500	2.500	6.117	6.564	6.657	6.830	Continuing	Continuing

A. Mission Description and Budget Item Justification

Defense Threat Reduction Agency (DTRA) takes a deliberate, structured, and proactive approach to meet future capability gaps and requirements through continuous study. DTRA enables DoD, the U.S. Government, and International Partners to counter and deter Weapons of Mass Destruction and Improvised Threat networks. The mission is embodied in three capability areas: understand the environment, threats, and vulnerabilities; control, defeat, disable, and dispose of WMD and asymmetric threats; and safeguard the force and manage consequences.

Activities within this project are driven by current and anticipated asymmetric threats. The applied research enables the understanding and shaping of new theories and development of new technologies in support of Combatant Commands and the DoD. The applied research will drive programmatic action to anticipate, illuminate, isolate, and mitigate asymmetric threats.

This project will investigate emerging threat technologies as well as developing analysis support tools that identify emergent capability requirements and associated gaps. It provides timely acquisition and delivery of solutions to address evolving threats.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: JC: Enable Rapid Capability Delivery	0.000	0.502	0.000	2.500	2.500
Description: This project will assess and understand current and emerging technologies that address the evolving asymmetric threat environment.					
FY 2020 Plans: - Identify and develop technologies to neutralize power sources (batteries) within improvised explosive devices or improvised threats through the Working Against Bomb Initiation Techniques project. - Disable power sources (batteries) through physical and chemical mechanisms in a standoff, non-contact manner via the Working Against Bomb Initiation Techniques project.					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602134BR / <i>Counter Improvised-Threat Advanced Studies</i>	Project (Number/Name) JC / <i>Enable Rapid Capability Delivery</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>- Support the three U.S. Military Service Academies' CAPSTONE, research efforts, through guidance, mentoring, and funding projects associated with evolving asymmetric threats to foster next-generation research against these threats.</p> <p>- Support and facilitate exploration of progressive technology innovations in three to five white papers that address key asymmetric threats that directly support Combatant Commanders' requirements and grow the pipeline of potential capabilities to counter asymmetric threat networks.</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase from FY 2020 to FY 2021 reflects the net impact of: (1) a realignment of funds from PE 0604134BR (Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing) to increase investment in developing materials, devices, and methods for eventual transition to Advanced Technology Development, and (2) Defense-Wide Review (DWR) reduction of -\$2.000 million resulting from the transfer of C-IED programs to the Army to better align RDTE efforts with the C-IED mission holder. The Army assumes executive agent responsibilities for C-IED R&D programs effective 1 October 2020.</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.502	0.000	2.500	2.500

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 28/0603134BR/JC: <i>Counter Improvised-Threat Simulation</i>	13.648	49.528	0.000	3.861	3.861	59.179	60.803	61.661	63.394	Continuing	Continuing
• 97/0604134BR/JC: <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	158.660	103.793	0.000	9.841	9.841	29.146	19.430	18.803	18.641	Continuing	Continuing

Remarks

D. Acquisition Strategy

Competitive selection of most appropriate performers to fulfill science and technology development needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602134BR / Counter Improvised-Threat Advanced Studies	Project (Number/Name) JS / Assist Situational Understanding
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
JS: Assist Situational Understanding	0.000	0.000	1.175	0.000	1.199	1.199	1.223	1.247	1.272	1.297	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project sponsors innovative studies that leverage expertise from academia and world-class research institutions in government and industry. It 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: JS: Assist Situational Understanding	0.000	1.175	0.000	1.199	1.199
Description: This project conducts analytical research studies to counter emerging improvised threats.					
FY 2020 Plans:					
<ul style="list-style-type: none"> - Conduct up to five research studies to support counter threat networks 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 2021 Base Plans:					
N/A					
FY 2021 OCO Plans:					
<ul style="list-style-type: none"> - Conduct up to five research studies to support countering WMD and improvised threat networks. - 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. - Focus on identifying and closing gaps in U.S. and Allies' technology vulnerabilities, developing methodologies to counter emerging threat networks, and in forming material solution investments. 					
FY 2020 to FY 2021 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 0602134BR / <i>Counter Improvised-Threat Advanced Studies</i>	Project (Number/Name) JS / <i>Assist Situational Understanding</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
No significant change.					
Accomplishments/Planned Programs Subtotals	0.000	1.175	0.000	1.199	1.199

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 97/0604134BR/JS: <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	10.978	9.797	0.000	10.090	10.090	10.286	10.585	10.887	11.105	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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	1,255.600	150.040	174.096	174.571	0.000	174.571	174.915	177.995	185.192	188.975	Continuing	Continuing
RA: <i>CWMD Cross-Cutting Technical and Information Sciences</i>	264.657	36.665	44.167	40.965	0.000	40.965	42.194	42.773	47.564	48.593	Continuing	Continuing
RD: <i>Nuclear Technologies and Capabilities Development</i>	43.398	21.050	89.860	92.492	0.000	92.492	91.351	93.732	95.307	97.214	Continuing	Continuing
RE: <i>Counter Terrorism Technologies</i>	0.693	0.850	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.543
RF: <i>Forensics Technologies</i>	223.112	7.716	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	230.828
RG: <i>Counter WMD Technologies and Capabilities Development</i>	105.632	7.938	22.253	22.958	0.000	22.958	22.919	23.715	24.190	24.675	Continuing	Continuing
RI: <i>Nuclear Survivability</i>	184.812	22.632	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	207.444
RL: <i>Nuclear & Radiological Effects</i>	215.561	27.643	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	243.204
RM: <i>WMD Counterforce Technologies</i>	118.311	11.342	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	129.653
RR: <i>CWMD Test and Evaluation</i>	99.424	14.204	17.816	18.156	0.000	18.156	18.451	17.775	18.131	18.493	Continuing	Continuing

Note

In FY 2020, the Defense Threat Reduction Agency (DTRA) consolidated projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects into the renamed project RD-Nuclear Technologies and Capabilities Development. Additionally, DTRA consolidated RM-Weapons of Mass Destruction (WMD) Counterforce Technologies into the renamed project RG-Counter WMD Technologies and Capabilities Development. There is no change to the program element or project structure in the FY 2021 request.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency	Date: February 2020
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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>Counter Weapons of Mass Destruction Applied Research</i>
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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 Executive 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.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	155.924	179.096	182.758	-	182.758
Current President's Budget	150.040	174.096	174.571	-	174.571
Total Adjustments	-5.884	-5.000	-8.187	-	-8.187
• Congressional General Reductions	-	-5.000			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.244	-			
• SBIR/STTR Transfer	-3.640	-			
• Realignments	-	-	-8.187	-	-8.187

Change Summary Explanation

The Congressional reduction in FY 2020 is for unjustified growth. The decrease in FY 2021 from the previous President's Budget submission is due to the net impact of:

- (1) the realignment of funds to PE 0603160BR for the CWMD Information Integration Cell (CIIC) to better reflect the nature of this activity,
- (2) increased investment in nuclear weapons effects targeting, battlefield nuclear warfare, certification without underground testing,
- (3) realignment of funds from PE 0602718BR to 0603160BR for full effects modeling and WMD survivability and consequence management, and
- (4) increased investment in WMD counterforce activities to conduct testing of advanced diagnostics with Defence Research and Development Canada as part of a Coalition Warfare Program to advance CWMD planning tools.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020		
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) RA / <i>CWMD Cross-Cutting Technical and Information Sciences</i>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RA: <i>CWMD Cross-Cutting Technical and Information Sciences</i>	264.657	36.665	44.167	40.965	0.000	40.965	42.194	42.773	47.564	48.593	Continuing	Continuing

A. Mission Description and Budget Item Justification

The CWMD Cross-Cutting Technical and Information Sciences 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 reach-back teams. This project develops and maintains continuously improving collaborative architectures and Weapons of Mass Destruction (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 Countering WMD (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)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RA: CWMD Cross-Cutting Technical and Information Sciences	36.665	44.167	40.965	0.000	40.965
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.					
FY 2020 Plans:					
- Support select NATO nations' access to a shared WMD and explosives modeling capability as requested by individual nations through the Partnership of Cooperation agreements.					
- Enhance Force-on-Force Evaluation and Analysis of Key Performance Parameters (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.					
- Provide software releases to include DoD customer detector requests for Virtual Radiation Training through Ubiety System (VIRTUS), which provides a mobile phone-based radiation sensor emulator for search training.					
- Provide increased stand-alone modeling capability for Android Tactical Assault Kit (ATAK), which incorporates CWMD capabilities into a mobile phone-based tactical common operating picture, to support new, emerging and updated modeling and simulation requirements.					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RA / <i>CWMD Cross-Cutting Technical and Information Sciences</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>- Transition the Enhanced Mapping and Positioning System (EMAPS) to the Joint Program Executive Office, Chemical and Biological Defense. This system uses Light, Detection and Ranging (LIDAR) to automatically create real-time 2D/3D annotated physical maps of areas denied to the Global Positioning System.</p> <p>FY 2021 Base Plans:</p> <ul style="list-style-type: none"> - Support select NATO nations' access to a shared WMD and explosives modeling capability as requested by individual nations through the Partnership of Cooperation agreements. - 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. - Provide software releases to include DoD customer detector requests for VIRTUS, which provides a mobile phone-based radiation sensor emulator for search training. - Provide 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. - Provide quarterly updates to forecasted changes/developments in geopolitical landscapes and the intersection of Chemical, Biological, Radiological, and Nuclear (CBRN) and WMD employment systems. <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The decrease from FY 2020 to FY 2021 reflects the net effect of the realignment of funds from this program element to program element 0603160BR for the CWMD Information Integration Cell (CIIC) to better reflect the nature of this activity.</p>					
Accomplishments/Planned Programs Subtotals	36.665	44.167	40.965	0.000	40.965

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 29/0603160BR/RA: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	18.080	34.825	50.019	-	50.019	46.279	49.207	50.708	51.721	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RA / <i>CWMD Cross-Cutting Technical and Information Sciences</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 162/0605502BR/RA: <i>Small Business Innovation Research</i>	11.315	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.315

Remarks

D. Acquisition Strategy

Competitive selection of most appropriate performers to fulfill science and technology development needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>RD: Nuclear Technologies and Capabilities Development</i>	43.398	21.050	89.860	92.492	0.000	92.492	91.351	93.732	95.307	97.214	Continuing	Continuing

Note

In FY 2020, DTRA consolidated projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects in program element 0602718BR, into the renamed project RD-Nuclear Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

Nuclear Technologies and Capabilities Development encompasses the following related areas:

1. Research, development, test, and evaluation (RDT&E) 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 Department of Defense (DoD) requirements for countering terrorism, counterproliferation, nonproliferation, countering rogue states, and homeland defense.

2. RDT&E to systematically study signatures associated with adversary nuclear programs and nuclear detonations to gain knowledge or understanding necessary to: determine technical capabilities needed to improve DoD contingency planning activities; improve DoD situational awareness on the nuclear battlefield; and improve capabilities to attribute the source of a nuclear detonation.

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 DoD 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 electromagnetic pulse (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.

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<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 2020 Plans:</p> <ul style="list-style-type: none"> - Enhance contamination avoidance capabilities. - Contribute to the development of an American National Standards Institute (ANSI) standard to assess DoD radiation imager's performance and evaluation. - Develop and test new application-specific integrated circuits (ASIC) to improve radiation detector performance while also reducing power requirements. - Test and evaluate a proof of principle Virtual Reality/Augmented Reality (VR/AR) testbed for use in evaluating radiation detection equipment. - Actualize 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. - 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. - Integrate sensor platforms and layering of additional data sets to enhance detection of nuclear targets of interest. <p>Enhance and expand capabilities to identify nuclear targets of interest in overhead imagery using next-generation computer-vision techniques, in order to enable follow-on actions</p> <ul style="list-style-type: none"> - 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. - 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. - Conduct research on improved nuclear battlefield casualty assessment and medical planning for nuclear/radiological events. 	21.050	89.860	92.492	0.000	92.492

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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>

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<ul style="list-style-type: none"> - 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 nuclear targeting capabilities linking higher order impacts to Political Military Economic Social Infrastructure Information (PMESII) analyses. By 4th QTR FY21, develop software prototype capable of injecting nuclear effects, and integrate into select models supporting CCMD and Service wargames. - Develop low-cost, mobile and autonomous wide area and point search detectors to enable the warfighter to characterize, map, and avoid radiation hazards on the nuclear battlefield. - Improve support to a robust nuclear deterrent without resumption of underground nuclear testing by providing modernized survivability standards, toolkits and test and evaluation (T&E) data for legacy and new mission critical nuclear, conventional, satellite and missile defense systems. - Deliver integrated, cloud-ready, cross-cutting platform, applications, and data analysis AI-enhanced capabilities to support the full spectrum of nuclear operations, war gaming, and assessments. - Develop wearable neutron detectors made of Boron-Coated Straw in support of the development of modern, novel detector solutions to revolutionize concept of operations (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. - Develop petroleum effects models for nuclear targeting capabilities linking higher order impacts to Political Military Economic Social Infrastructure Information (PMESII) analyses. - Conduct research on improved nuclear battlefield casualty assessment and medical planning for nuclear/radiological events. - 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>FY 2021 Base Plans:</p> <ul style="list-style-type: none"> - Enhance existing contamination avoidance capabilities. - Develop an additional new radiation signature test device (RSTD) to expand test capabilities and detector evaluation. - Evaluate the performance of novel materials (e.g. CLLBC (Cs2LiLa(Br,Cl)6:Ce, Dual-sided micro-structured semiconductor neutron detectors (DSMSNDs)) as a replacement for both high energy resolution gamma-ray detectors and high pressure Helium- neutron detectors. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Further 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. - Generate additional 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. - Support transitioning those technologies that demonstrate exceptional capabilities in radiation and nuclear threat detection to advanced technology development.					
<i>FY 2021 OCO Plans:</i> N/A					
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase from FY 2020 to FY 2021 is due to the net impact of: (1) increased investment in nuclear weapons effects targeting, battlefield nuclear warfare, certification without underground testing, and (2) realignment of funds from PE 0602718BR to 0603160BR for full effects modeling and WMD survivability and consequence management.					
Accomplishments/Planned Programs Subtotals	21.050	89.860	92.492	0.000	92.492

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 29/0603160BR/RD: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	21.193	70.153	51.416	-	51.416	51.480	53.081	55.547	56.659	Continuing	Continuing
• 128/0605000BR/RD: <i>Counter Weapons of Mass Destruction Systems Development</i>	-	7.500	15.650	-	15.650	14.803	13.959	13.118	13.381	Continuing	Continuing

Remarks

D. Acquisition Strategy

Competitive selection of most appropriate performers to fulfill science and technology development needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RE: Counter Terrorism Technologies	0.693	0.850	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.543

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RE: Counter-Terrorism Technologies	0.850	-	-	-	-
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	0.850	-	-	-	-

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 29/0603160BR/RE: Counter-Terrorism Technologies	108.964	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	108.964

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RF / <i>Forensics Technologies</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RF: <i>Forensics Technologies</i>	223.112	7.716	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	230.828

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RF: Forensics Technologies	7.716	0.000	0.000	0.000	0.000
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 2020 Plans: N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	7.716	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RF / <i>Forensics Technologies</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 29/0603160BR/RF: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	30.947	-	-	-	-	-	-	-	-	0.000	30.947
• 128/0605000BR/RF: <i>Counter Weapons of Mass Destruction Systems Development</i>	6.016	-	-	-	-	-	-	-	-	0.000	6.016

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020		
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			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RG: Counter WMD Technologies and Capabilities Development	105.632	7.938	22.253	22.958	0.000	22.958	22.919	23.715	24.190	24.675	Continuing	Continuing

Note

In FY 2020, DTRA consolidated RM-Weapons of Mass Destruction (WMD) Counterforce Technologies into RG-Counter WMD Technologies and Capabilities Development.

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.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RG: Counter WMD Technologies and Capabilities Development	7.938	22.253	22.958	0.000	22.958
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 2020 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RG / <i>Counter WMD Technologies and Capabilities Development</i>

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<ul style="list-style-type: none"> - Conduct incremental capability demonstrations for advanced technology systems. - Initiate development of novel, air delivered, incendiary weapon fills for agent defeat. - Develop future advanced holistic payloads, specifically for hard and deeply buried targets. - Provide infrastructure to collect signatures including sensors, lab and field equipment, collection software, and collection tools. - Develop 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. - Develop and test structural reactive materials and advanced thermal agent defeat devices to improve the capability to defeat and/or neutralize CWMD-related targets. - Test biocide at a 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. <p><i>FY 2021 Base Plans:</i></p> <ul style="list-style-type: none"> - Develop offensive counter-proliferation, counter-WMD technologies in support of Combatant Command requirements. - Develop WMD pathway defeat technologies, as well as threat-specific test articles and analyses. - Develop lighter, smaller, more effective breaching capabilities. - Develop next generation WMD detection technology applications. - Develop advanced data analytics and technical capabilities to rapidly capture, catalogue and illuminate nefarious activities to counter improvised threat networks and provide WMD situational awareness. - Build analytic capabilities that enhance the Fusion Analysis Development Effort (FADE)/Multi- Intelligence Spatial Temporal (MIST) tool suite for geospatial predictive analytics, and pattern of life and anomaly detection. This fusion of sources provides a central, tailorable asset for CWMD mission planning, mission execution, and supports CONPLAN 7599 for identifying and assessing threats. - Deliver mobile phone-based tactical common operating picture to U.S. Forces, to support new, emerging and updated modeling and simulation requirements. - Conduct biocide testing at larger scale to analyze prompt and persistent effects, improving capability to neutralize or destroy biological weapons or agents. - Develop environmental monitors for identification and characterization of CBRN production. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RG / <i>Counter WMD Technologies and Capabilities Development</i>

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<ul style="list-style-type: none"> - Develop CWMD weapon effects modeling algorithms and scaled test series for attack planning to investigate CWMD weapon effects enhance WMD defeat modeling and simulation planning tools and assess new WMD defeat mechanisms. - Conduct small scale testing of structural reactive materials and advanced thermal agent defeat devices to improve the capability to defeat and/or neutralize CWMD-related targets. - Conduct biocide testing at larger scales to analyze prompt and persistent effects, improving capability to neutralize or destroy biological weapons or agents. - Research and investment in application of basic and applied research initiatives and support test and evaluation of emerging autonomous technologies to support future and emerging threat requirements. - Develop offensive counter-proliferation, counter-WMD technologies in support of combatant command requirements. - Develop WMD pathway defeat technologies, as well as threat-specific test articles and analyses. - Initiate studies on novel next generation agent defeat warhead fills and design. <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase from FY 2020 to FY 2021 is due to increased investment in WMD counterforce activities to conduct testing of advanced diagnostics with Defence Research and Development Canada as part of a Coalition Warfare Program to advance CWMD planning tools.</p>					
Accomplishments/Planned Programs Subtotals	7.938	22.253	22.958	0.000	22.958

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

<u>Line Item</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>FY 2025</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• 29/0603160BR/RG: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	22.354	225.087	265.224	0.000	265.224	242.425	246.630	250.582	255.592	Continuing	Continuing

Remarks

D. Acquisition Strategy

Competitive selection of most appropriate performers to fulfill science and technology development needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RI / <i>Nuclear Survivability</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RI: <i>Nuclear Survivability</i>	184.812	22.632	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	207.444

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

Efforts in this project include system vulnerability assessment, experimental capabilities, nuclear technology analysis, and human survivability.

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)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RI: Nuclear Survivability	22.632	0.000	0.000	0.000	0.000
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.					
FY 2020 Plans: N/A					
FY 2021 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RI / <i>Nuclear Survivability</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
N/A					
FY 2021 OCO Plans:					
N/A					
FY 2020 to FY 2021 Increase/Decrease Statement:					
N/A					
Accomplishments/Planned Programs Subtotals	22.632	0.000	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 29/0603160BR/RI: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	8.583	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.583

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RL / <i>Nuclear & Radiological Effects</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RL: <i>Nuclear & Radiological Effects</i>	215.561	27.643	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	243.204

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RL: Nuclear & Radiological Effects	27.643	0.000	0.000	0.000	0.000
Description: Project RL delivers nuclear weapons effects applications that enable effective targeting of U.S. nuclear weapons, and inform protection and response against adversary nuclear attacks.					
FY 2020 Plans: N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	27.643	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020	
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)

Line Item	FY 2019	FY 2020	FY 2021			FY 2022	FY 2023	FY 2024	FY 2025	Cost To	
			Base	OCO	Total					Complete	Total Cost
• 29/0603160BR/RL: Counter Weapons of Mass Destruction Advanced Technology Development	2.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.947
• 128/0605000BR/RL: Counter Weapons of Mass Destruction Systems Development	1.203	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.203

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RM: WMD Counterforce Technologies	118.311	11.342	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	129.653

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RM: WMD Counterforce Technologies	11.342	0.000	0.000	0.000	0.000
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 2020 Plans: N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	11.342	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RM / <i>WMD Counterforce Technologies</i>

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

Line Item	FY 2019	FY 2020	FY 2021	FY 2021	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Cost To	Total Cost
			Base	OCO	Total					Complete	
• 29/0603160BR/RM: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	40.365	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	40.365

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020		
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) RR / <i>CWMD Test and Evaluation</i>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RR: <i>CWMD Test and Evaluation</i>	99.424	14.204	17.816	18.156	0.000	18.156	18.451	17.775	18.131	18.493	Continuing	Continuing

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

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.

FY 2020 Plans:

- Develop seismo-acoustic arrays as test diagnostics (both hardware and algorithms) and tools for assessing decoupling/coupling.
- Continue reconstitution of instrumentation and diagnostics of sensor infrastructure capabilities in support of CWMD technology development projects.
- Conduct diagnostics, instrumentation, and explosives handling research in support of other testing and compliance initiatives.
- Develop and test WMD and explosives sensors and WMD countermeasures to support Combatant Command (CCMD) requirements.
- Expand existing defeat technologies, tools, and capabilities for signature characterization in support of exercises and planning events at the Nevada Test Bed.
- 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.

FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
14.204	17.816	18.156	0.000	18.156

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RR / <i>CWMD Test and Evaluation</i>

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>- 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> <p>- Develop the test infrastructure to test transportable system to identify signature characterization that supports existing defeat technologies, tools, and capabilities.</p> <p>- Design and develop a data architecture that provides for the integration of RD department data from multiple RDT&E programs into an enterprise storage solution, curate compiled data from T&E events and move to an existing data center, develop portals for interagency access to data, and execute three initial data analytics demonstrations.</p> <p>FY 2021 Base Plans:</p> <p>- Develop seismo-acoustic arrays as test diagnostics (both hardware and algorithms) and tools for assessing decoupling/coupling.</p> <p>- Continue reconstitution of instrumentation and diagnostics of sensor infrastructure capabilities in support of CWMD technology development projects.</p> <p>- Develop additional diagnostics, instrumentation, and explosives handling research in support of other testing and compliance initiatives.</p> <p>- Develop and test WMD and explosives sensors and WMD countermeasures to support CCMD requirements.</p> <p>- Develop existing defeat technologies, tools, and capabilities for signature characterization in support of exercises and planning events at the Nevada Test Bed.</p> <p>- 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.</p> <p>- 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> <p>- Develop the test infrastructure to test transportable system to identify signature characterization that supports existing defeat technologies, tools, and capabilities.</p> <p>- Develop tools and data analytics for delivery to CCMDs in direct response to existing capability gaps.</p> <p>- Complete data architecture implementation to enable interagency partnerships at an unclassified level.</p> <p>- Complete development of portals for all identified external collaborations.</p> <p>- Perform two data analytics demonstrations and deliver two additional tools to the CCMDs.</p> <p>FY 2021 OCO Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RR / <i>CWMD Test and Evaluation</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
N/A					
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase from FY 2020 to FY 2021 is due to inflation.					
Accomplishments/Planned Programs Subtotals	14.204	17.816	18.156	0.000	18.156

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

Remarks

D. Acquisition Strategy

Competitive selection of most appropriate performers to fulfill science and technology development needs.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	23.366	13.648	49.528	0.000	3.861	3.861	59.179	60.803	61.661	63.394	Continuing	Continuing
JC: <i>Enable Rapid Capability Delivery</i>	23.366	13.648	49.528	0.000	3.861	3.861	59.179	60.803	61.661	63.394	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Threat Reduction Agency (DTRA) advanced technology development program element funds the assessment, analysis, experimentation, evaluation, and testing of systems to counter asymmetric threats to determine feasibility for prototyping, spiral development, Program of Record investment and potential for immediate fielding.

Understanding asymmetric threats is the driving force behind DTRA's deliberate, structured, and proactive approach to understanding, anticipating, illuminating, isolating, and/or mitigating threats through identified needs. DTRA is working to bring concepts and theories forward to assist and hasten the development of subsystems and components along with integration into prototypes for field experiments and/or laboratory tests.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	13.648	49.528	0.000	50.110	50.110
Current President's Budget	13.648	49.528	0.000	3.861	3.861
Total Adjustments	0.000	0.000	0.000	-46.249	-46.249
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignments	-	-	0.000	-14.279	-14.279
• Defense Wide Review (DWR) Adjustments	-	-	0.000	-31.970	-31.970

Change Summary Explanation

The decrease in FY 2021 from the previous President's Budget submission is due to:

(1) a realignment of funds to PE 0603160BR (Counter Weapons of Mass Destruction Advanced Technology Development) to increase investment in WMD counterterrorism activities, and

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 0603134BR / <i>Counter Improvised-Threat Simulation</i>

(2) Defense-Wide Review (DWR) adjustment of -\$31.970 million resulting from reductions to DTRA's lowest priority RDT&E programs and the the transfer of C-IED programs to the Army to better align RDT&E efforts with the C-IED mission holder. The Army assumes executive agent responsibilities for C-IED effective 1 October 2020.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
JC: Enable Rapid Capability Delivery	23.366	13.648	49.528	0.000	3.861	3.861	59.179	60.803	61.661	63.394	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project is driven by current and projected threat activities. It enables the timely validation, resourcing, applied research and prototype development and delivery to counter threats that continue to impact US forces. The project supports the evaluation of integrated technologies or prototype systems in a realistic environment to counter asymmetric threats.

DTRA performs experiments and modeling and simulations in the pursuit of advanced technology development. The outcomes of these experiments are incorporated into new or existing prototypes to enhance system performance while reducing cost.

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

Title: JC: Enable Rapid Capability Delivery

Description: This project employs technology development, modeling-and-simulation, and analysis support tools to meet Combatant Command requirements and anticipated threats. DTRA provides timely acquisition and delivery of solutions that respond to asymmetric threat requirements and gaps.

FY 2020 Plans:

- 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).
- Conduct testing and evaluation of future technology development in support of countering – asymmetric threats.
- 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.

FY 2021 Base Plans:

N/A

FY 2021 OCO Plans:

FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
13.648	49.528	0.000	3.861	3.861

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Develop 12 acquisition threat signal packages for databases with hardware and software implementation plans to update current capabilities across the Combatant Commands, ensuring a more robust capability response to asymmetric threats.					
- Conduct two evaluation events to verify and analyze threat signal inputs to improve ability of capabilities to counter asymmetric threat networks.					
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The decrease from FY 2020 to FY 2021 reflects a decrease due to: (1) a realignment of funds to PE 0603160BR (Counter Weapons of Mass Destruction Advanced Technology Development) to increase investments in WMD counterterrorism activities and, (2) Defense-Wide Review (DWR) adjustments of -\$31.970 million resulting from reductions to DTRA's lowest priority RDT&E programs and the transfer of C-IED programs to the Army to better align RDT&E efforts with the C-IED mission holder. The Army assumes executive agent responsibilities for C-IED effective 1 October 2020.					
Accomplishments/Planned Programs Subtotals	13.648	49.528	0.000	3.861	3.861

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 10/0602134BR/JC: <i>Counter Improvised-Threat Advanced Studies</i>	0.000	0.502	0.000	2.500	2.500	6.117	6.564	6.657	6.830	Continuing	Continuing
• 97/0604134BR/JC: <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>	158.660	103.793	0.000	9.841	9.841	29.146	19.430	18.803	18.641	Continuing	Continuing

Remarks

D. Acquisition Strategy

Competitive Selection to determine the optimal performer who can produce a viable deliverable within schedule and budget.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 0603160BR / <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	2,234.299	275.246	330.065	366.659	0.000	366.659	340.184	348.918	356.837	363.972	Continuing	Continuing
RA: <i>CWMD Cross-Cutting Technical and Information Sciences</i>	68.860	18.080	34.825	50.019	0.000	50.019	46.279	49.207	50.708	51.721	Continuing	Continuing
RD: <i>Nuclear Technologies and Capabilities Development</i>	64.946	21.193	70.153	51.416	0.000	51.416	51.480	53.081	55.547	56.659	Continuing	Continuing
RE: <i>Counter-Terrorism Technologies</i>	858.849	108.964	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	967.813
RF: <i>Forensics Technologies</i>	459.463	30.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	490.410
RG: <i>Counter WMD Technologies and Capabilities Development</i>	175.576	22.354	225.087	265.224	0.000	265.224	242.425	246.630	250.582	255.592	Continuing	Continuing
RI: <i>Nuclear Survivability</i>	57.782	8.583	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	66.365
RL: <i>Nuclear & Radiological Effects</i>	11.895	2.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.842
RM: <i>WMD Counterforce Technologies</i>	197.217	40.365	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	237.582
RT: <i>Target Assessment Technologies</i>	339.711	21.813	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	361.524

Note

In FY 2020, Defense Threat Reduction Agency (DTRA) consolidated program element 0603160BR projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL- Nuclear and Radiological Effects into the renamed project RD-Nuclear Technologies and Capabilities Development. 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. There is no change to the program element or project structure in the FY 2021 request.

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 established annually by the Defense Threat Reduction Agency (DTRA). The objectives directly support policy and planning guidance from the Executive Office of the President, the Department of Defense (DoD), and the broader Weapons of Mass Destruction (WMD) threat reduction community.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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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The portfolio advances the Countering WMD (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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	280.858	340.065	333.624	-	333.624
Current President's Budget	275.246	330.065	366.659	-	366.659
Total Adjustments	-5.612	-10.000	33.035	-	33.035
• Congressional General Reductions	-	-10.000			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.041	-			
• SBIR/STTR Transfer	-6.653	-			
• Realignment	-	-	33.035	-	33.035

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

Project: RM: *WMD Counterforce Technologies*

Congressional Add: *Target Sensing Technologies*

	FY 2019	FY 2020
Congressional Add Subtotals for Project: RM	10.000	0.000
Congressional Add Totals for all Projects	10.000	0.000

Change Summary Explanation

The Congressional reduction in FY 2020 is for excess and unjustified growth. The increase in FY 2021 from the previous President's Budget submission is due to increased investment in WMD counterterrorism activities including the improvement of Combatant Commanders' offensive capabilities for render safe, pathway defeat, critical infrastructure defeat, and improved CWMD Joint Intelligence Preparation of the Operational Environment (JIPOE) and Preparation of the Environment (PE) capabilities. This increase also supports efforts to develop, integrate, demonstrate, and transition CWMD advanced sensors, surveillance, and defeat planning technologies in support of the warfighter. DTRA intends to increase research and development in CWMD target assessment technologies including tools for the characterization of CWMD targets across all Combatant Commands. Additionally, DTRA realigned of the CWMD situational awareness for the CWMD Information Integration Cell (CIIC) from program element 0602718BR to better reflect the nature of this activity.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RA: CWMD Cross-Cutting Technical and Information Sciences	68.860	18.080	34.825	50.019	0.000	50.019	46.279	49.207	50.708	51.721	Continuing	Continuing

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)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RA: CWMD Cross-Cutting Technical and Information Sciences	18.080	34.825	50.019	0.000	50.019
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 2020 Plans:					
- Develop a robust quick reaction capability 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.					
- 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 Interagency Modeling and Atmospheric Assessment Center (IMAAC) Technical Operations Hub.					
- Continue to develop capabilities in support of United States Strategic Command (USSTRATCOM) and United					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>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>FY 2021 Base Plans:</p> <ul style="list-style-type: none"> - Develop processes, capabilities and expertise in order to deliver rapid responses to Requests for Information as DOD's only resource providing 24/7/365 WMD subject matter expertise and analyses to customers across the full spectrum of Chemical, Biological, Radiological, Nuclear, and high yield Explosives (CBRNE) in support of Combatant Command (CCMD) plans and operations. - Develop the global synthetic population and activity database for modeling infectious disease propagation and impacts of population behaviors and movement after a WMD event in support of CCMD force health protection and consequence management planning. - Utilize acquisition expertise, innovation tools, and agile contract solutions to deliver capabilities to the warfighter as urgent operational requirements emerge; transition material and non-material developmental technologies to fielded solutions as rapidly as possible. - Provide expanded/enhanced CWMD information sharing and data analysis to meet increasing CCMD and interagency demand for support. <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase from FY 2020 to FY 2021 is due to the realignment of CWMD situational awareness for the CWMD Information Integration Cell (CIIC) from program element 0602718BR to better reflect the nature of this activity and increased investment in cross-cutting research and development. Additionally, DTRA realigned funds from program element 0602718BR for the improvement of the Automated Solicitation Proposal Management System (ASPMS), a contract and grant management system. This supports the cost sharing agreement between DTRA and the Chemical Biological Defense Program (CBDP).</p>					
Accomplishments/Planned Programs Subtotals	18.080	34.825	50.019	0.000	50.019

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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>

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• 21/0602718BR/RA: <i>Counter Weapons of Mass Destruction Applied Research</i>	36.665	44.167	40.965	0.000	40.965	42.194	42.773	47.564	48.593	Continuing	Continuing
• 162/0605502BR/RA: <i>Small Business Innovation Research</i>	11.315	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.315

Remarks

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020		
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>		
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RD: <i>Nuclear Technologies and Capabilities Development</i>	64.946	21.193	70.153	51.416	0.000	51.416	51.480	53.081	55.547	56.659	Continuing	Continuing

Note

In FY 2020, DTRA consolidated projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL- Nuclear and Radiological Effects in program element 0603160BR, into the renamed project RD-Nuclear Technologies and Capabilities Development. There are no changes to the program element or project structure in the FY 2021 request.

A. Mission Description and Budget Item Justification

1. Research, development, test, and evaluation (RDT&E) 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 Department of Defense (DoD) requirements for countering terrorism, counterproliferation, nonproliferation, countering rogue states, and homeland defense.
2. RDT&E to systematically study signatures associated with adversary nuclear programs and nuclear detonations to gain knowledge or understanding necessary to: determine technical capabilities needed to improve DoD contingency planning activities; improve DoD situational awareness on the nuclear battlefield; and improve capabilities to attribute the source of a nuclear detonation.
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 DoD 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 electromagnetic pulse (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.
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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<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 2020 Plans:</p> <ul style="list-style-type: none"> - Conduct utility assessment and transition prototype sensors with improved capabilities for wide area search mission - Develop an additional new radiation signature test device (RSTD) to expand test capabilities and detector evaluation - Conduct test and evaluation and utility assessments of Medium Resolution Radioisotope Identification Devices (RIIDs) to inform acquisition decisions by JPEO-CBRND. - Develop prototype wearable detectors to enhance user agility during search operations. - Provide novel isotope identification algorithm to support DOD's unique search needs - Integrate radionuclide sensors into the Integrated Early Warning Technology Demonstration (IEW) - Transition those technologies that demonstrate exceptional capabilities in radiation and nuclear threat detection to advanced technology development - Develop and test techniques to improve the ability of nuclear modeling codes to support tactical DoD operations. - Develop, integrate, and field test technologies and techniques for field analysis of nuclear events to provide (1) rapid answers in support of nuclear threats, attribution processes, and counterproliferation activities, and 2) improved situational awareness on the nuclear battlefield in order to inform tactical and strategic military action. - Develop and test Modular Airborne Gaseous Isotope Collection System (MAGICS) 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. - 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. 	21.193	70.153	51.416	0.000	51.416

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<ul style="list-style-type: none"> - Develop, demonstrate, test, and transition systems that remotely monitor nuclear and radiological threat signatures in small and wide areas. - Develop new or update existing standards and handbooks to capture critical information for DoD to verify and validate mission critical systems. - Develop and collaborate on Satellite System Natural and Nuclear Environment Protection Standard with DoD Stakeholders and the DoD Standardization Program Office. - Produce 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. - 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. - Develop natural gas and water/seawater effects models in support of USSTRATCOM Consequences of Execution efforts, linking higher order effects to Political Military Economic Social Infrastructure Information (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. <p><i>FY 2021 Base Plans:</i></p> <ul style="list-style-type: none"> - Develop software capability by Q4 FY 2021 to inject nuclear effects with appropriate fidelity into 3-4 studies/analyses/wargames. - Integrate improved contamination identification and avoidance capabilities into Service sensor networks and command and control systems - Provide Long Dwell Spectrometer (LDS) with utility assessment for transition to Technical Support Group - Develop and evaluate a modern replacement for the Alpha Beta detector more suited to support DoD's mission - Evaluate the performance of prototype for use as a replacement for high-pressure Helium-3 tubes for neutron detection in support of the development of modern, novel detector solutions - Provide prototype next generation cadmium zinc telluride (CZT) high-resolution (0.5%) detectors with 200% increase in size - Provide prototype, novel neutron multiplicity detectors that are not Helium-3 based but meet or exceed the performance of Helium-3 based neutron detectors - Provide automated/autonomous system that combines 3D Light Detection and Ranging (LIDAR) mapping with radiation hazard detection and identification of point and wide area hazards for operational utility assessment 					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Provide improved aerial search/long dwell capabilities integrated into Mission Design Tool. - Provide novel, low profile, low power photomultiplier that can offer a significant reduction in size, weight and power requirements for radiation detectors - Provide prototype electromagnetic pulse (EMP) sensor(s) for use on the battlefield enabling warfighter situational awareness of EMP effects - Conduct Technology Demonstrations of an integrated sensor network able to rapidly identify and map a radiological contaminated area using mobile, unmanned, manned and unattended sensors - Conduct test and evaluation and utility assessments to inform acquisition decisions for selection of radiation imagers to support DoD missions. FY 2021 OCO Plans: N/A FY 2020 to FY 2021 Increase/Decrease Statement: The decrease from FY 2020 to FY 2021 is a result of the net impact of decreased investment in nuclear warfighting dominance to fund increased investment in nuclear weapons effects targeting, battlefield nuclear warfare, certification without underground testing, and enhanced consequence analysis in program element 0602718BR.					
Accomplishments/Planned Programs Subtotals	21.193	70.153	51.416	0.000	51.416

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 21/0602718BR/RD: <i>Counter Weapons of Mass Destruction Applied Research</i>	21.050	89.860	92.492	0.000	92.492	91.351	93.732	95.307	97.214	Continuing	Continuing
• 128/0605000BR/RD: <i>Counter Weapons of Mass Destruction Systems Development</i>	-	7.500	15.650	0.000	15.650	14.803	13.959	13.118	13.381	Continuing	Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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>

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RE: Counter-Terrorism Technologies	858.849	108.964	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	967.813

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, which 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; and (2) USSOCOM CWMD-T Support, which 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RE: Counter-Terrorism Technologies	108.964	0.000	0.000	0.000	0.000
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 2020 Plans: N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	108.964	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RE / <i>Counter-Terrorism Technologies</i>

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 21/0602718BR/RE: <i>Counter Weapons of Mass Destruction Applied Research</i>	0.850	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.850

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 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RF / <i>Forensics Technologies</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RF: <i>Forensics Technologies</i>	459.463	30.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	490.410

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; and (3) nuclear forensic materials exploitation for attribution.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RF: Forensics Technologies	30.947	0.000	0.000	0.000	0.000
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; and (3) technologies to detect, locate, identify, track, and interdict nuclear and radiological threats, including enablers to their acquisition and development.					
FY 2020 Plans: N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RF / <i>Forensics Technologies</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
N/A					
Accomplishments/Planned Programs Subtotals	30.947	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 21/0602718BR/RF: <i>Counter Weapons of Mass Destruction Applied Research</i>	7.716	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.716
• 128/0605000BR/RF: <i>Counter Weapons of Mass Destruction Systems Development</i>	6.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.016

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 2021 Defense Threat Reduction Agency										Date: February 2020		
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>		
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RG: <i>Counter WMD Technologies and Capabilities Development</i>	175.576	22.354	225.087	265.224	0.000	265.224	242.425	246.630	250.582	255.592	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.

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; and (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.
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) 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; and (3) innovative engineering of select promising technologies discovered under fundamental and basic

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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>

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), facility defeat, 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 facility defeat project develops, validates and employs processes and software for characterization and defeat of command specified hard targets in conjunction with DIA analysis. 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RG: Counter WMD Technologies and Capabilities Development	22.354	225.087	265.224	0.000	265.224
Description: Project RG develops advanced technologies and weapon concepts and validates their applicability to CWMD.					
FY 2020 Plans:					
- Finalize full scale testing of the Agent Defeat Penetrator fill.					
- Conduct full-scale prototype demonstration of novel access denial technology in an operational environment.					
- Develop offensive counterproliferation, counter-WMD technologies in support of Combatant Command requirements.					
- Develop WMD pathway defeat technologies, as well as threat-specific test articles and analyses.					
- Develop lighter, smaller, more effective breaching capabilities.					
- Develop next generation WMD detection technology applications.					
- Integrate High Performance Computing (HPC) software tools into Dynamic Picture of the Operating					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Environment (DPOE), leveraging capabilities of high performance computing to improve automated analytics to more accurately and quickly identify events, actors, and threats.</p> <ul style="list-style-type: none"> - 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. - 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. - 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. - 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. - Develop enhancements to the Integrated Munitions Effects Assessment modeling and simulation planning tool. - Support for Combatant Command exercises and planning events at the Nevada Test Bed to develop target defeat technologies, tools, and capabilities. - 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 Combatant Command and IC WMD and HDBT characterization and defeat requirements. - 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. - Maintain cooperative CWMD project technical exchanges with the United Kingdom (UK) in support of US/UK Project Agreement. - Maintain Coalition Warfare Program Agreement with Republic of Korea for advancement of autonomous tunnel exploitation technologies. - Develop complex geotechnical models for support of geotechnical site characterization of WMD hard target sites. - Develop enhancements and integrate warfighter requirements into client version and the mobile version for Sensitive Site Exploitation. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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)

- Develop and assess new analytic capabilities to enhance the warfighter's ability to conduct predictive analysis and forecast potential WMD threats informing future CWMD requirements.

FY 2021 Base Plans:

- Deliver a streamlined Underground Facility (UGF) characterization tool incorporating Automated Advanced Targeting Development (A2TD) automation.
- Deliver Full Dimensional Defeat Enterprise (FDDE) planning visualization tool for mobile deployment
- Achieve Initial Operational Capability of System of Systems Facility Defeat Methods for Combatant Command Course of Action development.
- Deliver Advanced Solid Mechanics computational tools in support of Combatant Command requirements.
- Begin development of second generation HPC software tools for DPOE, leveraging capabilities of high performance computing to improve automated analytics to more accurately and quickly identify events, actors and threats .
- Integrate new models into DPOE to assess adversarial groups' intent to conduct chemical or biological weapon attacks.
- Develop and integrate advanced capabilities and refine an operational framework to enhance warfighter capabilities to search for, detect, and identify WMD threats prior to release.
- Extend WMDpedia capabilities to support CWMD Mission Planning incorporating semi-supervised and active machine learning.
- Maintain cooperative CWMD project technical exchange with the United Kingdom (UK) in support of US/UK Project Agreement
- Conduct material science development and applications development to provide advanced materials for use in chemical and biological agent defeat.
- Develop, demonstrate, and transition a ground sensor with multiple modalities for signature detection, classification, and localization for strategic systems defeat..
- Develop and transition four high explosive prototype fills to the Army.
- Develop, integrate and demonstrate advanced CWMD sensing payloads for both unmanned and remote sensing missions.
- Develop machine learning neural networks trained to optimize conventional weapon strikes against hardened and WMD facilities.
- Develop new and enhanced capabilities for defensive vulnerability assessment and offensive WMD defeat modeling and simulation planning tools.

FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<ul style="list-style-type: none"> - Investigate, develop, and integrate new technologies for enhancement and protection of autonomous capabilities to provide joint solutions in a multi-domain environment. - Develop CWMD weapon effects modeling algorithms and conduct scaled test series leveraging machine learning and optimization to investigate CWMD weapon effects for enhancing WMD defeat modeling and simulation planning tools and assessing new WMD defeat mechanisms . - Conduct full-scale prototype demonstration of novel access denial technology in an operational environment. - Complete Coalition Warfare Program Agreement with Republic of Korea for advancement of autonomous tunnel exploitation technologies. - Develop offensive counter-proliferation, counter-WMD technologies in support of Combatant Command requirements. - Develop WMD pathway defeat technologies, as well as threat-specific test articles and analyses. - Develop lighter, smaller, more effective breaching capabilities . - Develop and test structural, reactive materials and advanced agent defeat concepts to improve the capability to defeat and/or neutralize WMD-related targets. <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The increase from FY 2020 to FY 2021 is due to increased investment in WMD counterterrorism activities including the improvement of Combatant Commanders' offensive capabilities for render safe, pathway defeat, critical infrastructure defeat, and improved CWMD Joint Intelligence Preparation of the Operational Environment (JIPOE) and Preparation of the Environment (PE) capabilities. This increase also supports efforts to develop, integrate, demonstrate, and transition CWMD advanced sensors, surveillance, and defeat planning technologies in support of the warfighter. Finally, DTRA intends to increase research and development in CWMD target assessment technologies including tools for the characterization of CWMD targets across all Combatant Commands.</p>					
Accomplishments/Planned Programs Subtotals	22.354	225.087	265.224	0.000	265.224

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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>

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 21/0602718BR/RG: <i>Counter Weapons of Mass Destruction Applied Research</i>	7.938	22.253	22.958	-	22.958	22.919	23.715	24.190	24.675	Continuing	Continuing

Remarks

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RI / <i>Nuclear Survivability</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RI: <i>Nuclear Survivability</i>	57.782	8.583	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	66.365

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

Efforts in this project include human survivability, radiation Hardened nano-electronics, stockpile logistics, and the nuclear Surety Program

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RI: Nuclear Survivability	8.583	-	-	-	-
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.					
Accomplishments/Planned Programs Subtotals	8.583	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RI / <i>Nuclear Survivability</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 21/0602718BR/RI: <i>Counter Weapons of Mass Destruction Applied Research</i>	22.632	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.632

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 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RL / <i>Nuclear & Radiological Effects</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RL: <i>Nuclear & Radiological Effects</i>	11.895	2.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.842

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RL: Nuclear and Radiological Effects	2.947	-	-	-	-
Description: Project RL develops nuclear and radiological assessment modeling tools to support military operational planning, weapons effects predictions, and strategic system design decisions.					
Accomplishments/Planned Programs Subtotals	2.947	-	-	-	-

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 21/0602718BR/RL: <i>Counter Weapons of Mass Destruction Applied Research</i>	27.643	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	27.643
• 128/0605000BR/RL: <i>Counter Weapons of Mass Destruction Systems Development</i>	1.203	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.203

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RL / <i>Nuclear & Radiological Effects</i>

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
Remarks											

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RM / <i>WMD Counterforce Technologies</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RM: <i>WMD Counterforce Technologies</i>	197.217	40.365	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	237.582

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 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; and (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)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RM: WMD Counterforce Technologies	30.365	-	-	-	-
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.					
Accomplishments/Planned Programs Subtotals	30.365	-	-	-	-

	FY 2019	FY 2020
Congressional Add: Target Sensing Technologies	10.000	0.000
FY 2019 Accomplishments: - Procured four (4) flight test prototypes systems and eight (8) prototype sensor systems for target sensing technologies program. Details classified. - Funded two (2) flight test execution activities using procured flight test prototypes. Details classified. - Funded further development of additional algorithm development and integration with mission performance capabilities, resulting in software configuration control board system recommendations and analysis. Details classified.		

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RM / <i>WMD Counterforce Technologies</i>

	FY 2019	FY 2020
- Funded transition planning of program and systems development to Service/Warfighter.		
FY 2020 Plans: N/A		
Congressional Adds Subtotals	10.000	0.000

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 21/0602718BR/RM: <i>Counter Weapons of Mass Destruction Applied Research</i>	11.342	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.342

Remarks

D. Acquisition Strategy

Assessment and selection of best performer for developmental requirements to meet specific military capability needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RT / <i>Target Assessment Technologies</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RT: <i>Target Assessment Technologies</i>	339.711	21.813	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	361.524

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 (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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RT: Target Assessment Technologies	21.813	-	-	-	-
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.					
Accomplishments/Planned Programs Subtotals	21.813	-	-	-	-

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	135.144	169.638	113.590	0.000	19.931	19.931	39.432	30.015	29.690	29.746	Continuing	Continuing
JC: <i>Enable Rapid Capability Delivery</i>	117.640	158.660	103.793	0.000	9.841	9.841	29.146	19.430	18.803	18.641	Continuing	Continuing
JS: <i>Assist Situational Understanding</i>	17.504	10.978	9.797	0.000	10.090	10.090	10.286	10.585	10.887	11.105	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element supports the development, demonstration, and testing of technologies to advance the analytical infrastructure, methods, and tools to enhance asymmetric countermeasure solutions. Advancements in analytics include the production of tools that leverage machine learning and artificial intelligence, increasing our ability to expedite the understanding of threat facilitation network connections and activities. This investment also enables development and delivery of capabilities to understand, anticipate, illuminate, isolate, and/or mitigate asymmetric threats and their effects.

DTRA expedites technology transition from the laboratory to operational use to reduce risk within the acquisition process. This is done by evaluating integrated technologies or prototype systems in a high quality and realistic operating environment.

B. Program Change Summary (\$ in Millions)	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	148.772	113.590	0.000	69.950	69.950
Current President's Budget	169.638	113.590	0.000	19.931	19.931
Total Adjustments	20.866	0.000	0.000	-50.019	-50.019
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignments	20.866	-	0.000	-19.709	-19.709
• Defense Wide Review Adjustments	-	-	0.000	-30.310	-30.310

Change Summary Explanation

The decrease from FY 2020 to FY 2021 reflects:

(1) a realignment of funds to PE 0603160BR (Counter Weapons of Mass Destruction Advanced Technology Development) to fund higher priority investments including WMD counterterrorism technologies, and

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	PE 0604134BR / <i>Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing</i>

(2) Defense-Wide Review (DWR) adjustment of -\$30.310 million resulting from reductions to DTRA's lowest priority RDT&E programs and the transfer of C-IED programs to the Army to better align RDT&E efforts with the C-IED mission holder. The Army assumes executive agent responsibilities for C-IED effective 1 October 2020.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
JC: Enable Rapid Capability Delivery	117.640	158.660	103.793	0.000	9.841	9.841	29.146	19.430	18.803	18.641	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DTRA delivers counter asymmetric threats materiel solutions in support of joint and combined forces, effectively addressing changes to threat tactics, techniques, and procedures (TTPs). DTRA responds to asymmetric threats identified by the forward deployed warfighter as well as academia and industry.

This project builds prototypes and tests and evaluates existing industry systems to meet Combatant Command capability gaps and emerging asymmetric threats. DTRA also provides solutions to prevent or mitigate battlefield operational surprise.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: JC: Enable Rapid Capability Delivery	158.660	103.793	0.000	9.841	9.841
Description: This project delivers materiel solutions to counter asymmetric threats in support of joint and combined forces supporting contingency operations, effectively addressing changes to threat tactics, techniques, and procedures (TTPs).					
FY 2020 Plans: - Improve size, weight, power and integration of sensors to small unmanned systems. - Improve on-board vs. off-board data processing to provide real time data in unmanned systems to support real time improvised threat detection. - Improve/develop detection and defeat of Unmanned Systems capabilities using 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.).					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: - Develop two user-friendly technologies to inform and evaluate the autonomous systems and energetics focus areas.					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Develop an aviation sensor fabrication prototype to address detection and identification capability gaps (Split Aces and Hyper Spectral Imaging).					
- Provide two to three models and simulations in support of Counter Asymmetric Systems activities.					
- Conduct one theater support/ capabilities test in support of asymmetric threats.					
- Conduct one vendor demonstration and validate system performance capabilities for asymmetric threats.					
FY 2020 to FY 2021 Increase/Decrease Statement:					
The decrease from FY 2020 to FY 2021 reflects:					
(1) a realignment of funds to PE 0603160BR (Counter Weapons of Mass Destruction Advanced Technology Development) to fund higher priority investments including WMD counterterrorism technologies, and					
(2) Defense-Wide Review (DWR) adjustment of -\$30.310 million resulting from reductions to DTRA's lowest priority RDT&E programs and the transfer of C-IED programs to the Army to better align RDT&E efforts with the C-IED mission holder. The Army assumes executive agent responsibilities for C-IED effective 1 October 2020.					
Accomplishments/Planned Programs Subtotals	158.660	103.793	0.000	9.841	9.841

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 10/0602134BR/JC: <i>Counter Improvised-Threat Advanced Studies</i>	0.000	0.502	0.000	2.500	2.500	6.117	6.564	6.657	6.830	Continuing	Continuing
• 28/0603134BR/JC: <i>Counter Improvised-Threat Simulation</i>	13.648	49.528	0.000	3.861	3.861	59.179	60.803	61.661	63.394	Continuing	Continuing

Remarks

D. Acquisition Strategy

Assess and select 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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	-	9.556	Apr 2019	7.052	Nov 2019	-		-		-	0.000	16.608	16.608
Booby Trapped Structures (BTS)	C/FFP	Shield AI : San Diego, CA	3.420	7.066	May 2019	4.251	May 2020	-		-		-	0.000	14.737	14.737
Buried IED	C/CPFF	Naval Research Lab : Washington, DC	-	7.553	Feb 2019	2.299	Nov 2019	-		-		-	0.000	9.852	9.852
Home-Made Explosives (HME)	C/CPFF	Manufacturing Techniques, Inc. (MTEQ) HQ : Lorton, VA	17.956	8.825	Mar 2019	5.002	Mar 2020	-		-		-	0.000	31.783	31.783
Network	C/FFP	John Hopkins : Baltimore, MD	16.121	15.963	Apr 2019	12.875	Apr 2020	-		-		-	0.000	44.959	44.959
Person-Born IED (PBIED)	C/FFP	MIT Lincoln Laboratory (MIT-LL) : Lexington, MA	4.000	9.704	May 2019	5.752	May 2020	-		-		-	0.000	19.456	19.456
Radio Controlled IED (RCIED)	C/CPFF	Rampart Technologies, Colorado Springs, CO : Sericore, Hanover, MD	-	3.015	May 2019	0.500	Nov 2019	-		-		-	0.000	3.515	3.515
RDT&E Technology Enablers	C/CPFF	Various : Various	18.663	23.451	Jan 2019	12.662	Jan 2020	-		-		-	0.000	54.776	54.776
Sensitive Integration Office (SIO) Programs	C/CPFF	Various : Various	15.551	18.220	May 2019	10.000	Nov 2019	-		-		-	0.000	43.771	43.771
Tunnel	C/FFP	ERDC: Vicksburg, MS : MIT Lincoln Labs: Boston, MA	5.250	4.958	Mar 2019	0.000		-		-		-	0.000	10.208	10.208
Unmanned Aerial Systems (UAS)	C/FFP	Technology Service Corporation (TSC) Fairfax, VA : BAE Systems, Fridley, MN	10.223	6.419	May 2019	17.005	May 2020	-		-		-	0.000	33.647	33.647

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	-	2.770	Apr 2019	0.000		-		-		-	0.000	2.770	2.770
Vehicle-Borne IED (VBIED)	C/CPFF	Naval Surface Warfare Center (NSWC) Dahlgren : King George County, VA	7.500	11.815	May 2019	5.249	May 2020	-		-		-	0.000	24.564	24.564
Water-Borne IED (WBIED)	C/FFP	Various : Various	0.954	4.073	Aug 2019	0.000		-		-		-	0.000	5.027	5.027
Integrated Signatures Program (ISP)	MIPR	Indian Head Explosive Ordnance Technology Division : Indian Head, MD	-	-		-		0.000		4.000	Jan 2021	4.000	Continuing	Continuing	-
Split Aces 4.0	MIPR	Naval Air Systems Command PM263 : Patuxent River, MD	-	-		-		0.000		2.841	Feb 2021	2.841	Continuing	Continuing	-
Subtotal			99.638	133.388		82.647		0.000		6.841		6.841	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 (T&E) 6.4	MIPR	Naval Air Weapons Station : China Lake, CA	11.485	11.397	Dec 2018	13.637	Jan 2019	-		-		-	0.000	36.519	36.519
T&E Threat Support 6.4	MIPR	Intelligence and Information Warfare Directorate (I2WD), Communications-Electronics Research, Development and Engineering Center (CERDEC) :	5.275	9.155	Dec 2018	7.509	Jan 2019	-		-		-	0.000	21.939	21.939

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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)																												
Improved National Technical Means (NTM) Integration																												
North Wind																												
Gold Bloom																												
Iris Sanctum																												
Iris Trace																												
Science and Technology Counter Network																												
Sensitive Integration Office Programs																												
Tough Luck																												
Velvet Paper																												
ISP																												
Person-Born IED (PBIED)																												
Atomic Magnetometer																												
PBIED Sensor Integration (Tiger Paw)																												
Radio Controlled IED (RCIED)																												
Songbird (Whistler Spiral)																												
RDT&E Technology Enablers																												
Technical Outreach BA 4																												
Counter-small Unmanned Aerial Systems (C-sUAS)																												
C-sUAS Test and Evaluation																												
GroundTaker																												
Microwave Frequency Oscillator (MFO) C-sUAS																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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

Mobile C-sUAS Airborne Platform Suite (MCAPS) Spiral																												
Multi vs. Multi Airborne Dispersed																												
Multi vs. Multi Dismounted Deployed																												
Pike on Reaper																												
Tech Exploitation Tech Red Device Coordination																												
Split Aces 4.0																												
Test & Eval																												
Test & Evaluation Support																												
Vehicle-Borne IED (VBIED)																												
Supernova Spiral																												
C-IED																												
Travel																												
Rapid Experimentation and Analysis for Development Support (READS)																												
UK Joint Tech Development																												
VBIED Detection Sensor Integration																												

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
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	██████████																											
Standoff Portable Isotopic Neutron Spectroscopy (SPINS)					██████████																							
Improvised Threat Device Replication																												
T&E Threat Support					██████████																							
Network																												
Cobalt Doom	██████████																											
Explosives attribution and exploitation (EA2)	██████████																											
Improved National Technical Means (NTM) Integration					██████████																							
North Wind	██████████																											
Gold Bloom	██████████																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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	2020
Explosive Form Projectile (EFP) Detect - Stalker	1	2020	4	2020
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	2020
Buried IED				
Microwave Frequency Oscillator (MFO) - Mineroller	1	2019	2	2020
Spectral Polarimetric Instrument Data Analysis (SPIDA)	1	2019	4	2020
SPIDA Spiral (Automated Change Detection)	3	2020	4	2020
Home-Made Explosives (HME)				
Mini Hyper Spectral Imaging Group 3	4	2018	4	2020
Standoff Portable Isotopic Neutron Spectroscopy (SPINS)	3	2019	2	2020
Improvised Threat Device Replication				
T&E Threat Support	1	2020	4	2020
Network				
Cobalt Doom	1	2018	4	2020
Explosives attribution and exploitation (EA2)	1	2019	4	2020
Improved National Technical Means (NTM) Integration	4	2019	4	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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
North Wind	4	2015	4	2020
Gold Bloom	2	2013	4	2020
Iris Sanctum	4	2012	4	2020
Iris Trace	4	2012	4	2020
Science and Technology Counter Network	1	2012	4	2020
Sensitive Integration Office Programs	1	2015	4	2020
Tough Luck	2	2014	4	2020
Velvet Paper	1	2012	4	2020
ISP	1	2021	4	2024
Person-Born IED (PBIED)				
Atomic Magnetometer	2	2019	3	2020
PBIED Sensor Integration (Tiger Paw)	1	2018	2	2020
Radio Controlled IED (RCIED)				
Songbird (Whistler Spiral)	1	2020	4	2020
RDT&E Technology Enablers				
Technical Outreach BA 4	1	2016	4	2020
Counter-small Unmanned Aerial Systems (C-sUAS)				
C-sUAS Test and Evaluation	1	2019	4	2024
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	2020
Pike on Reaper	4	2019	4	2020
Tech Exploitation Tech Red Device Coordination	1	2019	4	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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
Split Aces 4.0	1	2020	4	2021
Test & Eval				
Test & Evaluation Support	1	2020	4	2020
Vehicle-Borne IED (VBIED)				
Supernova Spiral	4	2019	4	2020
C-IED				
Travel	1	2018	4	2020
Rapid Experimentation and Analysis for Development Support (READS)	3	2012	4	2020
UK Joint Tech Development	1	2019	4	2020
VBIED Detection Sensor Integration	3	2019	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
JS: <i>Assist Situational Understanding</i>	17.504	10.978	9.797	0.000	10.090	10.090	10.286	10.585	10.887	11.105	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification

This project enables DTRA’s Catapult Information System Program to design, develop, test, and deliver mission capabilities that support the ability to collect, aggregate, and analyze intelligence data on global improvised threats and threat networks. Catapult and DTRA’s Mission Information Technology (MIT) capability allows DTRA to rapidly develop, engineer, test and deploy analytical tools, threat models and simulations, data science methodologies, and software applications in support of the Warfighter. Catapult and its associated Attack the Network Tool Suite (ANTS) integrates intelligence data sources that support the detection and identification of improvised threats, threat networks and actors, command and control, operations, intelligence, and engagement for neutralizing, attacking, and defeating both current and emerging improvised threats and threat networks.

DTRA’s MIT capability, with its embedded Combatant Command (CCMD) capability, data integrators, and reachback staff work continuously to create capabilities requested by users from the DoD, the Intelligence Community (IC), interagency partners, and the Whole of Government to ingest, fuse, analyze, and present mission relevant data and information. These capabilities reside in Catapult, a cloud technology-based data analytics platform developed and being delivered by DTRA that provides an extensible, continuously augmented, real-time repository of intelligence on improvised threats, including IEDs, and worldwide threat actors and networks. Catapult is fully operational and accredited on the Secret Internet Protocol Router Network (SIPRNet) and Joint Worldwide Intelligence Communications System (JWICS). The Catapult architecture pulls from more than 850 data sources on SIPRNet and more than 170 data sources on JWICS. Catapult uses a set of more than 100 tools (ANTS) and services to provide national-level capabilities for data and information capture, discovery, access, aggregation, correlation, visualization, analysis, sharing, and distribution for users from the strategic level to the tactical edge.

In addition to Catapult, the DTRA MIT created and deployed a significant capability called Voltron. Voltron provides analysts access to signals intelligence (SIGINT) data within a secure and IC-accredited software developer environment. Voltron provides users a single interface to query more than 25 data sources and combines results into dynamic visualizations and exports. Voltron captures analytics techniques and provides a constantly growing toolbox providing analysts with continuously new models in support of 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 the tactical targeting environment and built in collaboration with other teams across the IC. There are currently more than 75 models in Voltron available to the user community.

DTRA’s authorities and mission have enabled a unique, Secure Development Operations (DevSecOps) “Path-to-Production” to rapidly develop and deploy mission-driven IT solutions. This unique development environment includes an integrated Cyber Security Assessment and Authorization process, an in-house collateral

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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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Authorizing Official for SIPRNet and DIA-approved Authorization to Operate on JWICS, creating 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Title: JS: Assist Situational Understanding</p> <p>Description: This project enables DTRA to design, develop, test, and deliver mission capabilities that support the ability to collect, aggregate, and analyze intelligence data on global improvised threats and threat networks. The project allows DTRA to rapidly develop, engineer, test, and deploy analytical tools, threat models and simulations, data science methodologies, and software applications in support of the Warfighter. Catapult and its associated Attack the Network Tool Suite (ANTS) integrates intelligence data sources that support the detection and identification of improvised threats, threat networks and actors, command and control, operations, intelligence, and engagement for neutralizing, attacking, and defeating both current and emerging improvised threats and threat networks.</p> <p>Provides testing and engineering support for COTS and GOTS intelligence analysis application and software and systems that operate on the mission enclave. Supports cybersecurity testing and security engineering of new or upgraded software and systems prior to authorization to operate on production enclaves.</p> <p>Sandia / SETA Capability Research Architecture Cell (CRAC) identifies, investigates, explores, evaluates, and tests prototypes of emerging and cutting edge information technology that provides superior advantage to analysts and warfighters. Sandia / CRAC builds partnerships with mission partners in DoD, IC, IA, Academia, National Labs and Industry to support, develop and integrate plans, programs, requirements, resources, technology and innovations across the mission spectrum for DTRA. Facilitates innovation, acceleration of programs, rapid response to emerging events, and rapid development and operationalization of new technologies.</p> <p>FY 2020 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). - Create new 3D visualizations for underwater/Bathymetric datasets to support maritime operations and mitigate new improvised threats. - Integrate 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 	10.978	9.797	0.000	10.090	10.090

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>C-sUAS system placement in tactical/operational environments.</p> <ul style="list-style-type: none"> - Integrate 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 Horizon tool. - Integrate 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. - Enhance 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>FY 2021 Base Plans: N/A</p> <p>FY 2021 OCO Plans:</p> <ul style="list-style-type: none"> - Develop predictive Data Science models through supervised and unsupervised Machine Learning against current and emerging threats; including fusion of multi-INT data across unclassified and classified data sets to identify networks and locations of interest to DTRA and its mission partners. - Create a new development environment to enable "technology at the edge" to support real-time development of new Data Science models/algorithms at mission partner sites to enhance existing or future Catapult Machine Learning models. - Implement role-based access control and dynamic query analytics across Catapult data through Elastic Search to enable users to quickly retrieve known affiliates, family members, contacts, aliases, email addresses and other information about entities and enemy threat networks without running additional queries. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<ul style="list-style-type: none"> - Create “Functions as a Service” by commoditizing common used functions and analytics across the ANTS to enable scalability and elasticity across the tool suite allowing ANTS capabilities to execute analytics against larger and more diverse data sets. - Extend Catapult architecture to allow for shared services across Whole of Government to enable MIT developed analytics to be re-used in other platforms and tools across various IC and DoD organizations. - Develop Active Learning interface and pipeline to enable crowdsourced input for training and tagging data to feed new Data Science machine learning models. - Modularize Catapult’s Data Processing Framework to enable targeted data transformation based on data source, artifact mime type, artifact size, or any number of other source specific properties; Add better processing support for structured data, imagery, financial, SIGINT, Measurement and Signature Intelligence (MASINT), Internet of Things (IoT), and cyber data to broaden the scope of the Catapult Analytics stack. - Enable collaborative VR capabilities to assist mission planning and force protection by extending existing VR capabilities to enable multi-user support and shared walkthroughs of 3D models. - Determine the best techniques to shrink neural network algorithms to work on low power and small computer platforms such as cameras or SUASs (Real-time Processing at the Edge wrapping up in early FY 2021). - Determine the capabilities that go beyond simple content identification and labeling, and move toward understanding the story and context of the video or image (Computer Vision for Improvised Threats). - Determine unsupervised and supervised techniques to cluster relevant information and enable accurate insight for analysts to improve the understanding of (1) themes, (2) intent of extracted text, (3) topics, (4) authenticity, etc. within the given data set(s) (Natural Language Processing – Understanding and Context). - Improve processing with alternative hardware (neuromorphic processors, Field Programmable Gate Arrays, etc.) by determining the best next generation hardware designed to maximize the runtime efficiency, accuracy, and limited space/power consumption of select AI/ML solutions. <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The slight increase from FY 2020 to FY 2021 is due to the growing number of requests for services, emerging threats, and technologies, user-base supported, and advancements in technology.</p>					
Accomplishments/Planned Programs Subtotals	10.978	9.797	0.000	10.090	10.090

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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>

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

<u>Line Item</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>FY 2025</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• 10/0602134BR/JS: <i>Counter Improvised-Threat Advanced Studies</i>	0.000	1.175	0.000	1.199	1.199	1.223	1.247	1.272	1.297	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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	1.236	Aug 2019	0.000		-		-		-	0.000	2.435	2.435
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	1.854	Aug 2019	0.000		-		-		-	0.000	3.653	3.653
Sandia	MIPR	Sandia National Laboratories : Reston, VA	0.032	0.031	Oct 2018	0.040	Oct 2019	0.000		0.041	Oct 2020	0.041	Continuing	Continuing	-
IRTM	MIPR	Office of Naval Research : Arlington, VA	0.257	0.000		-		-		-		-	0.000	0.257	0.257
Network	C/FFP	John Hopkins : Baltimore, MD	1.815	0.000		-		-		-		-	0.000	1.815	1.815
Vehicle-Borne IED (VBIED)	C/CPFF	Naval Surface Warfare Command : Dahlgren, VA	8.500	0.000		-		-		-		-	0.000	8.500	8.500
Catapult Information System	C/CPAF	Booz Allen Hamilton : Reston, VA	-	-		5.218	Aug 2020	0.000		5.374	Aug 2021	5.374	Continuing	Continuing	-
Subtotal			13.602	3.121		5.258		0.000		5.415		5.415	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	0.412	Aug 2019	-		-		-		-	0.000	0.812	0.812
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	0.618	Aug 2019	0.000		-		-		-	0.000	1.217	1.217
QRC IT Network (OIR)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	1.366	Mar 2019	0.090	Mar 2020	0.000		0.093	Mar 2021	0.093	Continuing	Continuing	-
QRC IT Network (RS)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	0.258	Mar 2019	0.090	Mar 2020	0.000		0.093	Mar 2021	0.093	Continuing	Continuing	-
Sandia	MIPR	Sandia National Laboratories : Reston, VA	0.097	0.129	Oct 2018	0.120	Oct 2019	0.000		0.122	Oct 2020	0.122	Continuing	Continuing	-
Catapult Information System Support	C/CPAF	Zel Technologies : Reston, VA	0.319	0.550	Sep 2019	0.500	Mar 2020	0.000		0.515	Mar 2021	0.515	Continuing	Continuing	-
Carnegie Mellon University-Software Engineering Institute (CMU-SEI)	MIPR	Carnegie Mellon University/SEI : Hanscomb AFB, MA	0.215	0.000	Mar 2019	0.000		-		-		-	0.000	0.215	0.215
Subtotal			1.630	3.333		0.800		0.000		0.823		0.823	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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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Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	0.412	Aug 2019	0.000		-		-		-	0.000	0.812	0.812
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	0.618	Aug 2019	0.750		0.000		0.774	Aug 2020	0.774	Continuing	Continuing	-
QRC IT Network (OIR)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	1.078	Mar 2019	0.234	Mar 2020	0.000		0.241	Mar 2021	0.241	Continuing	Continuing	-
QRC IT Network (RS)	C/CPAF	Booz Allen Hamilton : Reston, VA	-	1.030	Mar 2019	0.234	Mar 2020	0.000		0.241	Mar 2021	0.241	Continuing	Continuing	-
Catapult Information System	C/CPAF	Booz Allen Hamilton : Reston, VA	-	-		0.917	Aug 2020	0.000		0.944	Aug 2021	0.944	Continuing	Continuing	-
Sandia	MIPR	Sandia National Laboratories : Reston, VA	0.194	0.184	Oct 2018	0.240	Oct 2019	0.000		0.247	Oct 2020	0.247	Continuing	Continuing	-
SETA Capability Research Architecture Cell (CRAC)	C/CPAF	Zel Technologies : Reston, VA	1.079	1.202	Sep 2019	1.364	Sep 2020	0.000		1.405	Sep 2021	1.405	Continuing	Continuing	-
Subtotal			2.272	4.524		3.739		0.000		3.852		3.852	Continuing	Continuing	N/A

Remarks
In this R-3, FY 2020 was updated to reflect increased visibility of Catapult's execution plans as a Program of Record.

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	17.504	10.978	9.797	0.000	10.090	10.090	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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-4, RDT&E Schedule Profile: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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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	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Sandia	[REDACTED]																											
SETA Capability Research Architecture Cell (CRAC)	[REDACTED]																											
Catapult / CTN Tool Suite Program of Record Support	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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	2020
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)	4	2016	4	2025
QRC IT Network (OIR)	2	2017	2	2025
QRC IT Network (RS)	2	2017	2	2025
Sandia	1	2020	1	2025
SETA Capability Research Architecture Cell (CRAC)	4	2016	4	2025
Catapult / CTN Tool Suite Program of Record Support	4	2016	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 0605000BR / <i>Counter Weapons of Mass Destruction Systems Development</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	31.368	7.219	13.100	15.650	0.000	15.650	14.803	13.959	13.118	13.381	Continuing	Continuing
MA: <i>Mission Assurance Risk Management System</i>	0.000	0.000	5.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RD: <i>Nuclear Technologies and Capabilities Development</i>	0.000	0.000	7.500	15.650	0.000	15.650	14.803	13.959	13.118	13.381	Continuing	Continuing
RF: <i>Forensics Technologies</i>	31.368	6.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.384
RL: <i>Nuclear & Radiological Effects</i>	0.000	1.203	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.203

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. On July 3, 2019, Office of the Secretary of Defense established program element 0605141BR for project MA-Mission Assurance Risk Management System. Beginning in FY 2021, funding for project MA-Mission Assurance Risk Management System will be requested in this newly established program element.

A. Mission Description and Budget Item Justification

The Counter Weapons of Mass Destruction (CWMD) Systems Development program element supports the development and demonstration of technologies and systems for the CWMD mission, including modeling and simulation (M&S) capabilities, verification and monitoring technologies, and decision support systems. This funding supports International Monitoring System (IMS) technology requirements under the Nuclear Arms Control Technology (NACT) mission and development of nuclear weapon effects (NWE) M&S capabilities for decision support systems, including Enhanced Consequence Analysis (ECA).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency	Date: February 2020
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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 0605000BR / <i>Counter Weapons of Mass Destruction Systems Development</i>
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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	6.163	13.100	13.150	-	13.150
Current President's Budget	7.219	13.100	15.650	-	15.650
Total Adjustments	1.056	0.000	2.500	-	2.500
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.203	-			
• SBIR/STTR Transfer	-0.147	-			
• Realignment	-	-	2.500	-	2.500

Change Summary Explanation

The increase in FY 2021 from the previous President's Budget is due to the net impact of:

- (1) increased investment for verification and validation, testing, documentation, and enhanced support of M&S capabilities to enable integration of these capabilities in U.S. and allied nuclear planning and decision-making, and
- (2) realignment of funding to the newly established program element 0605141BR for the Mission Assurance and Risk Management System as a program of record.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020		
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) MA / <i>Mission Assurance Risk Management System</i>				
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
MA: <i>Mission Assurance Risk Management System</i>	0.000	0.000	5.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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 Information Officer (DoD CIO) to the Defense Threat Reduction Agency (DTRA), in light of DTRA's role in conducting Joint Mission Assurance Assessments. Prior to FY 2020, funding for MARMS is captured in program element 0605170D8Z; beginning in FY 2021 funding for MARMS is captured in a newly established program element, 0605141BR.

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: MA - Mission Assurance Risk Management System	0.000	5.600	0.000	0.000	0.000
Description: 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 defines seven (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 2020 Plans:					
- 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					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
capability fielding in 4th Quarter FY 2022. - Continue the development effort of the Mission Assurance Workspace and Viewer on JWICS (CD5) toward initial capability fielding in 4th Quarter FY 2020. - 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 MA activities per DODD 3020.40 and DODI 3020.45. FY 2021 Base Plans: N/A FY 2021 OCO Plans: N/A FY 2020 to FY 2021 Increase/Decrease Statement: The decrease from FY 2020 to FY 2021 is due to the realignment of existing funding to the newly established program element 0605141BR for the Mission Assurance and Risk Management System as a program of record.					
Accomplishments/Planned Programs Subtotals	0.000	5.600	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 137/0605141BR: <i>Mission Assurance Risk Management System</i>	0.000	0.000	5.500	0.000	5.500	5.500	5.500	5.500	5.610	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
CD1 - Information Sharing and Lead Integration	MIPR	U.S. Army Futures Command : Picatinny Arsenal, NJ	-	-		2.767	Feb 2020	-		-		-	Continuing	Continuing	-
CD2 - Assessment Capability	C/CPFF	Alion Science & Technology : McLean, VA	-	-		0.690	Feb 2020	-		-		-	Continuing	Continuing	-
CD3 - Existing System Upgrades	MIPR	Naval Surface Warfare Center : Dahlgren, VA	-	-		0.700	Feb 2020	-		-		-	Continuing	Continuing	-
CD3 - Existing System Upgrades	MIPR	U.S Strategic Command (STRATCOM) : Offutt, NE	-	-		0.400	Feb 2020	-		-		-	Continuing	Continuing	-
CD4 - Workspace/Viewer on Secret Internet Protocol Router Network (SIPR) and CD5 - Workspace/Viewer on Joint Worldwide Intelligence Communications System (JWICS)	C/CPFF	TBD : TBD	-	-		0.560	Feb 2020	-		-		-	Continuing	Continuing	-
CD5 - Workspace/Viewer on Joint Worldwide Intelligence Communications System (JWICS)	C/CPFF	Institute for Defense Analysis : Washington, DC	-	-		0.390	Feb 2020	-		-		-	Continuing	Continuing	-
MARMS Hosting	MIPR	Acquisition, Logistics, and Technology Enterprise Systems and Services (ALTESS) : Radford, VA	-	-		0.093	Jan 2020	-		-		-	Continuing	Continuing	-
Subtotal			-	-		5.600		-		-		-	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency							Date: February 2020				
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) MA / <i>Mission Assurance Risk Management System</i>				
	Prior Years	FY 2019	FY 2020		FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	-	5.600		-	-	-	Continuing	Continuing	N/A	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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
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FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
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	██████████
Capability Drop 4: Workspace/Viewer on SIPR	
Development	██████████
Capability Drop 5: Workspace/Viewer on JWICS	
Development	
Capability Drop 6: Cross Domain Solution - Low to High	
Development	

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) MA / <i>Mission Assurance Risk Management System</i>

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	2020
Capability Drop 2: Assessment Capability				
Development	1	2018	3	2019
Modernization and Integration	1	2020	4	2020
Capability Drop 3: System Upgrades				
Development	1	2018	4	2020
Capability Drop 4: Workspace/Viewer on SIPR				
Development	2	2018	4	2020
Capability Drop 5: Workspace/Viewer on JWICS				
Development	1	2019	4	2020
Capability Drop 6: Cross Domain Solution - Low to High				
Development	1	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020		
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) RD / <i>Nuclear Technologies and Capabilities Development</i>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RD: <i>Nuclear Technologies and Capabilities Development</i>	0.000	0.000	7.500	15.650	0.000	15.650	14.803	13.959	13.118	13.381	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2020, DTRA consolidated projects RF-Forensics Technologies, RI-Nuclear Survivability, and RL-Nuclear and Radiological Effects in program element 0602718BR, into the renamed project RD-Nuclear Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

This project supports the development of capabilities for the Defense Threat Reduction Agency (DTRA) to counter proliferation and weapons of mass destruction (WMD) and to model the consequences of the use of nuclear weapons and integrate these capabilities for Combatant Command use.

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 supporting warfighter and interagency nuclear-event response. 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.

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. IMS data, and to access international IMS data required to support U.S. monitoring policy, decision-makers, and negotiation teams. This project will 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 Nuclear Capabilities Services (NuCS) project performs RDT&E to improve capabilities to model nuclear weapon effects (NWE) environments and simulate the response of systems and networks to these effects. The Enhanced Consequence Analysis (ECA) project integrates NuCS capabilities and integrates these modeling and simulation (M&S) capabilities with operational databases and systems. Together, these programs support U.S. and allied planning and decision making in the event of nuclear weapon use.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RD / <i>Nuclear Technologies and Capabilities Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Title: RD - Nuclear Technologies and Capabilities Development</p> <p>Description: Project RD supports the NACT Program, conducting RDT&E to meet IMS technology requirements in support of treaty verification, monitoring and other emerging nuclear arms control activities, and the NuCS and ECA projects conducting RDT&E to support U.S. and allied nuclear planning and decision making requirements.</p> <p>FY 2020 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 2021 Base Plans:</p> <ul style="list-style-type: none"> - Leverage and conduct conventional high explosive test events to evaluate U.S. IMS performance and validate geophysical models. - Continue to integrate data from IMS infrastructure and upgrade IMS technologies in support of DoD and Interagency nuclear-event response missions and treaty compliance. - 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. - Develop new and upgraded treaty-monitoring capabilities that will support nuclear-event response and strategic DoD missions. - Participate in international and interagency-sponsored technology development exchanges to ensure IMS research and engineering activities remain current and relevant. - Establish baseline of integrated nuclear weapon effects modeling and simulation capabilities that have completed V&V (document verification and validation activities and develop training materials for operators and subject-matter experts who develop and use planning and decision-making systems). 	0.000	7.500	15.650	0.000	15.650

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RD / <i>Nuclear Technologies and Capabilities Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Deliver initial solution for calculating nuclear weapon effects to be integrated into existing planning and decision-support systems at U.S. and allied commands.					
<i>FY 2021 OCO Plans:</i> N/A					
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase from FY 2020 to FY 2021 is due to the new requirement for DTRA to provide an Enhanced Consequence Analysis (ECA) capability to improve nuclear effects and response models for the strategic nuclear planning community. Requested by Combatant Commands, specifically U.S. Strategic Command (STRATCOM), this capability will integrate nuclear planning models into conventional Joint Force operational planning models. This new requirement is driven by the 2018 National Defense Strategy and the Nuclear Posture Review (NPR) updates.					
Accomplishments/Planned Programs Subtotals	0.000	7.500	15.650	0.000	15.650

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 21/0602718BR/RD: <i>Counter Weapons of Mass Destruction Applied Research</i>	21.050	89.860	92.492	-	92.492	91.351	93.732	95.307	97.214	Continuing	Continuing
• 29/0603160BR/RD: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	21.193	70.153	51.416	-	51.416	51.480	53.081	55.547	56.659	Continuing	Continuing

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Radionuclide sensor, station, laboratory and network improvements	FFRDC	Pacific Northwest National Laboratory : Richland, WA	-	-		1.550	Jan 2020	1.212	Jan 2021	-		1.212	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Sandia National Laboratory : Albuquerque, NM	-	-		1.850	Jan 2020	1.350	Jan 2021	-		1.350	Continuing	Continuing	-
Radionuclide sensor, station, and network Improvements	MIPR	Air Force Technical Application Center : Patrick AFB, FL	-	-		0.500	Dec 2019	0.390	Feb 2021	-		0.390	Continuing	Continuing	-
Radionuclide sensor, station, laboratory and network improvements	C/CPFF	General Dynamics Mission Systems, Inc. : Fairfax, VA	-	-		0.435	Nov 2019	0.446	Nov 2020	-		0.446	Continuing	Continuing	-
Station, and network Improvements	C/CPFF	Leidos Innovations Corp : Alexandria, VA	-	-		0.200	Apr 2020	0.240	Nov 2020	-		0.240	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	Pennsylvania State University : State College, PA	-	-		0.400	Feb 2020	0.450	Jan 2021	-		0.450	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	University of Alaska Fairbanks : Fairbanks, AK	-	-		0.143	Mar 2020	0.000		-		0.000	Continuing	Continuing	-
IMEA Software Development	C/CPFF	Applied Research Associates, Inc : Alexandria, VA	-	-		0.200	Jan 2020	0.200	Feb 2021	-		0.200	Continuing	Continuing	-
IMS Gas Background Analysis	FFRDC	Argonne National Laboratory : Argonne, IL	-	-		0.200	Dec 2019	0.000		-		0.000	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	C/TBD	TBD : TBD	-	-		0.160	Mar 2020	0.500	Mar 2021	-		0.500	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RD / <i>Nuclear Technologies and Capabilities Development</i>
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Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Seismic and Infrasound sensor, station, and network Improvements	MIPR	US Army Corps of Engineers : Vicksburg, MS	-	-		0.100	Dec 2019	0.300	Jan 2021	-		0.300	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	MIPR	Missile Defense Agency : Fort Belvoir, VA	-	-		0.650	Mar 2020	0.000		-		0.000	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/TBD	University of Alaska : Fairbanks, AK	-	-		0.500	Feb 2020	0.500	Feb 2021	-		0.500	Continuing	Continuing	-
Radionuclide sensor, station, and network Improvements	FFRDC	Savannah River National Laboratory : Savannah River Site Aiken, SC	-	-		0.500	Apr 2020	0.750	Mar 2021	-		0.750	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	MIPR	DIA/MSIC : TBD	-	-		-		0.250	Mar 2021	-		0.250	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Lawrence Livermore National Laboratory : Livermore, CA	-	-		-		0.950	Jan 2021	-		0.950	Continuing	Continuing	-
Nuclear weapon effects models and integrated NuCS core architecture development	C/CPFF	Applied Research Associates : Raleigh, NC	-	-		-		3.000	Jul 2021	-		3.000	Continuing	Continuing	-
Enhanced consequence analysis initial capability	C/CPFF	TBD : TBD	-	-		-		5.000	Jul 2021	-		5.000	Continuing	Continuing	-
Subtotal			-	-		7.388		15.538		-		15.538	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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) RD / <i>Nuclear Technologies and Capabilities Development</i>
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	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Demonstrate, integrate, and train users on initial ECA nuclear planning and decision support system	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RD / <i>Nuclear Technologies and Capabilities Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Nuclear Arms Control Technology (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	2025
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: testing and evaluation of next generation systems	1	2020	4	2025
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: support of DoD and Interagency nuclear-event response missions to enhance nuclear-event response capabilities	1	2021	4	2025
<i>Nuclear Capabilities Services (NuCS)</i>				
Integrate, evaluate, and demonstrate initial nuclear weapon effects capabilities integrated in NuCS and provide training sessions for users	1	2021	4	2025
<i>Enhanced Consequence Analysis (ECA)</i>				
Demonstrate, integrate, and train users on initial ECA nuclear planning and decision support system	1	2021	3	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RF: <i>Forensics Technologies</i>	31.368	6.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.384
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 and Sustainment. 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RF - Forensics Technologies	6.016	0.000	0.000	0.000	0.000
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 2020 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
N/A					
FY 2021 Base Plans:					
N/A					
FY 2021 OCO Plans:					
N/A					
FY 2020 to FY 2021 Increase/Decrease Statement:					
N/A					
Accomplishments/Planned Programs Subtotals	6.016	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 21/0602718BR/RF: <i>Counter Weapons of Mass Destruction Applied Research</i>	7.716	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.716
• 29/0603160BR/RF: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	30.947	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	30.947

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	7.533	1.403	Jan 2019	-		-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Sandia National Laboratory : Albuquerque, NM	7.421	1.850	Jan 2019	-		-		-		-	Continuing	Continuing	-
Radionuclide sensor, station, and network improvements	MIPR	Air Force Technical Application Center : Patrick AFB, FL	3.354	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 Mission Systems, Inc. : Fairfax, VA	2.489	0.431	Nov 2018	-		-		-		-	Continuing	Continuing	-
Station, and network Improvements	C/CPFF	Leidos Innovations Corp. : Alexandria, VA	0.716	0.200	Apr 2019	-		-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	Pennsylvania State University : State College, PA	0.982	0.200	Jan 2019	-		-		-		-	Continuing	Continuing	-
Station failure and logistics modeling and simulation	C/CPFF	Systems Exchange, Inc. : Carmel, CA	0.313	-		-		-		-		-	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 2021 Defense Threat Reduction Agency **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
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	0.459	0.129	Mar 2019	-		-		-		-	Continuing	Continuing	-
IMEA Software Development	C/CPFF	Applied Research Associates, Inc. : Alexandria, VA	0.200	0.200	Dec 2018	-		-		-		-	Continuing	Continuing	-
IMS Gas Background Analysis	FFRDC	Argonne National Laboratory : Argonne, IL	0.130	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	0.171	0.100	Dec 2018	-		-		-		-	Continuing	Continuing	-
Subtotal			28.286	5.458		-		-		-		-	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
A&AS Support to Program Office	C/CPFF	Engility Corp. : Chantilly, VA	1.472	0.446	Dec 2018	-		-		-		-	Continuing	Continuing	-
A&AS Support to Program Office	MIPR	OUSD A&S : Arlington, VA	0.948	-		-		-		-		-	Continuing	Continuing	-
Travel	TBD	Various : Various	0.662	0.112	Nov 2018	-		-		-		-	Continuing	Continuing	-
Subtotal			3.082	0.558		-		-		-		-	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency							Date: February 2020				
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>				
	Prior Years	FY 2019	FY 2020		FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	31.368	6.016	0.000		-	-	-	Continuing	Continuing	N/A	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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>
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	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
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																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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>

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	2019
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	2019
Optimize and improve IMS station performance: validation and verification testing of RDTE concepts to enable operational implementation	1	2017	4	2019
Provide analysis of 800 additional nuclear material samples for treaty verification purposes	1	2017	1	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RL / Nuclear & Radiological Effects
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RL: Nuclear & Radiological Effects	0.000	1.203	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.203
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

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: RL: Nuclear and Radiological Effects	1.203	-	-	-	-
Description: Project RL develops nuclear and radiological assessment modeling tools to support military operational planning, weapons effects predictions, and strategic system design decisions.					
Accomplishments/Planned Programs Subtotals	1.203	-	-	-	-

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 21/0602718BR: Nuclear & Radiological Effects	27.643	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	27.643
• 29/0603160BR: Nuclear & Radiological Effects	2.947	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.947

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RL / <i>Nuclear & Radiological Effects</i>

D. Acquisition Strategy
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RL / Nuclear & Radiological Effects
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Enhanced Consequence Analysis (ECA) Nuclear Planning and Decision Support System	C/CPFF	Booz Allen Hamilton : McLean, VA	-	1.203	Jun 2019	-		-		-		-	0.000	1.203	1.203
Subtotal			-	1.203		-		-		-		-	0.000	1.203	N/A

Remarks
Beginning in FY 2020, efforts in this project are captured under project RD-Nuclear Technologies and Capabilities Development.

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	1.203	0.000	-	-	-	0.000	1.203	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Threat Reduction Agency			Date: February 2020
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) RL / <i>Nuclear & Radiological Effects</i>	

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 Consequence Analysis (ECA)	
Demonstrate, integrate, and train users on initial ECA nuclear planning and decision support system	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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) RL / <i>Nuclear & Radiological Effects</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Enhanced Consequence Analysis (ECA)</i>				
Demonstrate, integrate, and train users on initial ECA nuclear planning and decision support system	3	2019	4	2019

Note

Beginning in FY 2020, efforts in this project are captured under project RD-Nuclear Technologies and Capabilities Development.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 0605141BR / <i>Mission Assurance Risk Management System (MARMS)</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	5.500	-	5.500	5.500	5.500	5.500	5.610	Continuing	Continuing
MA: <i>Mission Assurance Risk Management System</i>	0.000	0.000	0.000	5.500	0.000	5.500	5.500	5.500	5.500	5.610	Continuing	Continuing

Note

Program element 0605141BR, Mission Assurance Risk Management System (MARMS) activities were previously justified under program element 0605000BR, Counter Weapons of Mass Destruction Systems Development.

A. Mission Description and Budget Item Justification

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. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	5.500	0.000	5.500
Total Adjustments	0.000	0.000	5.500	0.000	5.500
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignment	-	-	5.500	-	5.500

Change Summary Explanation

The increase in FY 2021 from the previous President's Budget submission is due to the realignment of funds from program element 0605000BR into this newly established program element 0605141BR for the Mission Assurance and Risk Management System as a program of record.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency										Date: February 2020		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0605141BR / Mission Assurance Risk Management System (MARMS)			Project (Number/Name) MA / Mission Assurance Risk Management System				
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
MA: Mission Assurance Risk Management System	0.000	0.000	0.000	5.500	0.000	5.500	5.500	5.500	5.500	5.610	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 Information Officer (DoD CIO) to the Defense Threat Reduction Agency (DTRA), in light of DTRA's role in conducting Joint Mission Assurance Assessments. In FY 2020 funding for MARMS is captured in Program Element 0605000BR; prior to FY 2020 funding is captured in Program Element 0605170D8Z.

A. Mission Description and Budget Item Justification

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: MA - Mission Assurance Risk Management System	0.000	0.000	5.500	0.000	5.500
Description: MARMS is a multi-year program that encompasses a family of systems that will be integrated as part of the MARMS Requirements Definition Package (RDP)-1. The RDP-1 defines multiple spirals of major technological improvements. Each spiral is comprised of multiple Capability Drops (CD) that define specific capabilities. RDP-1 defines seven (7) capability drops focusing on the collection, analysis, warehousing, sharing, protection, and accessing of Defense Critical Infrastructure (DCI) and Anti-Terrorism (AT) data to support risk-informed decision making, resource investment and improve synchronization across Mission Assurance-related programs.					
FY 2020 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605141BR / <i>Mission Assurance Risk Management System (MARMS)</i>	Project (Number/Name) MA / <i>Mission Assurance Risk Management System</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
N/A					
<i>FY 2021 Base Plans:</i> - Continue to improve capability of the Information Sharing Data Registry (CD1) and Mission Assurance Assessments (CD2) - Modernize and Integrate with additional assessment capabilities (CD2 and CD3) - Continue development of the Mission Assurance Viewer and Analysis Portal on SIPR (CD6) toward initial capability fielding in 4th Quarter FY 2022. - Continue the development effort of the Cross Domain Solutions (CDS) – Low to High (CD6), JWICS to SIPR (CD7)					
<i>FY 2021 OCO Plans:</i> N/A					
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase from FY 2020 to FY 2021 is due to the realignment of funds from program element 0605000BR into the newly established program element 0605141BR for the Mission Assurance and Risk Management System as a program of record.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	5.500	0.000	5.500

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 128/0605000BR: <i>Counter Weapons of Mass Destruction Systems Development</i>	0.000	5.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.600

Remarks

D. Acquisition Strategy
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605141BR / Mission Assurance Risk Management System (MARMS)	Project (Number/Name) MA / Mission Assurance Risk Management System
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CD1 - Information Sharing	MIPR	U.S. Army Future Command (AFC) : Picatinny Arsenal, NJ	-	-		-		1.679	Nov 2020	-		1.679	Continuing	Continuing	-
CD2 - Assessment Capability	C/CPFF	Alion Science & Technology : McLean, VA	-	-		-		0.300	Feb 2021	-		0.300	Continuing	Continuing	-
CD3 - Existing System Upgrades	MIPR	Naval Surface Warfare Center (NSWC) : Dahlgren	-	-		-		0.500	Feb 2021	-		0.500	Continuing	Continuing	-
CD3 - Existing System Upgrades	C/CPFF	Science Applications International Corporation (SAIC) : Omaha, NE	-	-		-		0.350	Nov 2020	-		0.350	Continuing	Continuing	-
CD4 - Workspace/Viewer on Secret Internet Protocol Router Network (SIPR)	C/CPFF	Booz Allen Hamilton (BAH) : McLean, VA	-	-		-		0.603	Feb 2021	-		0.603	Continuing	Continuing	-
CD5 - Workspace/Viewer on Joint Worldwide Intelligence Communications System (JWICS)	C/CPFF	Booz Allen Hamilton (BAH) : McLean, VA	-	-		-		0.603	Feb 2021	-		0.603	Continuing	Continuing	-
CD6 - Cross Domain Solution SIPR to JWICS	C/CPFF	TBD : TBD	-	-		-		0.700	Feb 2021	-		0.700	Continuing	Continuing	-
CD7 - CD6 - Cross Domain Solution JWICS to SIPR	C/CPFF	TBD : TBD	-	-		-		0.765	Feb 2021	-		0.765	Continuing	Continuing	-
Subtotal			-	-		-		5.500		-		5.500	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		-	-	0.000	5.500	-	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Defense Threat Reduction Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605141BR / <i>Mission Assurance Risk Management System (MARMS)</i>	Project (Number/Name) MA / <i>Mission Assurance Risk Management System</i>

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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	
Modernization and Integration	
Capability Drop 2: Assessment Capability	
Modernization and Integration	
Capability Drop 3: System Upgrades	
Modernization and Integration	
Capability Drop 4: Workspace/Viewer on SIPR	
Modernization and Integration	
Capability Drop 5: Workspace/Viewer on JWICS	
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 2021 Defense Threat Reduction Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605141BR / <i>Mission Assurance Risk Management System (MARMS)</i>	Project (Number/Name) MA / <i>Mission Assurance Risk Management System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Capability Drop 1: Information Sharing				
Modernization and Integration	1	2021	4	2025
Capability Drop 2: Assessment Capability				
Modernization and Integration	1	2021	4	2025
Capability Drop 3: System Upgrades				
Modernization and Integration	1	2021	4	2025
Capability Drop 4: Workspace/Viewer on SIPR				
Modernization and Integration	1	2021	4	2025
Capability Drop 5: Workspace/Viewer on JWICS				
Modernization and Integration	1	2021	4	2025
Capability Drop 6: Cross Domain Solution - Low to High				
Development	1	2021	4	2021
Modernization and Integration	1	2021	4	2025
Capability Drop 7: Cross Domain Solution - High to Low				
Development	1	2021	4	2022
Modernization and Integration	1	2023	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Defense Threat Reduction Agency **Date:** February 2020

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 0605502BR / <i>Small Business Innovation Research</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	70.852	11.315	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	82.167
RA: <i>Information Sciences and Applications</i>	70.852	11.315	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	82.167

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 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	11.315	0.000	0.000	-	0.000
Total Adjustments	11.315	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	11.315	-			

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 2021 Defense Threat Reduction Agency **Date:** February 2020

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>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
RA: <i>Information Sciences and Applications</i>	70.852	11.315	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	82.167
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 2019	FY 2020	FY 2021
Title: RA: Information Sciences and Applications	11.315	-	-
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	11.315	-	-

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 21/0602718BR/RA: <i>Counter Weapons of Mass Destruction Applied Research</i>	36.665	44.167	40.965	-	40.965	42.194	42.773	47.564	48.593	Continuing	Continuing
• 29/0603160BR/RA: <i>Counter Weapons of Mass Destruction Advanced Technology Development</i>	18.080	34.825	50.019	-	50.019	46.279	49.207	50.708	51.721	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Defense Threat Reduction Agency		Date: February 2020
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 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

N/A

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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



DoD Human Resources Activity

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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DoD Human Resources Activity • Budget Estimates FY 2021 • RDT&E Program

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Research, Development, Test & Eval, DW	24,290	36,843			36,843
Total Research, Development, Test & Evaluation	24,290	36,843			36,843

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	37,919				37,919
Total Research, Development, Test & Evaluation	37,919				37,919

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
System Development & Demonstration	285	7,295			7,295
Management Support	24,005	29,548			29,548
Total Research, Development, Test & Evaluation	24,290	36,843			36,843
<u>Summary Recap of FYDP Programs</u>					
Intelligence and Communications					
Research and Development	24,290	36,743			36,743
Training Medical and Other		100			100
Total Research, Development, Test & Evaluation	24,290	36,843			36,843

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

Summary Recap of Budget Activities	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
System Development & Demonstration	7,287				7,287
Management Support	30,632				30,632
Total Research, Development, Test & Evaluation	37,919				37,919
Summary Recap of FYDP Programs					
Intelligence and Communications	1,112				1,112
Research and Development	36,707				36,707
Training Medical and Other	100				100
Total Research, Development, Test & Evaluation	37,919				37,919

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

21 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
System Development & Demonstration	285	7,295			7,295
Management Support	24,005	29,548			29,548
Total Research, Development, Test & Evaluation	24,290	36,843			36,843
<u>Summary Recap of FYDP Programs</u>					
Intelligence and Communications					
Research and Development	24,290	36,743			36,743
Training Medical and Other		100			100
Total Research, Development, Test & Evaluation	24,290	36,843			36,843

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

21 Jan 2020

Summary Recap of Budget Activities	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)

System Development & Demonstration	7,287				7,287
Management Support	30,632				30,632
Total Research, Development, Test & Evaluation	37,919				37,919
Summary Recap of FYDP Programs					

Intelligence and Communications	1,112				1,112
Research and Development	36,707				36,707
Training Medical and Other	100				100
Total Research, Development, Test & Evaluation	37,919				37,919

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Defense Human Resources Activity	24,290	36,843			36,843
Total Research, Development, Test & Evaluation	24,290	36,843			36,843

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)

Defense Human Resources Activity	37,919				37,919
Total Research, Development, Test & Evaluation	37,919				37,919

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	c
130	0605021SE	Homeland Personnel Security Initiative	05	285	7,295			7,295	U
		System Development & Demonstration		285	7,295			7,295	
171	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	24,005	29,448			29,448	U
185	0303140SE	Information Systems Security Program	06						U
195	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06		100			100	U
		Management Support		24,005	29,548			29,548	
Total Research, Development, Test & Eval, DW				24,290	36,843			36,843	

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
130	0605021SE	Homeland Personnel Security Initiative	05	7,287				7,287	U
		System Development & Demonstration		7,287				7,287	
171	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	29,420				29,420	U
185	0303140SE	Information Systems Security Program	06	1,112				1,112	U
195	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06	100				100	U
		Management Support		30,632				30,632	
Total Research, Development, Test & Eval, DW				37,919				37,919	

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Defense Human Resources Activity
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
130	0605021SE	Homeland Personnel Security Initiative	05	285	7,295			7,295 U
		System Development & Demonstration		285	7,295			7,295
171	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	24,005	29,448			29,448 U
185	0303140SE	Information Systems Security Program	06					U
195	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06		100			100 U
		Management Support		24,005	29,548			29,548
Total Defense Human Resources Activity				24,290	36,843			36,843

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Defense Human Resources Activity
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
130	0605021SE	Homeland Personnel Security Initiative	05	7,287				7,287	U
		System Development & Demonstration		7,287				7,287	
171	0605803SE	R&D in Support of DoD Enlistment, Testing and Evaluation	06	29,420				29,420	U
185	0303140SE	Information Systems Security Program	06	1,112				1,112	U
195	0808709SE	Defense Equal Opportunity Management Institute (DEOMI)	06	100				100	U
		Management Support		30,632				30,632	
Total Defense Human Resources Activity				37,919				37,919	

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DoD Human Resources Activity • Budget Estimates FY 2021 • RDT&E Program

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

Line #	Budget Activity	Program Element Number	Program Element Title	Page
171	06	0605803SE	R&D in Support of DOD Enlistment, Testing and Evaluation.....	Volume 5 - 729
185	06	0303140SE	DHRA Cyber - R&D in Support of DOD Enlistment, Testing and Evaluation.....	Volume 5 - 749
195	06	0808709SE	Defense Equal Opportunity Management Institute (DEOMI).....	Volume 5 - 755

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DoD Human Resources Activity • Budget Estimates FY 2021 • RDT&E Program

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Program Element Title	Program Element Number	Line #	BA	Page
DHRA Cyber - R&D in Support of DOD Enlistment, Testing and Evaluation	0303140SE	185	06.....	Volume 5 - 749
Defense Equal Opportunity Management Institute (DEOMI)	0808709SE	195	06.....	Volume 5 - 755
Homeland Personnel Security Initiative	0605021SE	130	05.....	Volume 5 - 711
R&D in Support of DOD Enlistment, Testing and Evaluation	0605803SE	171	06.....	Volume 5 - 729

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	5.051	0.296	7.295	7.287	-	7.287	7.297	7.303	7.310	7.456	Continuing	Continuing
01: <i>Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases</i>	5.051	0.296	0.295	0.295	-	0.295	0.304	0.310	0.317	0.323	Continuing	Continuing
02: <i>Enterprise Data Services (EDS)</i>	0.000	0.000	4.200	4.195	-	4.195	2.797	2.797	2.797	2.853	Continuing	Continuing
03: <i>Identity Credential Management (ICM)</i>	0.000	0.000	2.800	2.797	-	2.797	4.196	4.196	4.196	4.280	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)). RDT&E funds are applied to continue the research and investigation of multifactor authentication and credential alternatives and the development of a registry that may allow DoD to supplement current public key infrastructure and DoD self-service authentication solutions. Funding is also used to research security and standards compliance improvements for the CAC and the USID card, which provides identification for personnel not eligible for the CAC. Funding for the Identity Credential Management (ICM) and Enterprise Data Services (EDS) programs supports the DoD Chief Information Officer's Identity, Credential and Access Management (ICAM) initiatives.

B. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	0.296	7.295	7.287	-	7.287
Current President's Budget	0.296	7.295	7.287	-	7.287
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: 01: *Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases*

Congressional Add: *Defense Enrollment Eligibility Reporting System/HSPD-12*

FY 2019	FY 2020
0.000	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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>
--	--

Congressional Add Details (\$ in Millions, and Includes General Reductions)	FY 2019	FY 2020
Congressional Add Subtotals for Project: 01	0.000	-
Project: 02: <i>Enterprise Data Services (EDS)</i> Congressional Add: <i>Enterprise Data Services</i>	0.000	-
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

No change.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity										Date: February 2020		
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0605021SE / Homeland Personnel Security Initiative				Project (Number/Name) 01 / Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
01: Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases	5.051	0.296	0.295	0.295	-	0.295	0.304	0.310	0.317	0.323	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Homeland Security Presidential Directive (HSPD-12) Initiative: HSPD-12 requires rapid electronic authentication for all Government employees, uniformed individuals and contractors. Real Time Automated Personnel Identification System (RAPIDS) is the capability that supports the Uniformed Services identification card, provides online 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.

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

	FY 2019	FY 2020	FY 2021
Title: Defense Enrollment Eligibility Reporting System/HSPD-12	0.296	0.295	0.295
Description: HSPD-12 requires rapid electronic authentication for all Government employees, uniformed individuals and contractors.			
FY 2020 Plans: HSPD-12: FY 2020 RDT&E funds for HSPD-12 will be applied to improve compliance with Federal Personnel Identification Verification (PIV) standards of the CAC and increase the security of communication over the contactless interface of the CAC and usage with physical access solutions.			
FY 2021 Plans: HSPD-12: FY 2021 HSPD-12 RDT&E funds will be used to continue improved standards compliance and security of the CAC.			
FY 2020 to FY 2021 Increase/Decrease Statement: HSPD-12: No change.			
Accomplishments/Planned Programs Subtotals	0.296	0.295	0.295

	FY 2019	FY 2020
Congressional Add: Defense Enrollment Eligibility Reporting System/HSPD-12	0.000	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity		Date: February 2020
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 2019	FY 2020
FY 2019 Accomplishments: N/A		
Congressional Adds Subtotals	0.000	-

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).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 DoD Human Resources Activity											Date: February 2020				
Appropriation/Budget Activity 0400 / 5				R-1 Program Element (Number/Name) PE 0605021SE / Homeland Personnel Security Initiative				Project (Number/Name) 01 / Homeland Security Presidential Directive (HSPD-12) Initiative/Recruiting Databases							

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	5.051	0.296	Dec 2018	0.295	Dec 2019	0.295	Dec 2020	-		0.295	Continuing	Continuing	-
Subtotal			5.051	0.296		0.295		0.295		-		0.295	Continuing	Continuing	N/A

Remarks
HSPD-12: RDT&E funds in HSPD-12 will extend through the FYDP and be applied to research and investigation of improved standards compliance and security of the CAC.

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.051	0.296	0.295	0.295	-	0.295	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 DoD Human Resources Activity		Date: February 2020
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	1	2021	4	2021

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
02: Enterprise Data Services (EDS)	0.000	0.000	4.200	4.195	-	4.195	2.797	2.797	2.797	2.853	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 2: Enterprise Data Services - supports the DoD CIO Identity, Credential and Access Management initiative to implement end-to-end digital services for person entities in support of DoD cybersecurity, interoperability, and secure information sharing across the Department and with mission partners. 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 2019	FY 2020	FY 2021
Title: Enterprise Data Services	0.000	4.200	4.195
Description: Enterprise Data Services funding will update the data structures and attributes collected to secure trusted environments across the DoD so people can securely access all authorized resources based on mission need. These updates will also ensure DoD CIO has visibility of who and what is on the network at any point in time.			
FY 2020 Plans: Develop a Mission Partner Registration service and enable a DoD back-end attribute exchange solution which will enable mission partner and cross-federal agency identity, credential, and information exchange from authoritative data sources.			
FY 2021 Plans: FY 2021 RDT&E funds will be used to continue the development of a Mission Partner Registration and the back-end attribute exchange.			
FY 2020 to FY 2021 Increase/Decrease Statement: No change.			
Accomplishments/Planned Programs Subtotals	0.000	4.200	4.195

	FY 2019	FY 2020
Congressional Add: Enterprise Data Services	0.000	-
FY 2019 Accomplishments: N/A		
Congressional Adds Subtotals	0.000	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity		Date: February 2020
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

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 DoD Human Resources Activity		Date: February 2020
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 DoD Human Resources Activity		Date: February 2020
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 2021 DoD Human Resources Activity										Date: February 2020		
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)		
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
03: <i>Identity Credential Management (ICM)</i>	0.000	0.000	2.800	2.797	-	2.797	4.196	4.196	4.196	4.280	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Identity Credential Management establishes DHRA/DMDC as the Identity Credential Registration Service Provider for the Department of Defense; in this role, DMDC will develop improved identity federation solutions including the implementation of multi-factor authentication registration services, attribute assertion services, and a centralized enterprise credential registry service.

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

	FY 2019	FY 2020	FY 2021		
Title: Identity Credential Management	-	2.800	2.797		
Description: Identity Credential Management establishes DHRA/DMDC as the Identity Credential Registration Service Provider for the Department of Defense; in this role, DMDC will develop improved identity federation solutions including the implementation of multi-factor authentication registration services, attribute assertion services, and a centralized enterprise credential registry service.					
FY 2020 Plans: FY 2020 RDT&E funds will be applied to begin development of mission partner registration services for identity and credential attributes to improve identity and authentication federation in support of DoD and mission partners that require access to government resources using a trusted credential.					
FY 2021 Plans: FY 2021 RDT&E funds will be used to continue the development and deployment of mission partner registration services.					
FY 2020 to FY 2021 Increase/Decrease Statement: No change.					
Accomplishments/Planned Programs Subtotals			-	2.800	2.797
	FY 2019	FY 2020			
Congressional Add: Identity Credential Management	0.000	-			
FY 2019 Accomplishments: N/A					
Congressional Adds Subtotals			0.000	-	

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity		Date: February 2020
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>

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

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 DoD Human Resources Activity		Date: February 2020
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 DoD Human Resources Activity		Date: February 2020
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	1	2020	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	37.491	24.005	29.448	29.420	-	29.420	21.446	12.029	12.276	12.527	Continuing	Continuing
1: Identity Credential Management (ICM)	0.000	0.000	0.000	4.116	-	4.116	4.190	4.276	4.362	4.456	Continuing	Continuing
2: Office of People Analytics (OPA), Testing and Assessment	5.326	2.331	4.350	4.761	-	4.761	4.240	4.324	4.412	4.500	Continuing	Continuing
3: Personnel Accountability (PA)	6.774	6.274	1.429	2.095	-	2.095	2.165	2.208	2.252	2.299	Continuing	Continuing
4: Personnel Security Assurance (PSA)	7.253	3.966	4.352	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
05: Federal Voting Assistance Program (FVAP)	0.800	0.764	0.678	0.692	-	0.692	0.699	0.699	0.715	0.731	Continuing	Continuing
6: Enterprise Data Services (EDS)	0.134	4.678	12.684	17.088	-	17.088	10.152	0.522	0.535	0.541	Continuing	Continuing
7: Defense Sexual Assault Incidents Database (DSAID)	5.502	1.734	2.551	0.668	-	0.668	0.000	0.000	0.000	0.000	-	-
8: Computer/Electronic Accommodations Program (CAP)	0.290	1.245	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
10: Enterprise Human Resource Infor System(EHRIS)	11.412	3.013	3.404	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

In accordance with the directive from the Office of the Under Secretary of Defense regarding identifying cyber-related funding, DHRA has established a Program Element (PE) for Cyber - 0303140SE. The following programs, EDS, EHRIS, PA, and PSA have transferred funding to that PE beginning in FY 2021 and are included in a separate R2 exhibit, with the exception of PSA. The Cyber funding portion for PSA will be transferred to the Defense Counterintelligence and Security Agency (DCSA) along with the non-cyber funding for the Defense Information System for Security (DISS) mission and is not seen on the R2 for the 0303140SE PE.

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity		Date: February 2020
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>	
<p>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.</p> <p>Project 1: Identity Credential Management (ICM) is the realignment of the Enterprise Human Resource Information System (EHRIS), as discussed in Project 10 below. DMDC executes DHRA's responsibility to provide a central source of identification and authorization of people during and after their affiliation with DoD for identity protection, security, entitlements, and benefits verification. This funding will support the evaluation and testing emerging technologies that will develop more robust and secure capabilities for the Department's ICM program. ICM will also research capabilities such as improved remote identity proofing and self-service solutions, and micro-services that will enable more efficient credential delivery.</p> <p>Project 2: Office of People Analytics (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 students (high school and post secondary) 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 over 750,000 students in the ASVAB career exploration program. Each Service also uses ASVAB test forms developed in this program as part of their in-service testing programs. 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 3: The Personnel Accountability (PA) 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 civilians, DoD, DoS and USAID contractors and U.S. citizens. This includes DoD travel, contracts, and contractor personnel tracking in support of military operations, 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 4: 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. The Defense Information System for Security (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 5: 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</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity Date: February 2020

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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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.

Project 6: Enterprise Data Management (EDS) is addressing two critical projects in FY 2021: 1) JOM and 2) 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 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). 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 and address critical cybersecurity, legislative, and policy compliance issues.

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 2021 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. Also, DSAID accommodates a variety of uses, including the tracking of sexual assault victim support services, support sexual assault prevention and response (SAPR) program administration, congressional 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 Forces, and serve as a repository for documents necessary for future victim 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.

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. The system can easily export data for analysis in statistical applications, such as Statistical Package for the Social Sciences (SPSS) to facilitate analysis at the DoD-level. DSAID includes safeguards to shield personally identifiable information (PII) from unauthorized disclosure and stringent user access control in place.

Project 8: 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,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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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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. However, 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 previous codebase utilized an outdated framework that was difficult to maintain. The CAP RDT&E program ended in FY 2019.

Project 10: Enterprise Human Resources (HR) Information Systems (EHRIS) is responsible for developing and maintaining the Information Technology (IT) systems that support Civilian Personnel processes across DoD. 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. In compliance with a 2018 Reform Management Group decision, DMDC has begun migrating the Human Resources Core capabilities onto a Software-as-a-Service (SaaS) offering. SaaS solutions do not require development activity, so This project has been realigned to a new project line above: (Identity Credential Management((ICM)), which provides much of the underlying identification and authorization activities for Department personnel.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	24.005	34.448	35.260	-	35.260
Current President's Budget	24.005	29.448	29.420	-	29.420
Total Adjustments	0.000	-5.000	-5.840	-	-5.840
• Congressional General Reductions	-	-5.000			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Reprogramming to Cyber PE 0303140SE.	-	-	-1.273	-	-1.273
• Transfer DISS mission to DCSA - see note below.	-	-	-4.433	-	-4.433
• FVAP - DWR Reductions to rebaseline the FVAP.	-	-	-0.100	-	-0.100
• Economic Assumptions - revised inflation rates.	-	-	-0.034	-	-0.034

Change Summary Explanation

In the FY 2020 National Defense Authorization Act (NDAA), there is a congressional general reduction for unjustified growth of -\$5,000 thousand.

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. The

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 6: <i>RDT&E Management Support</i>	PE 0605803SE / <i>R&D in Support of DOD Enlistment, Testing and Evaluation</i>

Defense Information System for Security (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. In FY 2021, responsibility for DISS, including cybersecurity support, will transfer to the Defense Counterintelligence and Security Agency (DCSA).

The Federal Voting Assistance Program (FVAP) -\$100 thousand; per the Defense-Wide Reductions (DWR) FVAP will re-baseline RDT&E funding for analytical support of voter registration and participation rates.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity										Date: February 2020		
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) 1 / Identity Credential Management (ICM)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
1: Identity Credential Management (ICM)	0.000	0.000	0.000	4.116	-	4.116	4.190	4.276	4.362	4.456	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DMDC executes DHRA's responsibility to provide a central source of identification and authorization of people during and after their affiliation with DoD for identity protection, security, entitlements, and benefits verification. This funding will support the evaluation and testing emerging technologies that will develop more robust and secure capabilities for the Department's ICM program. ICM will also research capabilities such as improved remote identity proofing and self-service solutions, and micro-services that will enable more efficient credential delivery.

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

	FY 2019	FY 2020	FY 2021
Title: Identity Credential Management (ICM)	0.000	0.000	4.116
Description: DMDC executes DHRA's responsibility to provide a central source of identification and authorization of people during and after their affiliation with DoD for identity protection, security, entitlements, and benefits verification. This funding will support the evaluation and testing emerging technologies that will develop more robust and secure capabilities for the Department's ICM program. ICM will also research capabilities such as improved remote identity proofing and self-service solutions, and micro-services that will enable more efficient credential delivery.			
FY 2020 Plans: N/A			
FY 2021 Plans: Conduct remote in-person identity proofing pilot with partner organizations and hardware vendor. Complete in-depth study of identity management and credentialing improvement opportunities with feasibility analysis including high level functional requirements and cost estimates. Develop redesign architecture for enterprise identity management solutions for all eligible populations across all relevant identity products. Prioritize project solutions, phases, and complete full requirement documents.			
FY 2020 to FY 2021 Increase/Decrease Statement: This is the transfer of funds formerly under Project 10, EHRIS. Additional funding will be required to conduct a remote in-person identity proofing pilot.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.116

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity		Date: February 2020
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) 1 / <i>Identity Credential Management (ICM)</i>

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

Remarks
N/A

D. Acquisition Strategy
N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity										Date: February 2020		
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) 2 / Office of People Analytics (OPA), Testing and Assessment		
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
2: Office of People Analytics (OPA), Testing and Assessment	5.326	2.331	4.350	4.761	-	4.761	4.240	4.324	4.412	4.500	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 2019	FY 2020	FY 2021
Title: Office of People Analytics (OPA), Testing and Assessment	2.331	4.350	4.761
FY 2020 Plans: 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 2021 Plans: Continue FY 2020 initiatives.			
FY 2020 to FY 2021 Increase/Decrease Statement: No significant changes.			
Accomplishments/Planned Programs Subtotals	2.331	4.350	4.761

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 2021 DoD Human Resources Activity										Date: February 2020		
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) 3 / Personnel Accountability (PA)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
3: Personnel Accountability (PA)	6.774	6.274	1.429	2.095	-	2.095	2.165	2.208	2.252	2.299	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, DoD, DOS and USAID contractors, and U.S. citizens. This includes DoD contracts, and contractor personnel tracking in support of military operations, 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, DOS and USAID system of record for accountability and visibility of contracts and contractor personnel authorized to operate in contingency and military operations. JPARR is a 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 tracking system that accounts for, and sustains visibility of noncombatant evacuees during evacuations.

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

	FY 2019	FY 2020	FY 2021
Title: Personnel Accountability (PA)	6.274	1.429	2.095
FY 2020 Plans: 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 as required by the Joint DOTmLPF-P Change Recommendation for Operational Contract Support.			
FY 2021 Plans: Establish interconnectivity to other systems to improve personnel Accountability. Continue enhancement of NTS online capabilities, interface updates and improved automation. Complete the SPOT and JAMMS Joint DOTmLPF-P Change Recommendation for Operational Contract Support enhancements.			
FY 2020 to FY 2021 Increase/Decrease Statement: Continue to implement the base plans as specified: Establish interconnectivity to other systems to improve personnel Accountability. Continue enhancement of NTS online capabilities, interface updates and improved automation. Complete the SPOT and JAMMS Joint DOTmLPF-P Change Recommendation for Operational Contract Support enhancements.			
Accomplishments/Planned Programs Subtotals	6.274	1.429	2.095

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity		Date: February 2020
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) 3 / Personnel Accountability (PA)

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

Remarks

D. Acquisition Strategy
N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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) 4 / Personnel Security Assurance (PSA)
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
4: Personnel Security Assurance (PSA)	7.253	3.966	4.352	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

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 2019	FY 2020	FY 2021
Title: Personnel Security Assurance	3.966	4.352	0.000
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 2021 Plans: FY 2021 funds will be used to continue development of DISS interfaces with the National Background Investigation Services (NBIS).			
FY 2020 to FY 2021 Increase/Decrease Statement: No change.			
Accomplishments/Planned Programs Subtotals	3.966	4.352	0.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity										Date: February 2020		
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) 05 / Federal Voting Assistance Program (FVAP)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
05: Federal Voting Assistance Program (FVAP)	0.800	0.764	0.678	0.692	-	0.692	0.699	0.699	0.715	0.731	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 2019	FY 2020	FY 2021
Title: Federal Voting Assistance Program	0.764	0.678	0.692
Description: 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 2020 Plans: The program mission efforts continue from FY 2019.			
FY 2021 Plans: The Federal Voting Assistance Program (FVAP) will re-baseline RDT&E funding for analytical support of voter registration and participation rates.			
FY 2020 to FY 2021 Increase/Decrease Statement: FY 2021 funding was reduced by \$100 thousand for the Defense-Wide Reductions (DWR).			
Accomplishments/Planned Programs Subtotals	0.764	0.678	0.692

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

N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity		Date: February 2020
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) 05 / <i>Federal Voting Assistance Program (FVAP)</i>

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

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity										Date: February 2020		
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 (EDS)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
6: Enterprise Data Services (EDS)	0.134	4.678	12.684	17.088	-	17.088	10.152	0.522	0.535	0.541	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 2019	FY 2020	FY 2021
Title: Enterprise Data Services (EDS)	4.678	12.684	17.088
FY 2020 Plans: Continue JOM technical implementation. Provide JOM configuration management support. Conduct pilots of COTS EDDIE solutions Complete EDDIE Analysis of Alternatives Extend EDDIE self-service capability to selected user communities.			
FY 2021 Plans: Continue JOM technical implementation Provide JOM configuration management support. Deploy 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. Extend EDDIE self-service capability to selected user communities.			
FY 2020 to FY 2021 Increase/Decrease Statement: The EDS project increase from FY 2020 to FY 2021 supports increased levels of effort for both the JOM modernization project and the EDDIE project. FY 2020 is the initial year of development work for both projects; the scope of development and testing efforts will increase in FY 2021.			
Accomplishments/Planned Programs Subtotals	4.678	12.684	17.088

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity		Date: February 2020
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 (EDS)

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

N/A

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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 / Defense Sexual Assault Incidents Database (DSAID)
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>7: Defense Sexual Assault Incidents Database (DSAID)</i>	5.502	1.734	2.551	0.668	-	0.668	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Sexual Assault Incident Database (DSAID) is the integrated sexual assault prevention and response data collection and reporting system that accommodates a variety of uses, including the tracking of sexual assault victim support services, supports program administration, congressional reporting requirements and ad-hoc queries, and data analysis.

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

	FY 2019	FY 2020	FY 2021
Title: Defense Sexual Assault Incidents Database (DSAID)	1.734	2.551	0.668
FY 2020 Plans: The Joint Services Provider (JSP) requires all systems to move out of the Pentagon enclave. This requirement necessitates SAPRO to move DSAID within the DMDC enclave 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 2021 Plans: The 2019 DoD Inspector General (DoDIG) Report requires the Department to develop and institute a process or system that documents consults or contacts with victims of sexual assault and any resulting referrals to victim support services if those contacts do not result in a formal sexual assault report. SAPRO will add required data elements as a new module in DSAID.			
FY 2020 to FY 2021 Increase/Decrease Statement: RDT&E funding profile was set to complete in FY 2020, a residual amount was carried into FY 2021 in order to execute restorals provided for in FY 2020. The following requirements will be completed with funding in FY 2020 and FY 2021. 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	1.734	2.551	0.668

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity		Date: February 2020
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>Defense Sexual Assault Incidents Database (DSAID)</i>

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

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity										Date: February 2020		
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 / Computer/Electronic Accommodations Program (CAP)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
8: Computer/Electronic Accommodations Program (CAP)	0.290	1.245	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 Computer/Electronic Accommodations Program (CAP) Portal has been certified as a Defense Business System (DBS). This project helped 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 required modernization of the 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 were components and functionality that were no longer being utilized and others needed. The current codebase utilized an outdated framework that was difficult to maintain. The CAP Modernization Project implemented a .NET Model View Controller (MVC) framework to separate the business, display and input layers of the code. Restructuring CAP Portal was necessary to ensure flexibility and reliability. 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 provided 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 the CAP Portal were enhanced by this project, which provided a streamlined foundation on which to incorporate new internal processing workflow entitled ONE CAP. It provided the ability to implement new processes that reflect the current organization, roles, responsibilities, tasks and specific workflow and assignments. The modernization of technology ensured full integration of the new internal operating model.

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

	FY 2019	FY 2020	FY 2021
Title: The Computer/Electronic Accommodations Program (CAP)	1.245	-	-
Accomplishments/Planned Programs Subtotals	1.245	-	-

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 2021 DoD Human Resources Activity										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
10: Enterprise Human Resource Infor System(EHRIS)	11.412	3.013	3.404	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

Enterprise Human Resources (HR) Information Systems (EHRIS) is responsible for developing and maintaining the Information Technology (IT) systems that support Civilian Personnel processes across DoD. In compliance with a 2018 Reform Management Group decision, DMDC has begun migrating the Human Resources Core capabilities onto a Software-as-a-Service (SaaS) offering. SaaS solutions do not require development, so this project has been realigned to a new project line below (Identity Credential Management (ICM)), which provides much of the underlying identification and authorization activities for Department personnel.

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

	FY 2019	FY 2020	FY 2021
Title: Enterprise Human Resource Infor System (EHRIS)	3.013	3.404	-
FY 2020 Plans: 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			
FY 2020 to FY 2021 Increase/Decrease Statement: Funding will transfer to Project 10, Identity Credential Management (ICM).			
Accomplishments/Planned Programs Subtotals	3.013	3.404	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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 0303140SE / <i>DHRA Cyber - R&D in Support of DOD Enlistment, Testing and Evaluation</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	1.112	-	1.112	0.856	0.511	0.515	0.523	Continuing	Continuing
1: <i>Enterprise Data Services (EDS)</i>	-	0.000	0.000	0.774	-	0.774	0.471	0.121	0.121	0.129	Continuing	Continuing
2: <i>Identity Credential Management (ICM)</i>	-	0.000	0.000	0.262	-	0.262	0.316	0.319	0.322	0.322	Continuing	Continuing
3: <i>Personnel Accountability (PA)</i>	-	0.000	0.000	0.076	-	0.076	0.069	0.071	0.072	0.072	Continuing	Continuing

Note

In accordance with the directive from the Office of the Under Secretary of Defense regarding identifying cyber-related funding, DHRA has established a Program Element (PE) for Cyber - 0303140SE. A total of \$1,273 thousand was transferred to the cyber PE from PE 0605803SE in FY 2021. Subsequently, the PSA portion of the cyber funds in FY 2021 (\$161 thousand) and remaining outyears, will be transferred to the Defense Counterintelligence and Security Agency (DCSA), along with the non-cyber funding for the Defense Information System for Security (DISS) program. The cyber PE of 0303140SE consists of the remaining programs: EDS, ICM, and PA.

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 support cybersecurity improvements across the DHRA enterprise.

Project 1: Enterprise Data Services (EDS). Supports the cybersecurity activities related to DMDC's EDS mission. EDS is addressing two critical projects in FY 2021: 1) The Joint Officer Management (JOM) modernization initiative and 2) The development of the Enterprise Data to Decisions Information Environment (EDDIE). The legacy system JOM system was built in the 1990s and requires extensive redevelopment to resolve existing security issues and ensure new development complies with Department cybersecurity policies.

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. EDDIE will assist decision makers in forming relevant questions, retrieving pertinent information, and informing policy and program changes. In FY 2021 development will begin based on the findings of the Analysis of Alternatives; ensuring compliance with cybersecurity policies during and after this initial implementation will be a key component of successful system delivery. This funding will be used to obtain support from cybersecurity experts during development.

Project 2: Identity Credential Management (ICM). DMDC executes DHRA's responsibility to provide a central source of identification and authorization of people during and after their affiliation with DoD for identity protection, security, entitlements, and benefits verification. This funding will support the evaluation and testing emerging technologies that will develop more robust and secure capabilities for the Department's ICM program, including the analysis of the security posture of these technologies.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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 0303140SE / <i>DHRA Cyber - R&D in Support of DOD Enlistment, Testing and Evaluation</i>
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Project 3: Personnel Accountability (PA). This 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 civilians, DoD, DoS and USAID contractors and U.S. citizens. This includes DoD travel, contracts, and contractor personnel tracking in support of military operations, 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. This funding will be used to obtain support from cybersecurity experts during the modernization of these systems.

Note: The Personnel Security Assurance (PSA) program 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. 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. In FY 2021, responsibility for DISS, including cybersecurity support, will transfer to the Defense Counterintelligence and Security Agency (DCSA).

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	0.000	1.112	-	1.112
Current President's Budget	0.000	0.000	1.112	-	1.112
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	-	-			

Change Summary Explanation

Reflects the transfer of cyber funds to this PE.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0303140SE / DHRA Cyber - R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 1 / Enterprise Data Services (EDS)
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
1: Enterprise Data Services (EDS)	-	0.000	0.000	0.774	-	0.774	0.471	0.121	0.121	0.129	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Supports cybersecurity research and development efforts on two critical projects, The Joint Officer Management (JOM) modernization initiative and Enterprise Data to Decisions Information Environment (EDDIE). The JOM modernization initiative will support cybersecurity improvements to the program that tracks and manages joint personnel officer readiness capability. EDDIE funding will be used to provide cybersecurity support during the development of a system 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 2019	FY 2020	FY 2021
Title: Enterprise Data Services (EDS)	0.000	-	0.774
Description: Supports cybersecurity research and development efforts on two critical projects, the Joint Officer Management (JOM) modernization initiative and Enterprise Data to Decisions Information Environment (EDDIE).			
FY 2021 Plans: Provide cybersecurity support for JOM implementation. Provide cybersecurity support for the initial development efforts of EDDIE.			
FY 2020 to FY 2021 Increase/Decrease Statement: The FY 2021 funding represents the cyber portion of the effort for both the JOM modernization project and the EDDIE project.			
Accomplishments/Planned Programs Subtotals	0.000	-	0.774

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 2021 DoD Human Resources Activity **Date:** February 2020

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0303140SE / DHRA Cyber - R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 2 / Identity Credential Management (ICM)
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
2: Identity Credential Management (ICM)	-	0.000	0.000	0.262	-	0.262	0.316	0.319	0.322	0.322	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DMDC executes DHRA's responsibility to provide a central source of identification and authorization of people during and after their affiliation with DoD for identity protection, security, entitlements, and benefits verification. This funding will support the evaluation and testing emerging technologies that will develop more robust and secure capabilities for the Department's ICM program, including the analysis of the security posture of these technologies.

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

	FY 2019	FY 2020	FY 2021
Title: Identity Credential Management (ICM)	0.000	-	0.262
Description: DMDC executes DHRA's responsibility to provide a central source of identification and authorization of people during and after their affiliation with DoD for identity protection, security, entitlements, and benefits verification. This funding will support the evaluation and testing emerging technologies that will develop more robust and secure capabilities for the Department's ICM program, including the analysis of the security posture of these technologies.			
FY 2021 Plans: Provide cybersecurity support to identity proofing pilot.			
FY 2020 to FY 2021 Increase/Decrease Statement: The FY 2021 funding represents the cyber portion of the ICM in support of the identity proofing pilot.			
Accomplishments/Planned Programs Subtotals	0.000	-	0.262

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 2021 DoD Human Resources Activity **Date:** February 2020

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0303140SE / DHRA Cyber - R&D in Support of DOD Enlistment, Testing and Evaluation	Project (Number/Name) 3 / Personnel Accountability (PA)
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
3: Personnel Accountability (PA)	-	0.000	0.000	0.076	-	0.076	0.069	0.071	0.072	0.072	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The 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 funding will be used to obtain support from cybersecurity experts during the modernization of these systems.

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

	FY 2019	FY 2020	FY 2021
Title: Personnel Accountability (PA)	0.000	-	0.076
Description: The 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 funding will be used to obtain support from cybersecurity experts during the modernization of these systems.			
FY 2021 Plans: Provide cybersecurity expertise during the development of enhancements to the SPOT, JAMMS and NTS systems to include additional online capabilities as required by the Joint DOTmLPP-P Change Recommendation for Operational Contract Support.			
FY 2020 to FY 2021 Increase/Decrease Statement: The FY 2021 funding represents the cyber portion for support in the modernization of the systems.			
Accomplishments/Planned Programs Subtotals	0.000	-	0.076

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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>
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COST (\$ in Millions)	Prior Years ⁽⁺⁾	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.100	0.100	-	0.100	0.100	0.100	0.100	0.102	Continuing	Continuing
1: <i>Defense Equal Opportunity Management Institute (DEOMI)</i>	0.000	0.000	0.100	0.100	-	0.100	0.100	0.100	0.100	0.102	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

DEOMI's mission is to develop and deliver world-class human relations education, training, research and innovative solutions to enhance total force readiness.

To accomplish this mission, DEOMI uses RDT&E funds to support the management of both basic and applied research initiatives / programs. This includes:

- The research, development, testing, evaluation, and transition of new DEOMI curriculum, technologies, training resources, and human relations job-aids.
- Policy and strategy development support to DMOC, ODEI, SAPRO, and other high-level DoD organizations.
- DEOMI's Summer Faculty Research Program, Summer STEM internship program, and collaborations with external academic and government agencies.

Together, these initiatives ensure DEOMI fields up-to-date training programs and deploys cutting edge training and support technologies / materials across the DoD. This is required by Executive Orders 13111 and 13218, which 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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	0.000	0.100	0.100	-	0.100
Current President's Budget	0.000	0.100	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: 1: *Defense Equal Opportunity Management Institute (DEOMI)*

Congressional Add: None

FY 2019	FY 2020
0.000	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

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)

	FY 2019	FY 2020
Congressional Add Subtotals for Project: 1	0.000	-
Congressional Add Totals for all Projects	0.000	-

Change Summary Explanation

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity **Date:** February 2020

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0808709SE / Defense Equal Opportunity Management Institute (DEOMI)	Project (Number/Name) 1 / Defense Equal Opportunity Management Institute (DEOMI)
--	---	--

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
1: Defense Equal Opportunity Management Institute (DEOMI)	0.000	0.000	0.100	0.100	-	0.100	0.100	0.100	0.100	0.102	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 2019	FY 2020	FY 2021
Title: Defense Equal Opportunity Management Institute (DEOMI)	0.000	0.100	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 2020 Plans: Current ongoing projects include: Office of Naval Research (ONR) Summer Faculty Research Program, ONR Summer STEM program, compliance with new DEOMI requirements outlined in DoDI 1020.03, and the DEOMI High Fidelity Virtual Puppeteering Simulation Facilitator/EOA Training Platform.			
FY 2021 Plans: Continued support and development of the outlined FY 2020 initiatives.			
FY 2020 to FY 2021 Increase/Decrease Statement: No Change.			
Accomplishments/Planned Programs Subtotals	0.000	0.100	0.100

	FY 2019	FY 2020
Congressional Add: None	0.000	-
FY 2019 Accomplishments: N/A		
Congressional Adds Subtotals	0.000	-

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 DoD Human Resources Activity		Date: February 2020
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0808709SE / <i>Defense Equal Opportunity Management Institute (DEOMI)</i>	Project (Number/Name) 1 / <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

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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation -----	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
-----	-----	-----	-----	-----	-----
Operational Test & Eval, Defense	377,001	227,700			227,700
Total Research, Development, Test & Evaluation	377,001	227,700			227,700

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation -----	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
-----	-----	-----	-----	-----	-----
Operational Test & Eval, Defense	210,090				210,090
Total Research, Development, Test & Evaluation	210,090				210,090

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Summary Recap of Budget Activities -----					
Management Support	377,001	227,700			227,700
Total Research, Development, Test & Evaluation	377,001	227,700			227,700
Summary Recap of FYDP Programs -----					
Research and Development	377,001	227,700			227,700
Total Research, Development, Test & Evaluation	377,001	227,700			227,700

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Management Support	210,090				210,090
Total Research, Development, Test & Evaluation	210,090				210,090
Summary Recap of FYDP Programs -----					
Research and Development	210,090				210,090
Total Research, Development, Test & Evaluation	210,090				210,090

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Summary Recap of Budget Activities					

Management Support	377,001	227,700			227,700
Total Research, Development, Test & Evaluation	377,001	227,700			227,700
Summary Recap of FYDP Programs					

Research and Development	377,001	227,700			227,700
Total Research, Development, Test & Evaluation	377,001	227,700			227,700

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Management Support	210,090				210,090
Total Research, Development, Test & Evaluation	210,090				210,090
<u>Summary Recap of FYDP Programs</u>					
Research and Development	210,090				210,090
Total Research, Development, Test & Evaluation	210,090				210,090

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation: 0460D Operational Test & Eval, Defense

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	c
1	0605118	OTE Operational Test and Evaluation	06	85,685	93,291			93,291	U
2	0605131	OTE Live Fire Test and Evaluation	06	64,332	69,172			69,172	U
3	0605814	OTE Operational Test Activities and Analyses	06	226,984	65,237			65,237	U
		Management Support		377,001	227,700			227,700	
Total Operational Test & Eval, Defense				377,001	227,700			227,700	

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

13 Feb 2020

Appropriation: 0460D Operational Test & Eval, Defense

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
1	06051180	TE Operational Test and Evaluation	06	100,021				100,021	U
2	06051310	TE Live Fire Test and Evaluation	06	70,933				70,933	U
3	06058140	TE Operational Test Activities and Analyses	06	39,136				39,136	U
		Management Support		210,090				210,090	
Total Operational Test & Eval, Defense				210,090				210,090	

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Operational Test and Evaluation, Defense • Budget Estimates FY 2021 • RDT&E Program

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2	06	0605131OTE	Live Fire Test and Evaluation (LFT&E).....	Volume 5 - 781
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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Operational Test and Evaluation, Defense **Date:** February 2020

Appropriation/Budget Activity 0460: <i>Operational Test and Evaluation, Defense / 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	83.190	85.685	93.291	100.021	-	100.021	95.979	96.080	98.512	100.868	Continuing	Continuing
000310: <i>OT&E</i>	83.190	85.685	93.291	100.021	-	100.021	95.979	96.080	98.512	100.868	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 235 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 development of 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-2, RDT&E Budget Item Justification: PB 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	85.685	93.291	94.929	-	94.929
Current President's Budget	85.685	93.291	100.021	-	100.021
Total Adjustments	0.000	0.000	5.092	-	5.092
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Due to the Defense-wide Review (DWR), funding was realigned from 0605814OTE for digital modernization	-	-	5.122	-	5.122
• Due to the Defense-wide Review (DWR), FY 2021 Funding was reduced due to eliminating assembled chemical weapons alternatives program oversight	-	-	-0.030	-	-0.030

Change Summary Explanation

Due to the Defense-wide Review (DWR), FY 2021 Funding was realigned from 0605814OTE for digital modernization.

Due to the Defense-wide Review (DWR), FY 2021 Funding was reduced due to eliminating assembled chemical weapons alternatives program oversight.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
000310: <i>OT&E</i>	83.190	85.685	93.291	100.021	-	100.021	95.979	96.080	98.512	100.868	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 235 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 development of 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 2021 Operational Test and Evaluation, Defense		Date: February 2020
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 2019	FY 2020	FY 2021
<p>Title: Operational Test and Evaluation</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, and 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 2020 Office of the Secretary of Defense Test and Evaluation Oversight List.</p> <p>Cyber Evaluations DOT&E plans to sponsor approximately 50 Combatant Command (CCMD) and Service cybersecurity assessments and Cyber Readiness Campaign (CRC) events in FY 2020, 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. 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 2020 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. 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 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>FY 2021 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 2021 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 will be identified in Calendar Year 2021 Office of the Secretary of Defense Test and Evaluation Oversight List.</p>	85.685	93.291	100.021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>As a result of the Defense-Wide Review (DWR), DOT&E will eliminate the assembled chemical weapon alternatives program oversight, saving \$30 thousand dollars per year.</p> <p>Cyber Evaluations DOT&E plans to sponsor approximately 50 CCMD and Service cybersecurity assessments and CRC events in FY 2021. 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 2021 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. 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. DOT&E will transmit critical findings to DoD leadership along with recommended actions to improve DoD's cybersecurity posture. FY 2021 evaluations will include trend analyses across prior year results, both within and across CCMDs.</p> <p>Due to the Defense-wide Review (DWR), in FY 2021 funding was reduced by \$0.03 million due to eliminating assembled chemical weapons alternatives program oversight.</p> <p>Due to the Defense-wide Review (DWR), in FY 2021, DOT&E will reinvest \$5 million in digital modernization (e.g., automated software and cybersecurity testing, digital engineering, etc.) to engineer and drive pilots designed to move the operational test community into next generation digital technologies and analytic methods at scale.</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase from FY 2020 to FY 2021 of \$6.730 Million is due to funds realigned from 0605814OTE for digital modernization, as well as enhancements for enhanced Cyber Red teams and yearly inflation increases of program cost.</p>			
Accomplishments/Planned Programs Subtotals	85.685	93.291	100.021

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

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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>

D. Acquisition Strategy
N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	58.950	64.332	69.172	70.933	-	70.933	70.297	72.989	74.001	75.034	Continuing	Continuing
000311: <i>LFT&E</i>	58.950	64.332	69.172	70.933	-	70.933	70.297	72.989	74.001	75.034	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element consists of three programs: Live Fire Test and Evaluation (LFT&E), Joint Aircraft Survivability Program (JASP), and Joint Technical Coordinating Group for Munitions Effectiveness (JTCEG/ME).

This Program Element directly supports the Congressional statutory requirements for oversight of 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 (JTCEG/ME) was chartered 50 years ago to serve as Department of Defense's (DoD's) focal point for munitions effectiveness information. The JTCEG/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 2021 Operational Test and Evaluation, Defense **Date:** February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0460: <i>Operational Test and Evaluation, Defense / BA 6: RDT&E Management Support</i>	PE 0605131OTE / <i>Live Fire Test and Evaluation (LFT&E)</i>

studies. The JTTCG/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. JTTCG/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 JTTCG/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 JTTCG/ME programs.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	64.332	69.172	70.933	-	70.933
Current President's Budget	64.332	69.172	70.933	-	70.933
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 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
000311: <i>LFT&E</i>	58.950	64.332	69.172	70.933	-	70.933	70.297	72.989	74.001	75.034	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 (LFT&E), Joint Aircraft Survivability Program (JASP), and Joint Technical Coordinating Group for Munitions Effectiveness (JTCEG/ME).

This Program Element directly supports the Congressional statutory requirements for oversight of 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.

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The Joint Technical Coordinating Group for Munitions Effectiveness (JTCEG/ME) was chartered 50 years ago to serve as Department of Defense's (DoD's) focal point for munitions effectiveness information. The JTCEG/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-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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>
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studies. The JTTCG/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. JTTCG/ME also increases 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. 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 JTTCG/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 JTTCG/ME programs.

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

	FY 2019	FY 2020	FY 2021
<p>Title: Live Fire Test and Evaluation</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 JLF budget will support at least 20 projects (tentatively 8 new efforts and 12 projects continuing from previous FYs). Project's objectives will directly support NDS objectives to include building a more lethal force, new partnerships, or DoD business reforms.</p> <p>Build a More Lethal Force In FY 2020, JLF will continue to increase the accuracy and capability of critical modeling and simulation tools to support test and evaluation efficiency and ensure credibility of DOD assessments and weaponeering tools. - For example, one effort will increase the capability of existing naval M&S survivability and lethality evaluation tools. More specifically the project will develop more accurate damage effects as the threat penetrates multiple ship compartments, as typically seen in a realistic engagement.</p>	64.332	69.172	70.933

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
<p>- Another effort will increase the capability of existing M&S tools used to evaluate fire propagation across ship compartments and the ensuing threat to the ship/occupants, as well as recoverability capabilities pertaining to the damage caused by spreading fires.</p> <p>JLF efforts will also continue to resolve survivability and lethality related system design challenges of currently fielded U.S. systems.</p> <p>- For example, one JLF effort will address an evaluation shortfall related to body armor performance. Existing LFT&E methods do not adequately correlate body armor data to actual injury. This task will support the development of appropriate measures, techniques, and analyses to enable a more credible correlation of body armor data with injury.</p> <p>- JLF will enable the development of more rigorous test infrastructure needed to evaluate the effectiveness of fuel self-sealing bladders with aircraft. Self-sealing bladders could significantly mitigate the vulnerability to the aircrew. This test infrastructure will ensure self-sealing bladder's performance is more accurately characterized prior to final design reviews.</p> <p>Reform the Department for Greater Performance and Affordability</p> <p>In coordination with the Army and the Air Force, JLF will increase aircraft and ground combat vehicle survivability/lethality M&S.</p> <p>- One effort will apply innovative techniques to increase the efficiency of existing M&S tools largely used to estimate lethality of piercing threats against our systems. Improved lethality models will increase the credibility of our lethality evaluations and the credibility of weaponing tools.</p> <p>JLF will also continue to lead innovation in LFT&E methods to increase LFT&E efficiency and support rapid fielding.</p> <p>- A new effort will develop an advanced teaming analysis capability to enable future survivability and lethality evaluations of a system-of-systems. Current LFT&E has limited capability to assess the effectiveness of the system in the context of other supporting systems. LFT&E is currently constrained to single system analyses, which is not always operationally representative.</p> <p>- Another new JLF effort will provide an M&S capability that will enable efficient evaluation of active protection systems integrated with ground combat vehicles.</p> <p>- JLF will develop machine learning algorithms to more effectively characterize armor performance. Such algorithms will enable efficient LFT&E of future armor compositions and will inform future armor designs.</p> <p>JASP</p> <p>In FY 2020 the JASP will continue work on 27 multi-year RDT&E projects and initiate 13 new projects approved by the JASP Principal Members Steering Group and OSD/DOT&E. The JASP will support the NDS objective to 'Build a More Lethal Force' by developing 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 advancing system hardening against rocket-propelled grenade, small-arms, and high-energy laser threats and increasing threat and flight environmental situational awareness. Reform the DoD for Greater Performance and Affordability by</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
<p>funding the development of more efficient M&S tools and threat models to enable more effective aircraft survivability capability development, test and evaluation.</p> <p>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 2020, JTTCG/ME efforts will continue to assist the Director, Operational Test and Evaluation (DOT&E), Office of the Secretary of Defense (OSD) in supporting the National Defense Strategy lines of effort of enabling greater force lethality, strengthening partner capabilities, and optimal use of resources through efficiency.</p> <p>JTTCG/ME will:</p> <ul style="list-style-type: none"> -Develop, enhance, and standardize data/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 Combatant Commands' (CCMDs) needs. -Field and continue to enhance future versions of its kinetic JTTCG/ME Joint Munitions Effectiveness Manual (JMEM) products to include 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). -Develop non-kinetic JMEMs capability to include Cyber Operations Lethality and Effectiveness (COLE) and Joint Laser Weaponing Software (JLaWS) products, as well as High Power Microwave (HPM) and Electromagnetic Spectrum (EMS) Fires data/tool sets. -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 air-to-surface and surface-to-surface weaponing guides. -Continue to execute a multi-year test program to enhance weaponing/collateral damage estimation in complex environments. -Improve the utilization of Battle Damage Assessment (BDA) data to more effectively and efficiently estimate munition expenditure rates and mitigate stockpile stress, while improving CCMDs' force effects. -Continue to maintain and strengthen relationships with the Warfighter, operational users, and coalition partners to establish requirements for current and future products, through forums, training, foreign military sales, and reachback operational support. 			

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

	FY 2019	FY 2020	FY 2021
<p>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> <ul style="list-style-type: none"> -Increase efficiency by leveraging ongoing Department efforts and support the Department’s intent to complement U.S. interest and capabilities by providing weaponeering, targeting, and collateral damage estimation (prevent civilian casualties) capability to Coalition partners through foreign military sales. -Continue to build and implement the next JTCG/ME JMEM product lines on a foundation of effects libraries using software frameworks enabling quicker development, flexibility, leveraging, and tailoring. -Study and implement the use of machine learning and data analytics to improve quality of existing solutions, decrease computation time of applications, and answer questions previously not possible. <p>Specifically in FY 2020, JTCG/ME plans to:</p> <ul style="list-style-type: none"> -Sustain/support fielded JWS v2.3.1, with efforts including multiple training and user forums for the fielded product. -Field JWS v2.4/develop JWS v2.4.x updates (as needed), which provides enhanced data, Fast Integrated Structural Tool (FIST), and connectivity capabilities, while maximizing the final JWS v2.x product line as the future weaponeering product line is developed/completed. Specific highlights include interim enhanced database capabilities with updated data sets to include CCMD’s high priority calculated, refreshed, and surrogated targets. The enhanced database capabilities allow accelerated, out of production cycle weapons and target data updates, tailored product versions for releasability, and more effective, focused testing. New 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 enable more options to the weaponeer and improve the underlying phenomenology representation in JWS. -Facilitate coalition interoperability and information exchange forums. JTCG/ME will deliver JWS version releases and standalone Pk Lookup tools to 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/targeting and collateral damage estimation 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. These efforts will directly support Presidential Conventional Arms Control Policy to build partner capacity to prevent civilian casualties. -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 			

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>threat targets. Similarly, JTCG/ME leverages target vulnerability modeling capabilities developed during acquisition. The leveraging of this information saves programs and JTCG/ME valuable time and resources, and ensures the acquisition and operational communities are using consistent/valid threat representation and similar vulnerability/lethality modeling capabilities. A significant focus of FY 2020 efforts will be planning and transition of target vulnerability capabilities to the JMEM Effects Library (JEL) for use on next generation weaponeering and targeting JMEMs.</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.</p> <p>-Continue to collect/improve, 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 Glide 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). JTCG/ME also continues to monitor future weapon systems to work longer lead methodology needs. A significant focus of FY 2020 efforts will be planning and transition of weapons characteristics capabilities to the JEL (database design, integration, and interfaces) for use on next generation weaponeering and targeting JMEMs.</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 with Program Managers, Program Executive Offices, and Service Program Offices. 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>-Maintain, update, and execute strategic roadmaps for underlying vulnerability / lethality models used as standards by the tri-service community to better support JMEM 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 / simulation validation and resolution of capability gaps. A key roadmap component includes several interconnected model sensitivity studies. The goal of these studies is to understand the range of potential model outputs, including stochastic variations in penetration and other processes, so that differences between test data and predictive models can be better understood.</p> <p>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) 3160.01 series, "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. The JTCG/ME CER tables and CDE methodology are used in</p>			

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

	FY 2019	FY 2020	FY 2021
<p>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 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 v2.2.1 product. DIEE is designated by CCMD Action Group (CCAG) as DoD solution for Advanced Target Development (ATD). DIEE 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), CDE, Weaponing, 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 v2.1.1 includes user requested enhancements, more advanced JWS interface for weaponing capability, CJCSI 3160.01C compliant CER Reference Tables and DCiDE for CDE capability, and updated Common Geopositioning Services (CGS) for TCM capability. A significant update in DIEE v2.2.1 is implementation and integration of mitigation tables for CDE. These mitigation tables, codified for use in CJCSI 3160.01C, are weapon and target specific, and allow for more accurate civilian casualty estimates for consideration by the strike authority. DIEE v2.2.1 supports various mitigation techniques that provide increased operational flexibility within the context of Theater Rules of Engagement and the Laws of Armed Conflict.</p> <p>-Continue to develop future DIEE versions (v2.x/v3.x) that will include: CGS updates, 3-D viewer for pre- and post- processing of weaponing and CDE mitigation analyses, interfacing to future JEL capability for weaponing, updates to Collateral Effects Library (CEL) interface, battle damage assessment workflow and graphic production, route tool user requested enhancements, and mobile tablet capabilities. JTCG/ME maintains Warfighter support and future requirements collection through training and User forums. A focus of FY 2020 efforts will be the transition of CJCSI 3160.01C to CJCSI 3160.01D and the impact on CERs and DCiDE implementation.</p> <p>-Continue to leverage CEL and other high fidelity weaponing/CDE techniques to deliver analysis packages for collateral damage mitigation, post-forensic, and force protection 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> <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. FY 2020 efforts leverage nine FY 2019 testing events and</p>			

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

	FY 2019	FY 2020	FY 2021
<p>multiple collaboration forums. FY 2020 tests will include three buried ordnance tests to evaluate the effects of burial and weapon class on warhead performance, crater ejecta, and collateral damage, and four building debris characterization tests. A focused effort of FY 2020 is transition of previous years' analyzed and processed data to methodologies and future JMEM products.</p> <p>-Continue to implement the BDA of Deliberate and Dynamic Strikes analysis efforts. These efforts are multi-year task to analyze ongoing strikes required to update JMEM capabilities. The overall objective is to ensure effective and efficient munition expenditure rates and mitigate the stockpile stress, while improving CCMDs' force effects. This will improve the warfighter's ability to get the right weapon on the right target, achieve the desired effect, and minimize collateral damage while optimizing scarce resources. The analysis approach includes: 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 DIEE 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. FY 2020 efforts include configuring cloud computing environment for BDA data/web tools, aggregating strike data and migrating to cloud, improving/automating data collection process, developing methodologies for multiple use cases, automating portions of strike analysis methodology, obtaining user feedback on web interface/tools and new BDA requirements, refining interface/tools based on User feedback, and refining accuracy of weapons effects/tools based on BDA results.</p> <p>-Sustain/support fielded J-ACE v5.3/v5.3.1. J-ACE, which includes the Joint Antiair Model (JAAM) and Endgame Manager (EM) modules. J-ACE provides two-sided air-to-air/surface-to-air combat effectiveness capability to underpin air combat tactics, techniques, and procedures development, as well as support mission analysis, studies, and training. Many users leverage J-ACE's Application Program Interface (API) to link debrief and analysis tools at training and test ranges across the Joint community. FY 2020 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/analytical capabilities that use J-ACE as the underlying analytical engine to underpin results. The forums allow J-ACE external application developers to receive any updates and interact with J-ACE developer to refine requirements and plans.</p> <p>-Finish J-ACE v5.4 development. Further J-ACE v5.4 product development will maximize the final J-ACE v5.x product line, and continue to deliver User with new capability, as the future v6.x product is developed/completed. J-ACE v5.4 will include updated weapons and aircraft data in JAAM, 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 faster EM has improved speed of new fuze model and refined graphic display data generation, and includes more weapon lethality-target vulnerability data sets. Other capabilities will include time, space, and position information (TSPI) file updates and filtering/error identification, aircraft maneuver updates, new input/output control options for a "war room summary sheet, and initial air-to-surface weapon (ASW) fly out models.</p> <p>-Further development of the Air Combat Effectiveness Library (ACEL) and the next J-ACE product series capabilities, known as J-ACE v6.x. Future JTCG/ME product lines (applications) are being designed and built on a foundation of effects libraries, which</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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>

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

	FY 2019	FY 2020	FY 2021
<p>are collections of JTCG/ME approved data, models, and methods/capabilities. Effects libraries are integrated using software frameworks, which support plug-in style methodologies enabling maximum modularity, flexibility of design, and reuse of standard capabilities across the community for greater performance and affordability. ACEL uses Hybrid Interactive Visualization Engine (HIVE) as its software architecture, which is used by others in the aircraft survivability community, enabling greater leveraging. ACEL will serve as the underlying analytical engine for weapons shot-logic/effect and weapons/aircraft kinematic calculations, while J-ACE v6.x and application interfaces will enable Users to interact with and use ACEL capabilities in a tailored software application to predict air combat effectiveness. FY 2020 efforts and deliverables will include continued review/approval of transported v5.x capabilities to ACEL and continued development of new v6.x capabilities. J-ACE v6.0 threshold capabilities include unmanned aerial system features, enhanced weapon engagement zone methodology, new graphical displays, refined terrain masking options, and auto-generated test reports for each product player. J-ACE v6.0 objective capabilities include enhanced air-to-air missile modeling capability, more ASW fly outs, updated/new surface-to-air models, updated enhanced surface-to-air missile simulation (ESAMS) capability with more counter measures, and target detection capability leveraging National Air and Space Intelligence Center (NASIC) Radio Frequency (RF) models/data. Longer -lead development items include infrared detection/track, red surf-to-air gun modeling in EM, rotary wing aero performance modeling, and enhanced chaff modeling.</p> <p>-Continue to mature Cyber JMEM capabilities with continued execution of multiyear plan to develop the COLE tool. FY 2020 efforts will focus completion of capability drop (CD) 2 efforts to include: advanced calculations incorporating quantification of uncertainties, ingest and generate operational environment model (OEM) data, prototype functional and beta tests, advanced uncertainty modeling (Monte Carlo, etc.), and computation of path-to-target estimate. In addition, FY 2020 will begin development of CD 3 that will include automated fusion of multi-domain estimates, correlation of foundational data to support OEM generation, preliminary artificial intelligence-based decision support system, OEM analysis and attack planning support, refined integration with other JTCG/ME toolsets, and quantitative comparisons. Similar to other JMEMs, User feedback is critical. FY 2019 COLE Functional Users Working Group prioritized requirements are driving development for CD 2. FY 2020 will include multiple Working Groups to review development with operators.</p> <p>-Initialize a JMEM program for EMS Fires. This effort will start in FY 2020 and is in response to Joint Requirements Oversight Council Memorandum (JROCM) 061-18 requesting Joint Munitions Effectiveness Manual (JMEM) for EMS Fires. CCMD mission planners require the ability to employ both kinetic and electronic attack (EA) methods to prosecute/affect advisory targets in contested EMS environments. Mission planners must be able to compare options side-by-side to have confidence in the effectiveness and understand associated risk. JTCG/ME will develop JMEMs capability for EMS Fires allowing mission planners to assess weapon/combat effectiveness in the presence of adversary EA on kinetic weapon guidance systems (i.e., Global Positioning System (GPS) Jamming), and to assess our EA capabilities against adversary targets (i.e., EMS Fires - EA Jamming). JTCG/ME will review and leverage existing models and data sets, where applicable, to build this capability. In addition, JTCG/ME will use kinetic weapon JMEM development model: 1) requirement collection/prioritization via Operational Users Working Groups, 2) Tri-service coordination, 3) leveraging/enhancing existing data/methodology, and 4) Joint standardization/approval.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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

	FY 2019	FY 2020	FY 2021
<p>JTCG/ME will look to provide immediate capability, while developing/executing a long-term strategy for sustained JMEmS for EMS fires capabilities to inform the planning and requirements processes. FY 2020 efforts will include 1) developing EMS Fires JMEmS strategy and plan, 2) collecting/coordinating requirements, 3) initiation of Tri-service team to review/approve data/methods, formulate processes to codify in charter/terms of reference, 4) further understanding current data sources/models, 5) building partnerships for data collection, 6) executing proofs-of-concepts, and 7) providing initial capability with weapon guides and data collection gaps/shortfalls.</p> <p>FY 2021 Plans: Live Fire Test and Evaluation (LFT&E) of Major Department of Defense (DOD) Acquisition Programs The FY 2021 budget will enable the LFT&E Deputate to assess the adequacy of LFT&E strategies/plans and generate new LFT&E policies to support systems' acquisitions and rapid fielding. The FY 2021 budget will ensure an adequate execution of the agreed upon LFT&E plans and subsequently ability to conduct independent analysis of survivability and lethality test and M&S data in support of the development of OSD Live Fire Test and Evaluation reports to Congress.</p> <p>JLF Programs and LFT&E Initiatives</p> <p>The FY 2021 budget will support a more lethal force by increasing the accuracy and capability of critical modeling and simulation tools to support test and evaluation efficiency and ensure credibility of DOD assessments and weaponizing tools. JLF efforts will also resolve survivability and lethality related system design challenges of currently fielded U.S. systems. Finally, JLF will continue to lead innovation in LFT&E methods to increase LFT&E efficiency and support rapid fielding.</p> <p>JASP In FY 2021 the JASP will continue work on at least 25 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 support the NDS objective to 'Build a More Lethal Force' by developing 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 advancing system hardening against rocket-propelled grenade, small-arms, and high-energy laser threats and increasing threat and flight environmental situational awareness. Reform the DoD for Greater Performance and Affordability by funding the development of more efficient M&S tools and threat models to enable more effective aircraft survivability capability development, test and evaluation.</p> <p>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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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<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 2021, JTTCG/ME efforts will continue to assist the DOT&E, OSD in supporting the National Defense Strategy lines of effort of enabling greater force lethality, strengthening partner capabilities, and optimal use of resources through efficiency.</p> <p>JTTCG/ME will:</p> <ul style="list-style-type: none"> -Develop, enhance, and standardize data/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. -Field and continue to enhance future versions of its major JTTCG/ME Joint Munitions Effectiveness Manual (JMEM) products, the JWS, J-ACE, DCiDE tool, and DIEE. - Develop non-kinetic JMEMs capability to include COLE and Joint JLaWS products, as well as High Power Microwave (HPM) and EMS Fires data/tool sets. -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. -Continue to execute a multi-year test program to enhance weaponeering/collateral damage estimation in complex environments. -Improve utilization of BDA data to more effectively and efficiently estimate munition expenditure rates and mitigate stockpile stress, while improving CCMDs' force effects. -Continue to maintain and strengthen relationships with the Warfighter, operational users, and coalition partners to establish requirements for current and future products, through 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. -Increase efficiency by leveraging ongoing Department efforts and support the Department's intent to complement U.S. interest and capabilities by providing weaponeering, targeting, and collateral damage estimation (prevent civilian casualties) capability to Coalition partners through foreign military sales. - Continue to build and implement the next JTTCG/ME JMEM product lines on a foundation of effects libraries using software frameworks enabling quicker development, flexibility, leveraging, and tailoring. -Study and implement the use of machine learning and data analytics to improve quality of existing solutions, decrease computation time of applications, and answer question previously not possible. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>Specifically in FY 2021, JTCG/ME plans to:</p> <ul style="list-style-type: none"> -Sustain and field remaining updates to JWS v2.x product line. FY 2021 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 efforts. -Delivery of JEL v1.0 (Spiral 1) capabilities to develop/complete JWS v3.x and DIEE initial interfaces. JEL Spiral 1 capabilities include new/updated trajectory modeling, new weapon/targets database designs/data and user interfaces, enhanced structural target response and prediction, personnel vulnerability methods, Application Program Interface (API) to DIEE, JEL processes, JEL model Smart Book, and EF training to solidify institutional EF development knowledge. FY 2021 efforts will include continued development of Spiral 2 capabilities, which include collateral effects radii tables, enhanced collateral damage mitigation, new ground mobile target capability and data, and new infrastructure targets (tunnels). -Support requirements collection by hosting JMEM training sessions, OUWG, and User help desk via the JPIAS. JTCG/ME will support approximately 30 training sessions anticipating about 500 students annually. These training sessions allow users to optimize use of JMEM capabilities, while providing JTCG/ME with critical input for future development. 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 collect User requirements and product use cases, to process and codify in capability needs statements used for planning and JMEM product development. -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 FMS agreements, as well as migrate to new processes via the JEL/JWS v3.x 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. -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 2021 efforts is to continue to migrate data and methodology utilized through the JEL. 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. Leveraging existing technologies and partnerships have the potential to reduce the number of weapon test articles required and remove labor-intensive activities from weapon testing. -Update and execute strategic roadmaps for underlying vulnerability / lethality models used as standards by the tri-service community to better support JMEMs 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 / simulation validation and resolution of capability gaps. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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>

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

	FY 2019	FY 2020	FY 2021
<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, linkage to various mission planning systems and tools in operational units. It is a GOTS product for advanced target development that integrates TCM, CDE, Weaponing, and data basing functions.</p> <p>- Continue to develop future DIEE versions (v2.x/v3.x) with JWS 3.x linkage through the development of API. Focused FY 2021 efforts will continue to maintain/improve connectivity to community tools, implement interface with JEL emerging capabilities, transition battle damage assessment workflow and data capabilities from BDA analytical efforts, and maintain awareness of policy changes to applicable CJCSIs.</p> <p>-Support and deliver analysis packages for collateral damage mitigation, post-forensic, and force protection 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> <p>- Continue the Enhanced Weaponing and CDE Program, a multi-year test program focused on enhancing and validating JTTCG/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. FY 2021 efforts will leverage seven FY 2020 testing events and multiple collaboration forums. FY 2021 efforts will include approximately four buried ordnance and four 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 implement the BDA of Deliberate and Dynamic Strikes analysis. The effort is a multi-year task to analyze ongoing strikes required to update JMEM capabilities. The overall objective and intent is to ensure effective and efficient munition expenditure rates and mitigate the stockpile stress, while improving CCMDs' force effects. In essence, improve the warfighter's ability to get the right weapon on the right target, achieve the desired effect, and minimize collateral damage while optimizing scarce resources. FY 2021 efforts include: continued extraction of new strike data events, further refine strike analysis methodologies to increase automation, further development of new analysis tools obtain end user feedback on new tools / User interfaces, integrate BDA analysis tools with existing JTTCG/ME weaponing applications, and shape BDA reporting standards.</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 final J-ACE v5.x product capabilities, which will include updated weapons and aircraft data in JAAM, new cross platform BROWSE module, which contains descriptive information for each player (weapon, aircraft). In addition, J-ACE v5.4 will include</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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>

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

	FY 2019	FY 2020	FY 2021
<p>a new 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. Other capabilities will include TSPI file updates and filtering/error identification, aircraft maneuver updates, new input/output control options for a “war room summary sheet, and initial ASW fly out model.</p> <p>-Integration of ACEL v1.0 capabilities in J-ACE v6.0/6.x. FY 2021 efforts will include finishing the review/approval of threshold capabilities, and continued integration and generation of standalone J-ACE application. ACEL v1.0/J-ACE v6.0 threshold capabilities include transitioned v5.x capabilities, unmanned aerial system features, enhanced weapon engagement zone methodology, new graphical displays, refined terrain masking options, and auto-generated test reports for each product player. Other efforts include finishing the development and starting the review/integration of J-ACE v6.0 objective capabilities into ACEL 1.x and J-ACE v6.0 respectively. These capabilities include enhanced air-to-air missile modeling capability, more ASW fly outs, updated/new surface-to-air models, updated ESAMS capability with more counter measures, and target detection capability leveraging NASIC RF models/data. Begin to integrate longer lead development items into ACEL v1.x for future J-ACE v6.x product to include infrared detection/track, red surface-to-air gun modeling in EM, rotary wing aero performance modeling, and enhanced chaff modeling.</p> <p>- Continue Cyber JMEM development capabilities with continued execution of multiyear plan to develop the COLE tool. FY 2021 efforts will focus on completion of CD 3 that will include automated fusion of multi-domain estimates, correlation of foundational data to support OEM generation, preliminary artificial intelligence-based decision support system, OEM analysis and attack planning support, refined integration with other JTTCG/ME toolsets, and quantitative comparisons. Similar to other JMEMs, User feedback is critical. FY 2021 will include multiple OUWGs to review development with operators and preparation for fielding products in future FYs.</p> <p>-Continue to mature DE JMEM capabilities to include High Energy Laser (HEL) and HPM weapons. FY 2021 DE HEL efforts will include continuing HEL lethality testing/target vulnerability analysis/data modeling for verification and validation (V&V) on service-specific target sets, field testing, continuing target vulnerability characterization and modeling to provide inputs to JLaWS tool, and conducting the accreditation of HEL JLaWS tool and collateral risk estimation PRA tool. FY 2021 DE HPM JMEM development efforts will include continuing HPM lethality testing/target vulnerability analysis/data collection for V&V on service-specific target sets, field-testing, target vulnerability characterization and modeling to provide inputs to JMEM models, finalizing HPM tool development, and completing the HPM PRA Tool.</p> <p>-Continue to develop/mature EMS Fires JMEM program and capabilities. FY 2021 efforts will build upon outputs of FY 2020 efforts and include execution of developed long-term strategy. FY 2021 will include efforts along JMEM development lines of effort to include: 1) Users interaction/requirements management, 2) Target vulnerability/threat characterization collection, standardization, and Tri-Service approval, 3) EMS Fire weapon characterization collection, standardization, and Tri-Service approval, 4) Effects Methodology development, standardization, and Tri-Service approval, 5) JMEM development management, integration, data</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
management, Verification, Validation, and Accreditation (VV&A), and external interface, and 6) Lab/field testing to support data/methodology gaps and VV&A.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase from FY 2020 to FY 2021 of \$1.761 Million is consistent with increases due to Joint Munitions Effectiveness Manuals for Directed Energy and Electromagnetic Spectrum Fires, and inflation.			
Accomplishments/Planned Programs Subtotals	64.332	69.172	70.933

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	66.447	226.984	65.237	39.136	-	39.136	43.526	31.742	33.493	34.800	Continuing	Continuing
000920: <i>OTA&A</i>	66.447	226.984	65.237	39.136	-	39.136	43.526	31.742	33.493	34.800	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 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	66.984	58.737	57.896	-	57.896
Current President's Budget	226.984	65.237	39.136	-	39.136
Total Adjustments	160.000	6.500	-18.760	-	-18.760
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	160.000	6.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Due to the Defense-wide Review (DWR), the Joint Test and Evaluation Program (JT&E) was divested	-	-	-26.800	-	-26.800
• Additional Funding for Test and Evaluation for Directed Energy Weapons	-	-	8.040	-	8.040

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

Project: 000920: OTA&A

Congressional Add: *Program Increase for T&E Infrastructure*

Congressional Add: *Advanced Satellite Navigation Receiver*

Congressional Add: *Cyber talent recruitment initiative*

Congressional Add Subtotals for Project: 000920

Congressional Add Totals for all Projects

	FY 2019	FY 2020
	150.000	-
	10.000	5.000
	-	1.500
Congressional Add Subtotals for Project: 000920	160.000	6.500
Congressional Add Totals for all Projects	160.000	6.500

Change Summary Explanation

FY 2019 Congressional add for Test and Evaluation Infrastructure +150M

FY 2019 Congressional add for Advanced Satellite Navigation Receiver +\$10M

FY 2020 Congressional add for Advanced Satellite Navigation Receiver +\$5M

FY 2020 Congressional add for Cyber Talent Recruitment Initiative +\$1.5M

FY 2021 Due to the Defense-wide Review (DWR), the Joint Test and Evaluation Program (JT&E) was divested

FY 2021 Additional Funding for Test and Evaluation for Directed Energy Weapons

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
000920: <i>OTA&A</i>	66.447	226.984	65.237	39.136	-	39.136	43.526	31.742	33.493	34.800	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 2019	FY 2020	FY 2021
Title: Operational Test Activities and Analyses	66.984	58.737	39.136
FY 2020 Plans:			
<p>Joint Test and Evaluation (JT&E)</p> <p>As a result of the Defense-Wide Review (DWR), the JT&E Program will be divested by the end of FY 2020. JT&E plans to complete test projects scheduled for completion in FY 2020 and conduct early close-down of remaining projects providing interim products to the warfighting customer. JT&E will completely shut down the program by closing facilities, terminating contracts, transitioning government personnel to new jobs in the DoD, and terminating all service Memorandums of Agreement (MOAs)/ Memorandums of Understanding (MOUs), and all support contracts.</p> <p>JT&E will complete or close down four Joint Test, seven Quick Reaction Tests, and one Special Project. The four Joint Tests are: Joint Laser Systems Effectiveness, Multi-Domain Unified Situational Awareness, Joint – Hypersonic Strike Planning, Execution, Command and Control, and Joint Interoperability through Data Centricity.</p> <p>The seven Quick Reaction Tests are: Joint Chemical Biological Radiological Nuclear (CBRN) Tactical Information Management, Joint Enterprise Data Interoperability, Joint Aviation Multi-Ship Integrated Air Defense System (IADS) Survivability Validation, Situational Positioning of LD2 Intelligence, Surveillance and Reconnaissance (ISR) - CONOPS Evolution, Joint Military Application of the Space Environment, Integration of small Unmanned Aircraft Systems into Joint Airspace, and Joint/Interagency - Ground Air Transponder Operational Risk Reduction.</p> <p>The Special Project is Joint Alerting for Survivability and Endurability.</p> <p>Threat Systems</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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 2019	FY 2020	FY 2021
<p>In FY 2020, Threat Systems will continue test planning working group participation and perform technical analyses to identify threat shortfalls; aligns with the National Defense Strategy (NDS) requirements; 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 reduction in acquisition and test timelines while increasing test capabilities against near-peer threats. - Increase understanding of near-peer threats (to include cyber) via testing with artificial intelligence (AI), machine learning (ML), and neural networks. - Continue development of an Advanced Satellite Navigation Receiver (ASNR) for an open service Global Positioning System / Inertial Measurement Unit (GPS/IMU) coupled high-fidelity, high dynamic next generation Time Space Position Information (TSPI) system to support future missile tests and Joint Standard Instrumentation Suite (JSIS) flight testing. - Continue to support the US warfighter by providing threat intelligence relevant to emerging threats such as artificial intelligence 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. - Continue to support initiatives for the development of near-peer threat representative jammers, for use in terrain constricted tests as a directional active electronically steered array jammer that will limit Federal Aviation Administration and other common jammer restrictions. - 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 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. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> - 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 Intelligence Acquisition Agility Working Group (IAAWG) and Executive Steering Group (ESG) 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. - 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>Threat Systems will continue its efforts to continually improve the standards set of threat performance models as the global threat environment evolves. With adequate funding, these activities help DOT&E carry out its Title 10 responsibilities to assess test adequacy and determine whether testing is realistic and suitable, promotes common solutions to Service threat representation needs and ultimately supports the warfighter.</p> <p>The Center The Center will test, analyze, and report on more than 30 systems/platforms. Testing will focus on directed energy weapon systems, counter-unmanned aerial systems (CUAS), aircraft survivability equipment (with a focus on Joint Urgent Operational Need (JUON) and Urgent Universal Need Statement (UUNS) programs), and pre-deployment warfighter training exercises. High priority programs will receive an independent assessment of our data/findings for CM/CCM evaluations. 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>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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 2019	FY 2020	FY 2021
<p>The Center will build upon improvement and modernization efforts from FY 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 implementation of JSIS Full Operational Capability (FOC) will add signature instrumentation focused on emerging programs, additional instrumentation to support data collection for multiple, concurrent events, instrumentation to support static live fire events, and full trajectory coverage for missile attitude related data collection. The Center will continue its involvement in the Directed Energy (DE) community as an active participant in the DE Instrumentation Initiative review panel. The Center will also lead the development of the High Energy Laser Remote Target Scoring (HRTS) project and partner with other T&E investment programs.</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>FY 2021 Plans: Threat Systems</p> <p>In FY 2021, Threat Systems will continue test planning working group participation and perform technical analyses to identify threat shortfalls; aligns with the National Defense Strategy (NDS) requirements; 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 reduction in acquisition and test timelines while increasing test capabilities against near-peer threats. - Continue to understand and address near-peer threats (to include cyber) via testing with artificial intelligence (AI), machine learning (ML), and neural networks. - Complete development of an Advanced Satellite Navigation Receiver (ASNR) for an open service Global Positioning System / Inertial Measurement Unit (GPS/IMU) coupled high-fidelity, high dynamic next generation Time Space Position Information (TSPI) system to support future missile tests and Joint Standard Instrumentation Suite (JSIS) flight testing. - Continue to support the US warfighter by providing threat intelligence relevant to emerging threats such as artificial intelligence, 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. - Continue to support initiatives for the development of near-peer threat representative jammers, for use in terrain constricted tests as a directional active electronically steered array jammer that will limit Federal Aviation Administration and other common jammer restrictions. - 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. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> - 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 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 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 the Intelligence Acquisition Agility Working Group (IAAWG) and Executive Steering Group (ESG) and provide access to the Intelligence Mission Data Management Analysis & Reporting System (IMARS). - Continue to 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. - Continue to 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. - Continue to 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. - 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>Threat Systems will continue its efforts to continually improve the standards set of threat performance models as the global threat environment evolves. With adequate funding, these activities help DOT&E carry out its Title 10 responsibilities to assess test</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense		Date: February 2020
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 2019	FY 2020	FY 2021
adequacy and determine whether testing is realistic and suitable, promotes common solutions to Service threat representation needs and ultimately supports the warfighter.			
<p>The Center</p> <p>The Center will continue to emphasize support of the DOT&E enterprise, with a clear focus on Title 10 oversight programs, DE, CUAS, aircraft survivability, and warfighter training events. The Center expects to increase focus on Directed Energy Weapons and other critical technology areas, which will contribute to the testing of future weapons and the understanding of emerging threats. The Center's ability to provide unique test equipment and expertise will remain a benefit to all Services, and the ongoing Improvement and Modernization plans will ensure test capabilities are provided at a cost savings across the DoD. Additional instrumentation, personnel, and training will be key to ensuring our ongoing test support continues to add significance in emerging technology areas.</p> <p>In FY 2021 The Center will build critical test and evaluation capabilities and the workforce necessary to evaluate emerging Directed Energy Weapon (DEW) war fighting technologies. This includes mobile, open-air DEW data collection and analysis capabilities that will support the test & evaluation (T&E) of the rapid prototyping and fielding needs of these systems. The mobile test capability will allow T&E of operational representative test scenarios in an open air environment to support the accelerated development and fielding of DEW within the DoD.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: The decrease from FY 2020 to FY 2021 of -\$19.601 Million is consistent with the divestment of the JT&E program due to the Defense-Wide review (DWR) and the addition of funds for Test and Evaluation of Directed Energy Weapons</p>			
Accomplishments/Planned Programs Subtotals	66.984	58.737	39.136

	FY 2019	FY 2020
Congressional Add: Program Increase for T&E Infrastructure	150.000	-
FY 2019 Accomplishments: DOT&E is developing 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	10.000	5.000
FY 2019 Accomplishments: DOT&E is developing the 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. In FY 2019, the team initiated development of the advanced Global Navigation Satellite System (GNSS) receiver, developed solver, validation, and estimation models, issued requests for		

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Operational Test and Evaluation, Defense **Date:** February 2020

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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	FY 2019	FY 2020
acquisition of multi-axis rate table and GNSS Global Positioning System (GPS) Simulator, issued the tech package to antenna manufacturer, and presented the project to NATO for partner input. FY 2020 Plans: In FY 2020 DOT&E is developing the Advanced Satellite Navigation Receiver System-level Telemetry Kit with development and prototyping of GNSS/GPS sensor and Inertial Measurement Unit (IMU) sensor. DOT&E will also design and develop the Ground Control System to include post-processing hardware and software development of post-processing applications and refinement and integration of models. Finally, DOT&E will resolve issues with encryption requirements (desired for NSA implementation on US and NATO ranges).		
Congressional Add: Cyber talent recruitment initiative FY 2020 Plans: In FY 2020, DOT&E will implement a pilot program to provide scholarships through qualified institutions of higher education, including community colleges, to students who are enrolled in programs that lead to degrees or specialized program certifications in the cybersecurity field that support Department of Defense requirements.	-	1.500
Congressional Adds Subtotals	160.000	6.500

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

N/A

Remarks

D. Acquisition Strategy

N/A

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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



Space Development Agency

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Space Development Agency • Budget Estimates FY 2021 • RDT&E Program

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

<u>Appropriation</u>	<u>FY 2019</u> <u>(Base + OCO)</u>	<u>FY 2020</u> <u>Base Enacted</u>	<u>FY 2020</u> <u>Emergency</u>	<u>FY 2020</u> <u>OCO Enacted</u>	<u>FY 2020</u> <u>Total Enacted</u> <u>(Base+Emerg+ OCO)</u>
Research, Development, Test & Eval, DW		95,000			95,000
Total Research, Development, Test & Evaluation		95,000			95,000

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	288,416				288,416
Total Research, Development, Test & Evaluation	288,416				288,416

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development		20,000			20,000
Advanced Component Development & Prototypes		75,000			75,000
Total Research, Development, Test & Evaluation		95,000			95,000
<u>Summary Recap of FYDP Programs</u>					
Space		95,000			95,000
Total Research, Development, Test & Evaluation		95,000			95,000

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	72,422				72,422
Advanced Component Development & Prototypes	215,994				215,994
Total Research, Development, Test & Evaluation	288,416				288,416
<u>Summary Recap of FYDP Programs</u>					
Space	288,416				288,416
Total Research, Development, Test & Evaluation	288,416				288,416

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development		20,000			20,000
Advanced Component Development & Prototypes		75,000			75,000
Total Research, Development, Test & Evaluation		95,000			95,000
<u>Summary Recap of FYDP Programs</u>					
Space		95,000			95,000
Total Research, Development, Test & Evaluation		95,000			95,000

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

21 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development	72,422				72,422
Advanced Component Development & Prototypes	215,994				215,994
Total Research, Development, Test & Evaluation	288,416				288,416
<u>Summary Recap of FYDP Programs</u>					
Space	288,416				288,416
Total Research, Development, Test & Evaluation	288,416				288,416

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Defense-Wide
 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Space Development Agency		95,000			95,000
Total Research, Development, Test & Evaluation		95,000			95,000

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Defense-Wide
 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Space Development Agency	288,416				288,416
Total Research, Development, Test & Evaluation	288,416				288,416

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Element Number	Program Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
71	1206310	SDA Space Science and Technology Research and Development	03		20,000			20,000 U
		Advanced Technology Development			20,000			20,000
121	1206410	SDA Space Technology Development and Prototyping	04		75,000			75,000 U
		Advanced Component Development & Prototypes			75,000			75,000
Total Research, Development, Test & Eval, DW					95,000			95,000

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Defense-Wide
 FY 2021 President's Budget
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 (Dollars in Thousands)

21 Jan 2020

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

Line No	Element Number	Program Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se e c
71	1206310	SDA Space Science and Technology Research and Development	03	72,422				72,422	U
		Advanced Technology Development		72,422				72,422	
121	1206410	SDA Space Technology Development and Prototyping	04	215,994				215,994	U
		Advanced Component Development & Prototypes		215,994				215,994	
Total Research, Development, Test & Eval, DW				288,416				288,416	

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Space Development Agency
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Element Number	Program Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	c
71	1206310	SDA Space Science and Technology Research and Development	03		20,000			20,000	U
		Advanced Technology Development			20,000			20,000	
121	1206410	SDA Space Technology Development and Prototyping	04		75,000			75,000	U
		Advanced Component Development & Prototypes			75,000			75,000	
Total Space Development Agency					95,000			95,000	

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Space Development Agency
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

21 Jan 2020

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

Line No	Element Number	Program Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
71	1206310	SDA Space Science and Technology Research and Development	03	72,422				72,422	U
		Advanced Technology Development		72,422				72,422	
121	1206410	SDA Space Technology Development and Prototyping	04	215,994				215,994	U
		Advanced Component Development & Prototypes		215,994				215,994	
Total Space Development Agency				288,416				288,416	

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Space Development Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	20.000	72.422	-	72.422	187.638	452.790	677.290	517.290	Continuing	Continuing
032: <i>Proliferated Low Earth Orbit (pLEO) Sensor Technology</i>	0.000	0.000	20.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
12: <i>Space Development Agency R&E</i>	0.000	0.000	0.000	72.422	0.000	72.422	187.638	452.790	677.290	517.290	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Space Development Agency (SDA) is developing and fielding next generation space capabilities enabled by proliferation and a new acquisition model utilizing rapid spiral development. SDA is developing capabilities to address a wide range of Department space needs, including low-latency tactical communication, beyond line of sight targeting, and advanced missile tracking. Specifically, the SDA will demonstrate and field persistent, resilient capabilities needed to be responsive to emerging multi-domain threats against the U.S. national interest. The SDA will be responsible for overall programmatic policy development and execution for next-generation military space capabilities, except those funded in the Military Intelligence Program (MIP). In coordination with other DoD Space stakeholders, the SDA will drive the development of space capabilities to achieve the DoD space vision and reduce overlap and inefficiency. The SDA will expand the Department's space warfighting capability and foster growth in the U.S. space industrial base, the SDA will incorporate enhanced government-commercial relationships and international collaboration with key allies and partners.

While SDA is not responsible for building and fielding all layers of the National Defense Space Architecture, it is responsible for ensuring capability deliveries. In this construct, SDA is responsible for building and fielding the Transport layer, a proliferated constellation of satellites to provide low latency, high volume data to the warfighter. This transport layer will be compatible with the architecture defined by Fully Networked Command, Control, and Communications Network.

The establishment of a proliferated data transport layer is essential to developing a new and responsive space architecture. The SDA will develop additional sub-constellations on this transport layer to provide additional capabilities, such as advanced missile warning, custody and alternative position, navigation and timing (PNT).

This program element funds efforts to develop and demonstrate a prototype proliferated communications and data transport layer and other capability layers in support of the National Defense Strategy.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Space Development Agency **Date:** February 2020

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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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	20.000	0.000	-	0.000
Current President's Budget	0.000	20.000	72.422	-	72.422
Total Adjustments	0.000	0.000	72.422	-	72.422
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other	0.000	0.000	72.422	-	72.422

Change Summary Explanation

The increase in FY 2021 is to support technology demonstrations.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency **Date:** February 2020

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>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
032: <i>Proliferated Low Earth Orbit (pLEO) Sensor Technology</i>	0.000	0.000	20.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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) data transport layer and other capability layers 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 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 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Proliferated Low Earth Orbit (pLEO) Sensor Technology	-	20.000	0.000	0.000	0.000
Description: Develop and demonstrate a resilient and unified military 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) 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 approaches to provide broadband internet access from space to form the foundation of the transport layer architecture.					
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 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
There was no planned funding in FY 2021.					
Accomplishments/Planned Programs Subtotals	-	20.000	0.000	0.000	0.000

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

N/A

Remarks

D. Acquisition Strategy

Partners for these activities may include Missile Defense Agency, DARPA, DoD research centers, small businesses, large defense contractors, commercial space providers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency										Date: February 2020		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 1206310SDA / Space Science and Technology Research and Development				Project (Number/Name) 12 / Space Development Agency R&E			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
12: Space Development Agency R&E	0.000	0.000	0.000	72.422	0.000	72.422	187.638	452.790	677.290	517.290	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Space Development Agency (SDA) is developing and fielding next generation space capabilities enabled by proliferation and a new acquisition model utilizing rapid spiral development. SDA is developing capabilities to address a wide range of Department space needs, including low-latency tactical communication, beyond line of sight targeting, and advanced missile tracking. SDA will orchestrate the rapid development and fielding of the National Defense Space Architecture (NDSA), a resilient military sensing and data transport capability via a proliferated space architecture in low-earth orbit.

This program element funds the research and development activity to deliver capabilities to US joint warfighting forces in two-year tranches, beginning as early as FY22, including performing trade studies, technical analyses, or modeling and simulation; identifying and maturing enabling technologies; defining and conducting risk reduction demonstrations, prototyping hardware or software systems; and exploring novel concept for future warfighting capabilities.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Space Technology Development Agency R&D	0.000	0.000	72.422	0.000	72.422
Description: Research and development activities to support development and fielding of a resilient military sensing and data transport capability via a proliferated space architecture in LEO					
FY 2020 Plans: N/A					
FY 2021 Base Plans: - Design, develop, and demonstrate space-to-space optical crosslink data exchange in LEO - Design and begin development of wide field-of-view payload for advanced missile tracking experiment - Conduct requirements review for multi-INT data fusion algorithms					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: The increase in FY 2021 is to support technology demonstrations.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	72.422	0.000	72.422

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency		Date: February 2020
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) 12 / <i>Space Development Agency R&E</i>

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

N/A

Remarks

N/A

D. Acquisition Strategy

Partners for these activities may include DoD research centers, small businesses, large defense contractors, commercial space providers, Federally Funded Research and Development Centers, University Affiliated Research Centers, Missile Defense Agency, SMC, and DARPA.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Space Development Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	75.000	215.994	0.000	215.994	681.898	834.891	1,465.559	1,465.342	Continuing	Continuing
033: <i>Transport Layer Architecture and Standards</i>	0.000	0.000	15.000	14.891	-	14.891	14.962	14.959	15.037	15.343	Continuing	Continuing
034: <i>Space Situational Awareness and Launch</i>	0.000	0.000	10.000	24.740	-	24.740	49.771	49.751	49.985	51.003	Continuing	Continuing
039: <i>Proliferated Low Earth Orbit (pLEO) Missile Warning Ground Integration</i>	0.000	0.000	30.000	39.709	-	39.709	39.899	49.864	75.185	76.716	Continuing	Continuing
191: <i>Space-Based Interceptors</i>	0.000	0.000	15.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
193: <i>Space-Based Discrimination</i>	0.000	0.000	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
196: <i>Space Technology Development</i>	-	0.000	0.000	136.654	-	136.654	577.266	720.317	1,325.352	1,322.280	Continuing	Continuing

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, mass-produced 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 out-pace 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,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Space Development Agency **Date:** February 2020

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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- 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), and
- Highly-scaled, low-latency, persistent, artificial intelligence-enable global surveillance.

The establishment of a 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 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	85.000	80.000	0.000	80.000
Current President's Budget	0.000	75.000	215.994	0.000	215.994
Total Adjustments	0.000	-10.000	135.994	0.000	135.994
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Space Technology Development	0.000	0.000	136.654	0.000	136.654
• Economic Adjustment	0.000	0.000	-0.078	-	-0.078
• Fiscal Guidance Program Adjustment	-	-	-0.582	-	-0.582

Change Summary Explanation

Funding was added to SDA program line to develop system designs, perform on-orbit risk reduction demonstrations, and deliver National Defense Strategy Architecture capability. This activity will result in on-orbit implementation of the NDSA.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency **Date:** February 2020

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>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
033: <i>Transport Layer Architecture and Standards</i>	0.000	0.000	15.000	14.891	-	14.891	14.962	14.959	15.037	15.343	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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) 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 common satellite buses, common interfaces between payloads to the bus, and common data interfaces and standards. The SDA will develop these standards for high power and lower power buses. SDA will develop standard interfaces across these two classes of satellite buses. SDA, in collaboration with other Space Stakeholders, will develop communication standards, and a ground architecture including user equipment that supports satellites utilizing these standardized products.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Transport Layer Architecture and Standards	0.000	15.000	14.891	0.000	14.891
Description: Develop and demonstrate prototypes that enable a resilient and unified military data transport layer and sensor capabilities, enabling a proliferated Low Earth Orbit (pLEO) architecture. This effort will define and deliver the architectures and standards necessary to rapidly prototype and field new satellite capabilities at LEO.					
FY 2020 Plans: - Develop interface and messaging standards for data transport layer architecture and bus interfaces.					
FY 2021 Base Plans: - Perform technology demonstration to test and demonstrate interface and messaging technologies.					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: Slight reduction in funding due to “unsubstantiated growth”.					
Accomplishments/Planned Programs Subtotals	0.000	15.000	14.891	0.000	14.891

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency		Date: February 2020
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>

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

Remarks

N/A

D. Acquisition Strategy

Partners for these activities may include the Missile Defense Agency, DoD research centers, small businesses, large defense contractors, commercial space providers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Space Development Agency		Date: February 2020
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>

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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

Transport Layer Architecture and Standards

Develop interface and messaging standards for data transport layer architecture.



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Space Development Agency		Date: February 2020
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>				
Develop interface and messaging standards for data transport layer architecture.	2	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency										Date: February 2020		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 1206410SDA / Space Technology Development and Prototyping				Project (Number/Name) 034 / Space Situational Awareness and Launch			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
034: Space Situational Awareness and Launch	0.000	0.000	10.000	24.740	-	24.740	49.771	49.751	49.985	51.003	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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) 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 needed to enable rapid constitution or replenishment of space capabilities.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Space Situational Awareness and Launch	0.000	10.000	24.740	0.000	24.740
Description: Working with commercial providers, develop and demonstrate enhanced space situational awareness (SSA) and small-to-medium launch service access. 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 2020 Plans: - Conduct trade studies of existing SSA 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 2021 Base Plans: - Identify launch opportunities for Space Transport Layer demonstration					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: Initial assessment is expected to feed into our planning technology demonstrations.					
Accomplishments/Planned Programs Subtotals	0.000	10.000	24.740	0.000	24.740

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency		Date: February 2020
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>

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

N/A

Remarks

N/A

D. Acquisition Strategy

Partners for these activities may include Space and Missile Systems Center, DoD research centers, small businesses, large defense contractors, commercial space providers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Space Development Agency			Date: February 2020
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>	

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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

Space Situational Awareness and Launch	
Conduct trade studies of existing space situational awareness capabilities and approaches	████████████████████
Conduct trade studies of small-to-medium size payload	████████████████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Space Development Agency		Date: February 2020
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 situational awareness capabilities and approaches	2	2020	4	2021
Conduct trade studies of small-to-medium size payload	3	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency **Date:** February 2020

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
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
039: Proliferated Low Earth Orbit (pLEO) Missile Warning Ground Integration	0.000	0.000	30.000	39.709	-	39.709	39.899	49.864	75.185	76.716	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The pLEO Payload and 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)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: pLEO Missile Warning Ground Integration	0.000	30.000	39.709	0.000	39.709
Description: Develop and demonstrate payload prototypes compatible with a proliferated Low Earth Orbit (pLEO) architecture. This effort will focus on developing and demonstrating sensors for beyond line of sight targeting, space-to-space data links, space-to-tactical data links, and advanced missile warning capabilities. On-orbit demonstrations will be tied to existing mission specific ground infrastructure, when it exists. Ground infrastructure will be linked or developed to support payload integration and data processing.					
FY 2020 Plans: - Develop advanced missile warning sensor and develop ground architecture to support					
FY 2021 Base Plans: - Integrate, test, and launch advanced missile warning phenomenology experiment					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: The increase in FY 2021 is to support technology demonstrations.					
Accomplishments/Planned Programs Subtotals	0.000	30.000	39.709	0.000	39.709

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency		Date: February 2020
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>

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

Remarks

N/A

D. Acquisition Strategy

Partners for these activities may include Missile Defense Agency, DoD research centers, small businesses, large defense contractors, commercial space providers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Space Development Agency		Date: February 2020
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 2021 Space Development Agency		Date: February 2020
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	2	2020	4	2021
Conduct Preliminary Design Review of MW ground infrastructure	2	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
191: <i>Space-Based Interceptors</i>	0.000	0.000	15.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The 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 the battle management software, infrastructure, and test capabilities to ensure maximum utility of pLEO hardware. This effort supports on-board space data processing, data ingest and fusion of legacy, current, and future space-based capabilities.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Space-Based Interceptor Assessment	-	15.000	0.000	0.000	0.000
Description: The SDA will develop software to support Battle Management Command, Control, and Communications that optimizes use of fielded space, ground, and user hardware, minimizes required communication bandwidths, and supports tactical users.					
FY 2020 Plans: The initial capabilities of the hardware architecture will be designed and specified to support a space-based operating system. Development of a ground based Hardware In The Loop laboratory for validation and verification will commence.					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: This effort is not funded in FY 2021.					
Accomplishments/Planned Programs Subtotals	-	15.000	0.000	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 2021 Space Development Agency		Date: February 2020
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>

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

Remarks

D. Acquisition Strategy

Partners for these activities may include DoD research centers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Space Development Agency		Date: February 2020
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>

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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>Space-Based Interceptor</i>																												
Space-Based Interceptor Assessment																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Space Development Agency		Date: February 2020
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	3	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / Space Technology Development and Prototyping	Project (Number/Name) 193 / Space-Based Discrimination
--	--	--

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
193: Space-Based Discrimination	0.000	0.000	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Space Technology Development and Prototyping effort will develop and demonstrate a prototype proliferated Low Earth Orbit (pLEO) 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Space-Based Discrimination Assessment	-	5.000	0.000	0.000	0.000
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 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 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: This effort is not funded in FY 2021.					
Accomplishments/Planned Programs Subtotals	-	5.000	0.000	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 2021 Space Development Agency		Date: February 2020
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>

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

Remarks

D. Acquisition Strategy

Partners for these activities may include DoD research centers, Federally Funded Research and Development Centers, and University Affiliated Research Centers.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Space Development Agency		Date: February 2020
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>

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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>Space-Based Discrimination</i>	
Space-Based Discrimination Assessment	████████████████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Space Development Agency		Date: February 2020
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	3	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency										Date: February 2020		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>				Project (Number/Name) 196 / <i>Space Technology Development</i>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
196: <i>Space Technology Development</i>	-	0.000	0.000	136.654	-	136.654	577.266	720.317	1,325.352	1,322.280	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Space Development Agency (SDA) is developing and fielding next generation space capabilities enabled by proliferation and a new acquisition model utilizing rapid spiral development. SDA is developing capabilities to address a wide range of Department space needs, including low-latency tactical communication, beyond line of sight targeting, and advanced missile tracking. SDA will orchestrate the rapid development and fielding of the National Defense Space Architecture (NDSA), a resilient military sensing and data transport capability via a proliferated space architecture in low-earth orbit.

This program element funds the space technology development and prototyping activity to deliver a resilient military sensing and data transport capability via a proliferated space architecture to US joint warfighting forces in two-year tranches, beginning as early as FY22. These capabilities including a low-latency mesh network data transport layer; advanced missile tracking layer; global surveillance and surface moving target custody layer; low-latency sensor tasking, command and control, and data dissemination layer; alternate position, navigation, and timing layer; enhanced space situational awareness and deterrence layer; and common ground segment and launch services layer.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Space Technology Development	0.000	0.000	136.654	0.000	136.654
Description: Space technology development and prototyping of a resilient military sensing and data transport capability via a proliferated space architecture in LEO.					
FY 2020 Plans: N/A					
FY 2021 Base Plans: - Design and begin development of Transport Layer Tranche 0 capability - Design and begin development of wide field-of-view infrared payload with sensitivity sufficient to detect advance missile threats - Design and begin development of software to perform multi-INT data fusion for targeting support - Design, develop, and test hardware-in-the-loop facility to support architecture interoperability testing and validation					
FY 2021 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Space Development Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 196 / <i>Space Technology Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
N/A					
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> The increase in FY 2021 is to support technology development.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	136.654	0.000	136.654

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

Remarks

D. Acquisition Strategy

Partners for these activities may include Missile Defense Agency, Space and Missile Systems Center, DoD research centers, small businesses, large defense contractors, commercial space providers, Federally Funded Research and Development Centers, University Affiliated Research Centers, and the Missile Defense Agency.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Space Development Agency												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
0400 / 4				PE 1206410SDA / Space Technology Development and Prototyping					196 / Space Technology Development						
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 Technology Development	C/TBD	TBD : TBD	-	-		-		136.654		0.000		136.654	Continuing	Continuing	N/A
Subtotal			-	-		-		136.654		0.000		136.654	Continuing	Continuing	N/A
Project Cost Totals			-	-		0.000		136.654		0.000		136.654	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Space Development Agency **Date:** February 2020

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 196 / <i>Space Technology Development</i>
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FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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 Reduction Transport Demos</i>	
Design and begin development Transport Tranche 0	██
<i>Risk Reduction Tracking Demos</i>	
Design and begin development of Tracking Tranche 0	██
<i>Risk Reduction Data Fusion Demos</i>	
Design and begin development of multi-INT data fusion software	██
<i>Hardware-in-the-loop Capability Development</i>	
Design and begin development of hardware-in-the-loop capability	██

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Space Development Agency		Date: February 2020
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 1206410SDA / <i>Space Technology Development and Prototyping</i>	Project (Number/Name) 196 / <i>Space Technology Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Risk Reduction Transport Demos</i>				
Design and begin development Transport Tranche 0	2	2020	4	2021
<i>Risk Reduction Tracking Demos</i>				
Design and begin development of Tracking Tranche 0	2	2020	4	2021
<i>Risk Reduction Data Fusion Demos</i>				
Design and begin development of multi-INT data fusion software	2	2020	4	2021
<i>Hardware-in-the-loop Capability Development</i>				
Design and begin development of hardware-in-the-loop capability	2	2020	4	2021

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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



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Research, Development, Test & Evaluation, Defense-Wide

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

23 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Research, Development, Test & Eval, DW	134,265	150,246			150,246
Total Research, Development, Test & Evaluation	134,265	150,246			150,246

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

23 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	118,451				118,451
Total Research, Development, Test & Evaluation	118,451				118,451

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

23 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Component Development & Prototypes	21,904	20,062			20,062
Management Support	109,324	125,647			125,647
Operational Systems Development	3,037	4,537			4,537
Total Research, Development, Test & Evaluation	134,265	150,246			150,246
<u>Summary Recap of FYDP Programs</u>					
General Purpose Forces	19,805	13,753			13,753
Intelligence and Communications	859	553			553
Research and Development	70,001	95,867			95,867
Training Medical and Other	43,600	40,073			40,073
Total Research, Development, Test & Evaluation	134,265	150,246			150,246

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

23 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Component Development & Prototypes	19,190				19,190
Management Support	96,222				96,222
Operational Systems Development	3,039				3,039
Total Research, Development, Test & Evaluation	118,451				118,451
<u>Summary Recap of FYDP Programs</u>					
General Purpose Forces	6,097				6,097
Intelligence and Communications	545				545
Research and Development	80,684				80,684
Training Medical and Other	31,125				31,125
Total Research, Development, Test & Evaluation	118,451				118,451

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

23 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Component Development & Prototypes	21,904	20,062			20,062
Management Support	109,324	125,647			125,647
Operational Systems Development	3,037	4,537			4,537
Total Research, Development, Test & Evaluation	134,265	150,246			150,246
<u>Summary Recap of FYDP Programs</u>					
General Purpose Forces	19,805	13,753			13,753
Intelligence and Communications	859	553			553
Research and Development	70,001	95,867			95,867
Training Medical and Other	43,600	40,073			40,073
Total Research, Development, Test & Evaluation	134,265	150,246			150,246

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

23 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Component Development & Prototypes	19,190				19,190
Management Support	96,222				96,222
Operational Systems Development	3,039				3,039
Total Research, Development, Test & Evaluation	118,451				118,451
<u>Summary Recap of FYDP Programs</u>					
General Purpose Forces	6,097				6,097
Intelligence and Communications	545				545
Research and Development	80,684				80,684
Training Medical and Other	31,125				31,125
Total Research, Development, Test & Evaluation	118,451				118,451

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

23 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
The Joint Staff	134,265	150,246			150,246
Total Research, Development, Test & Evaluation	134,265	150,246			150,246

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

23 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
The Joint Staff	118,451				118,451
Total Research, Development, Test & Evaluation	118,451				118,451

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Defense-Wide
 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

23 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)	S
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	21,904	20,062			20,062	U
		Advanced Component Development & Prototypes		21,904	20,062			20,062	
145	0603829J	Joint Capability Experimentation	06		13,000			13,000	U
153	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	48,097	62,805			62,805	U
181	0204571J	Joint Staff Analytical Support	06	16,768	9,216			9,216	U
186	0303166J	Support to Information Operations (IO) Capabilities	06	859	553			553	U
194	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	43,600	40,073			40,073	U
		Management Support		109,324	125,647			125,647	
207	0208043J	Planning and Decision Aid System (PDAS)	07	3,037	4,537			4,537	U
		Operational Systems Development		3,037	4,537			4,537	
Total Research, Development, Test & Eval, DW				134,265	150,246			150,246	

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Defense-Wide
 FY 2021 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

23 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	19,190				19,190	U
		Advanced Component Development & Prototypes		19,190				19,190	
145	0603829J	Joint Capability Experimentation	06	11,239				11,239	U
153	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	50,255				50,255	U
181	0204571J	Joint Staff Analytical Support	06	3,058				3,058	U
186	0303166J	Support to Information Operations (IO) Capabilities	06	545				545	U
194	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	31,125				31,125	U
		Management Support		96,222				96,222	
207	0208043J	Planning and Decision Aid System (PDAS)	07	3,039				3,039	U
		Operational Systems Development		3,039				3,039	
Total Research, Development, Test & Eval, DW				118,451				118,451	

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 Total Obligational Authority
 (Dollars in Thousands)

23 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	21,904	20,062			20,062 U
		Advanced Component Development & Prototypes		21,904	20,062			20,062
145	0603829J	Joint Capability Experimentation	06		13,000			13,000 U
153	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	48,097	62,805			62,805 U
181	0204571J	Joint Staff Analytical Support	06	16,768	9,216			9,216 U
186	0303166J	Support to Information Operations (IO) Capabilities	06	859	553			553 U
194	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	43,600	40,073			40,073 U
		Management Support		109,324	125,647			125,647
207	0208043J	Planning and Decision Aid System (PDAS)	07	3,037	4,537			4,537 U
		Operational Systems Development		3,037	4,537			4,537
Total The Joint Staff				134,265	150,246			150,246

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 Total Obligational Authority
 (Dollars in Thousands)

23 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	See
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	19,190				19,190	U
		Advanced Component Development & Prototypes		19,190				19,190	
145	0603829J	Joint Capability Experimentation	06	11,239				11,239	U
153	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	50,255				50,255	U
181	0204571J	Joint Staff Analytical Support	06	3,058				3,058	U
186	0303166J	Support to Information Operations (IO) Capabilities	06	545				545	U
194	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	31,125				31,125	U
		Management Support		96,222				96,222	
207	0208043J	Planning and Decision Aid System (PDAS)	07	3,039				3,039	U
		Operational Systems Development		3,039				3,039	
Total The Joint Staff				118,451				118,451	

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	68.968	22.435	20.062	19.190	-	19.190	19.445	20.988	20.740	20.771	Continuing	Continuing
001: <i>C5 Assessments and Analyses</i>	35.980	11.648	9.275	9.303	-	9.303	9.292	10.687	10.462	10.493	Continuing	Continuing
002: <i>C5 Capability Development</i>	20.263	5.787	5.787	5.119	-	5.119	5.342	5.340	5.341	5.341	Continuing	Continuing
003: <i>Joint Fires C2 Interoperability</i>	12.725	5.000	5.000	4.768	-	4.768	4.811	4.961	4.937	4.937	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 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	22.435	20.062	20.274	-	20.274
Current President's Budget	22.435	20.062	19.190	-	19.190
Total Adjustments	0.000	0.000	-1.084	-	-1.084
• Congressional General Reductions	0.000	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Reductions	-	-	-1.084	-	-1.084

Change Summary Explanation

Changes from FY 2020 to FY 2021:

(DWR) The FY 2021 funding request was reduced by \$1,064K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.

Additional \$20K reduction based on economic assumptions for non-pay, non-fuel purchase inflation.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
001: <i>C5 Assessments and Analyses</i>	35.980	11.648	9.275	9.303	-	9.303	9.292	10.687	10.462	10.493	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 fund 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 2019	FY 2020	FY 2021
Title: C5 Assessments and Analyses	11.648	9.275	9.303
<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 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>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
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.			
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.			
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.			
FY 2021 Plans: Support National Military Strategy and Globally Integrated Operations (GIO) by conducting quantifiable analysis, assessment, and integration activities that inform and enhance Joint warfighter capabilities and interoperability. Activities utilize actual and replicated operational environments and networks to conduct capability development, support joint and coalition experimentation,			

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

	FY 2019	FY 2020	FY 2021
<p>and support acquisition and systems employment decisions. Continue to address warfighter needs across all domains by conducting activities in rapidly reconfigurable C5ISR laboratories replicating joint and coalition system of systems operational environments as well as in operational venues such as exercises. 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>Bold Quest (BQ) 2021 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 Unmanned Aircraft Systems (UAS), Identification, Friend or Foe (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>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>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.</p> <p>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.</p> <p>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 area of responsibility.</p> <p>Joint Network Integration Environment – Integrate advanced C5 technologies to improve the capabilities and resiliency of US Force Korea’s warfighting networks. Improve information sharing between U.S., Republic of Korea, and planned mission partner forces.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>Joint All-Domain Command and Control – Provide the joint hub for an integrated wide-area experimental network and conduct supporting interoperability assessments and integration activities. Contribute to wargames, exercises and experiments that explore current and future warfighting C2 concepts with coalition partners including Mission Partner Environments.</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> (DWR) The FY 2021 funding request was reduced by \$184K during the Secretary of Defense’s Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.</p>			
Accomplishments/Planned Programs Subtotals	11.648	9.275	9.303

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.

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-4, RDT&E Schedule Profile: PB 2021 The Joint Staff		Date: February 2020
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	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 The Joint Staff		Date: February 2020
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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
002: C5 Capability Development	20.263	5.787	5.787	5.119	-	5.119	5.342	5.340	5.341	5.341	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 2019	FY 2020	FY 2021
Title: C5 Capability Development	5.787	5.787	5.119
<p>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.</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, 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>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<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 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) to ensure data and service equities are properly represented on behalf of the warfighter.</p> <p>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</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
<p>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 U.S.). 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.</p> <p>FY 2021 Plans: Capability Development - Analyze/coordinate out-year C2 integrated priority lists, capability gaps, and Joint C2 operational priorities. Create C2 requirements in concert with DoD's Digital Modernization Strategy. Specifically, address GCCS-J replacement by GCCS-JE to include robust functionality during disconnected operations. Pursue joint capability development/integration for Joint All Domain C2 (JADC2), C2IE, JFCC/GLS/ORION, JPS, Personnel Recovery and Missile Warning IAW SECDEF direction.</p> <p>C5 Architectures - Provide architecture, mission thread, and mission-based analysis development and analysis products as required to support the Chairman's directed focus areas and Chief Information Officer (CIO) lines of operations. Conduct analysis and validate warfighting requirements 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 Standard to improve WMA architecture integration and interoperability. Continue to improve and expand the quality and amount of architecture information and data available for analysis and reuse on the WMA architecture portal. Conduct analyses and develop architectures and metrics for JCIDS C5 capability requirement documents.</p> <p>Data and Services – Develop, promote, and integrate common enterprise data and services requirements, standards, technical specifications, and policy to improve Joint All Domain C2 interoperability and information sharing with Joint, interagency and coalition mission partners. Perform and lead proof of concept activities, including cloud-based data lakes that enables Artificial Intelligence and cybersecurity standardization of the National Information Exchange Model (NIEM) and the North Atlantic Treaty Organization (NATO) Core Data Framework (NCDF) with selected Joint All Domain C2 communities of interest, including robotics and autonomous systems. Conduct one Joint All Domain C2 complex proof of concept demonstration with NATO with interested Services, Agencies and coalition partners to improve warfighter interoperability and enhance operational effectiveness. Continue to lead, align and standardize emerging Joint All Domain C2 tactical data link, symbology (including cyber symbology) and messaging standards to support common enterprise-level information sharing. Continue to support standardization of common</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
warfighter Identity Access Management, robust cyber security, standardized interfaces and common data tagging to promote Joint All Domain C2 interoperability.			
Coalition Interoperability - International lead for the Coalition Interoperability Assurance and Validation (CIAV) providing interoperability mission-based assessments across the geographic Combatant Commands. Continue to lead mission partner environment (MPE) implementation and support coalition cyber priorities across DoD by leading the MPE cyber security efforts and supporting the federated mission networking (FMN) cyber security working group. Continue to shape North Atlantic Treaty Organization (NATO) federated mission networking (FMN) implementation to ensure it remains aligned with MPE, including related capability development. Provide support to the Combined Communications-Electronics Board to ensure interoperability among the Five Eyes nations (Canada, New Zealand, Australia, UK and U.S.). Lead the NATO-sponsored Coalition Warrior Interoperability Exploration, Experimentation, Examination, Exercises (CWIX) FMN Focus Area to ensure standardized, effective development of Joining, Membership, and Exit Instructions.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> (DWR) The FY 2021 funding request was reduced by \$648K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed. Additional \$20K decrease due to revised economic assumptions.			
Accomplishments/Planned Programs Subtotals	5.787	5.787	5.119

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-4, RDT&E Schedule Profile: PB 2021 The Joint Staff		Date: February 2020
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	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 The Joint Staff		Date: February 2020
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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
003: Joint Fires C2 Interoperability	12.725	5.000	5.000	4.768	-	4.768	4.811	4.961	4.937	4.937	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 2019	FY 2020	FY 2021
Title: Joint Fires C2 Interoperability	5.000	5.000	4.768
<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 2020 Plans: 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 U.S. 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</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
<p>ESC member programs and provide staff assistance visits for development of close air support-related training and certification programs.</p> <p>FY 2021 Plans: Plan and execute Joint Staff-sponsored Bold Quest 2021 capability demonstration and assessment, focused on interoperability for joint and coalition fires underpinned by Mission Partner Environment (MPE) concepts. Bold Quest data and assessments inform U.S. 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. Continue leading the CID-FFT ESC and JFS ESC in order to address capability shortfalls/gaps, analyze and recommend integrated joint and coalition solutions to warfighter issues.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: (DWR) The FY 2021 funding request was reduced by \$232K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.</p>			
Accomplishments/Planned Programs Subtotals	5.000	5.000	4.768

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-4A, RDT&E Schedule Details: PB 2021 The Joint Staff		Date: February 2020
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 2021 The Joint Staff **Date:** February 2020

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 0603829J <i>I Joint Capability Experimentation</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	13.000	11.239	-	11.239	11.006	11.443	11.481	11.481	Continuing	Continuing
001: <i>Joint Capability Experimentation</i>	0.000	0.000	13.000	11.239	-	11.239	11.006	11.443	11.481	11.481	Continuing	Continuing

A. Mission Description and Budget Item Justification

The FY2019 NDAA 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. Accordingly, the Joint Staff requires 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	13.000	0.000	-	0.000
Current President's Budget	0.000	13.000	11.239	-	11.239
Total Adjustments	0.000	0.000	11.239	-	11.239
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Internal realignment	-	-	11.239	-	11.239

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff		Date: February 2020
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

(DWR) The FY 2021 funding request was reduced during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
001: <i>Joint Capability Experimentation</i>	0.000	0.000	13.000	11.239	-	11.239	11.006	11.443	11.481	11.481	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The FY2019 NDAA amends the Chairman’s responsibilities to include experimentation on future concepts. The 2018 National Defense Strategy Implementation Guidance directed rigorous experimentation on concepts as a means to ensure Department investments adequately address future requirements, not just near term. Given this, the Joint Staff must establish an experimentation capability suitable for analysis and validation of priority joint concept required capabilities. The base of experimentation and wargaming will expand through the initial operating capability to full operating capability. This will provide the necessary capacity and capability. The combination will allow the Chairman to identify cost efficient and effective capability tradeoffs. This capability will enable the Chairman to fulfill his Title 10 responsibility, “advising the Secretary on new and alternative joint military capabilities, and alternative program recommendations and budget proposals, within projected resource levels.” This capability more fully supports the Chairman’s production of the Joint Military Needs Assessment (JMNA), the Chairman’s Program Recommendation (CPR) and ultimately the Defense Planning Guidance for Joint Force development and design.

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

	FY 2019	FY 2020	FY 2021
Title: Joint Capability Experimentation	0.000	13.000	11.239
Description: The FY 2019 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 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, China, Iran and North Korea.			
Identify priority concept required capabilities using 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 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
<p>Conduct study and research of trade space 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 will also leverage research and development, science and technology, and Defense Advanced Research Projects Agency (DARPA) efforts.</p> <p>FY 2021 Plans: (DWR) \$11.2M funding results from the Secretary of Defense's Defense-Wide Review (DWR) reform effort as part of a realignment of resources to higher priorities within the Department. This synergized and synchronized way forward accelerates the integration of new concepts and capabilities into the Joint Force by developing a continuously adapting Joint Force Development and Design (JFDD) enterprise that can inform Service force development and design efforts. To facilitate this initiative requires several lines of effort (LOE):</p> <ol style="list-style-type: none"> 1) Developing and executing Globally Integrated Exercises (GIE); 2) Developing and executing a new series of Globally Integrated Wargames (GIWGs) and the associated development of concepts; 3) Developing and deploying the IT architecture to collect and share data and information (i.e. exercises, experimentation, wargaming, analysis) that supports JFDD including GIE, GIWG, and Joint Warfighting Concepts; 4) Conducting JFDD Enterprise Integration and Testing to inform key decisions and evaluate GIWGs and other JFDD activities including in the near-term JADC2, Contested Logistics, Global Fires, and Information Advantage; and 5) Employing red teaming at all levels, implementing reforms to Professional Military Education (PME) for JFDD and incorporating emerging concepts into Joint Doctrine. <p>Funding allows for alignment and coordination of disparate activities across the Department and establishes a capability for joint experimentation and wargaming focused on JFDD that will enhance the capability of the Joint Staff to provide the Chairman with sound analysis of the future environment, concepts, and joint capabilities.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
Minor reduction from FY 2020 to FY 2021 reflects baseline funding profile for FY 2021 to FY 2025 (approximately \$11M per year).			
Accomplishments/Planned Programs Subtotals	0.000	13.000	11.239

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	379.455	52.565	62.805	50.255	-	50.255	53.445	57.926	56.977	56.978	Continuing	Continuing
P001: <i>Core</i>	152.597	9.967	10.378	11.544	-	11.544	10.801	10.798	10.798	10.798	Continuing	Continuing
P003: <i>Black Dart</i>	31.483	3.000	5.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	39.983
P004: <i>Joint Distributed Engineering Plant</i>	22.486	1.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.486
P005: <i>Nimble Fire</i>	97.769	14.000	25.048	20.036	-	20.036	20.065	19.277	18.155	18.155	Continuing	Continuing
P006: <i>Cruise Missile Combat Identification (CID)</i>	75.120	4.998	4.131	4.675	-	4.675	4.475	4.475	4.475	4.475	Continuing	Continuing
P007: <i>Homeland Defense Capability</i>	0.000	15.000	17.748	14.000	-	14.000	18.104	23.376	23.549	23.550	Continuing	Continuing
P008: <i>Joint Regional Integrated Air and Missile Defense Capability</i>	0.000	4.600	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.600

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 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 2021 The Joint Staff	Date: February 2020
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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 0605126J <i>I Joint Integrated Air & Missile Defense Organization (JIAMDO)</i>
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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	52.565	70.038	65.946	-	65.946
Current President's Budget	52.565	62.805	50.255	-	50.255
Total Adjustments	0.000	-7.233	-15.691	-	-15.691
• Congressional General Reductions	-	-7.233			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program reduction	-	-	-15.691	-	-15.691

Change Summary Explanation

Changes from FY 2020 to FY 2021:

\$7,634K reduction to Black Dart project.

\$57K reduction based on economic assumptions for non-pay, non-fuel purchase inflation.

(DWR) The FY 2021 funding request was reduced by \$8,000K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P001 / Core			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P001: Core	152.597	9.967	10.378	11.544	-	11.544	10.801	10.798	10.798	10.798	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 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 2019	FY 2020	FY 2021
Title: Core	9.967	10.378	11.544
<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. 3. Directly support and sponsor homeland air surveillance-related demonstration and analysis activities. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020		
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>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
<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>FY 2020 Plans: Perform air and missile defense studies as directed by higher authority and provide contracted expertise in support of all JIAMDO analytical and requirements management activities. Continue DepSecDef and Joint Requirements Oversight Council directed tasking for non-kinetic and kinetic layered defense modeling. Continue support to Chairman’s Net Assessment, Joint Military Net Assessment using analysis and study findings.</p> <p>FY 2021 Plans: Complete Phase II of the Homeland Defense Design and begin work on Phase III. Expand efforts to develop joint integrated air and missile defense (IAMD) requirements solutions. With the completion of the Engagement Coordination initial capabilities document (ICD) in mid FY 2020, continue to support solutions efforts with Missile Defense Agency (MDA) and Services for the Planning Capabilities ICD. Provide support to DISA for Networks Management Capabilities ICD. Ensures the solutions efforts support the Joint Requirements Oversight Council (JROC) validated capability requirements documents (ICDs).</p> <p>Refresh the IAMD Operational Architecture, in coordination with CCMDs, and consolidate with Joint Mission Forum initiatives to inform the procurement and integration of new and emerging capabilities.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: FY 2020 to FY 2021 net increase reflects increased requirement of \$1,223K for analytic functions and products offset by \$57K reduction based on economic assumptions for non-pay, non-fuel purchase inflation.</p>				
Accomplishments/Planned Programs Subtotals		9.967	10.378	11.544
C. Other Program Funding Summary (\$ in Millions)				
N/A				

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)	Project (Number/Name) P001 / Core

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

Remarks

D. Acquisition Strategy
N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff **Date:** February 2020

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
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P003: <i>Black Dart</i>	31.483	3.000	5.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	39.983
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 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 2019	FY 2020	FY 2021
Title: Black Dart Counter Unmanned Aircraft Systems Technology Demonstration	3.000	5.500	0.000
<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. 4. Advocate for C-UAS capabilities and affordable, integrated solutions. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
<p><i>FY 2020 Plans:</i> Performing missile defense studies (to include C-UAS) 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 2021 Plans:</i> Black Dart functions suspended in FY 2021.</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Black Dart functions suspended in FY 2021.</p>			
Accomplishments/Planned Programs Subtotals	3.000	5.500	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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P004: Joint Distributed Engineering Plant	22.486	1.000	0.000	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 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 2019	FY 2020	FY 2021
Title: Joint Distributed Engineering Plant (JDEP)	1.000	0.000	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 2020 Plans: In FY 2020, JDEP was absorbed under the Black Dart program and will no longer execute as a stand-alone program.			
FY 2021 Plans: In FY 2020, JDEP was absorbed under the Black Dart program and will no longer execute as a stand-alone program.			
FY 2020 to FY 2021 Increase/Decrease Statement: N/A			
Accomplishments/Planned Programs Subtotals	1.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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>

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 2021 The Joint Staff										Date: February 2020		
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			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P005: <i>Nimble Fire</i>	97.769	14.000	25.048	20.036	-	20.036	20.065	19.277	18.155	18.155	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 close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of 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 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 2019	FY 2020	FY 2021
Title: JIAMDO Nimble Fire	14.000	25.048	20.036
<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> <p>FY 2020 Plans:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
<p>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. Modeling and simulation upgrades:</p> <ol style="list-style-type: none"> 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. 2. Build from FY 2019 upgrades adding fidelity to Infrared Search and Track (IRST) kill chains; include electro-optical (EO) sensors; and directed energy weapons. 3. Develop real-time visualization of clouds and rain within fighter out-the-window displays 4. Integrate a Multi-platform IR sensor 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 6. Integrate higher-fidelity space representations and feasibility of using multi-level security toolsets to integrate into the facility 7. Introduce limited cyber effects to explore integration of non-kinetic and kinetic fires 8. Update Link-16 network modeling 9. Dedicated Unmanned Aerial Systems (UAS) cell 10. Additional classified capabilities <p>FY 2021 Plans: Execute two Nimble Fire events in support of the Combatant Commands, the Services, and MDA. Continue the upgrades started in FY 2020 to improve EW and multi-domain modeling & simulation capabilities at the Virtual Warfare Center. Multi-domain primarily refers to space, attack or offensive operations, cyber effects and unmanned systems.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
(DWR) The FY 2021 funding request was reduced during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.			
Accomplishments/Planned Programs Subtotals	14.000	25.048	20.036

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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P006: Cruise Missile Combat Identification (CID)	75.120	4.998	4.131	4.675	-	4.675	4.475	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.

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

	FY 2019	FY 2020	FY 2021
Title: Cruise Missile Combat Identification (CID)	4.998	4.131	4.675
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 2020 Plans: Details of this program are classified and will be provided under a separate cover.			
FY 2021 Plans: Details of this program are classified and will be provided under a separate cover.			
FY 2020 to FY 2021 Increase/Decrease Statement: Apparent increase from FY 2020 to FY 2021 results from Congressionally directed reduction in FY 2020.			
Accomplishments/Planned Programs Subtotals	4.998	4.131	4.675

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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>

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 2021 The Joint Staff **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P007: <i>Homeland Defense Capability</i>	0.000	15.000	17.748	14.000	-	14.000	18.104	23.376	23.549	23.550	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 2019	FY 2020	FY 2021
Title: Homeland Defense Capability	15.000	17.748	14.000
Description: Develop Homeland Defense Capability			
FY 2020 Plans: Perform technology development efforts. Further details are reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.			
FY 2021 Plans: Perform technology development efforts. Further details are reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.			
FY 2020 to FY 2021 Increase/Decrease Statement: (DWR) The FY 2021 funding request was reduced during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.			
Accomplishments/Planned Programs Subtotals	15.000	17.748	14.000

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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P008: Joint Regional Integrated Air and Missile Defense Capability	0.000	4.600	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.600
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 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 2019	FY 2020	FY 2021
Title: Joint Regional Integrated Air and Defense Capability Mix (JRICM)	4.600	0.000	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 FY 2023 timeframe.			
FY 2020 Plans: Study ended in FY 2019.			
FY 2021 Plans: Study ended in FY 2019.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
N/A			
Accomplishments/Planned Programs Subtotals	4.600	0.000	0.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	38.567	16.658	9.216	3.058	-	3.058	3.082	3.079	3.079	3.080	Continuing	Continuing
P001: <i>Future Joint Force Development</i>	19.667	5.301	4.216	3.058	-	3.058	3.082	3.079	3.079	3.080	Continuing	Continuing
P003: <i>GFM DI Enterprise Force Structure (EFS) Integration</i>	18.900	11.357	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	35.257

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 tools and infrastructure required to conduct analyses and formulate results that assist the Chairman in fulfilling his statutory responsibilities. Key deliverables provided by JSAS include development and implementation of Joint Concepts, concepts of operation, concepts of employment, wide-ranging force structure assessments, course of action development for the joint force environment, analyses and studies for joint concept driven, threat-informed capability development approach to joint force development and design.to aid in decision-making, and other analysis efforts to implement timely, low-cost joint force development initiatives.

B. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	16.658	9.216	4.165	-	4.165
Current President's Budget	16.658	9.216	3.058	-	3.058
Total Adjustments	0.000	0.000	-1.107	-	-1.107
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• SECDEF Defense-Wide Review	-	-	-1.107	-	-1.107

Change Summary Explanation

(DWR) The FY 2021 funding request was reduced during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P001: <i>Future Joint Force Development</i>	19.667	5.301	4.216	3.058	-	3.058	3.082	3.079	3.079	3.080	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Staff Analytical Support (JSAS) program supports the Chairman’s Title 10 responsibility for the analytical support, management and development of future-based joint concepts. These concepts include concepts of operations and employment that advance Joint Force operational effectiveness and enable the introduction and incorporation of new capabilities. The Joint Concepts program supports the Chairman's responsibility to express a vision for the future joint force; addressing operational problems on a 20-year horizon; identifying joint force development and design implications; and identifying capabilities required to mitigate and solve future joint warfighting gaps. The goal is to enable investment decisions balancing near and long term risk. Threat-informed joint concepts drive capability development and promote horizontal integration for force development and design across the Services, Combatant Commands, Defense agencies, OSD and Joint Staff. Key deliverables include:

Family of Joint Concepts (FOJC): Based on the National Military Strategy (NMS) and providing operational and joint functional approaches to future adversary based challenges or opportunities. These concepts prioritize Russia, China, Iran, North Korea, and Countering Violent Extremist Organizations (hereafter referred to as the 2+3). The FOJC drives capability development and alternative approaches to operating in support of a globally integrated force benchmarked against current and long-term pacing threats. The FOJC includes the Capstone Concept for Joint Operations, Joint Warfighting Concept, Joint Operating Concepts for the 2+3 challenges, Joint Supporting Concepts that address joint warfighting functions, Concepts of Operation and Concepts of Employment.

Capstone Concept for Joint Operations (CCJO): Provides the Chairman's vision for future joint operations and establishes aim points for the development of the future Joint Force. The key theme is globally integrated operations and directs joint concept driven, threat-informed capability to regain competitive advantage.

Joint Warfighting Concept (JWC): Identifies innovative and alternative approaches and design options for the employment of the Joint Force out to 2030.

Joint Operating Concepts: Describe new ways of operating and associated capability requirements to address the 2+3 threat out fifteen years into the future.

Concepts of Operations (CONOPS): Describe how the actions of the joint force components and supporting organizations are integrated, synchronized, and phased to accomplish a specific mission or function within the construct of a future scenario. CONOPS support evaluation of new ways of operating, future force posture mix, advanced capabilities, and authorities in exercises, wargames, and experiments.

Concepts of Employment (CONEMPS): Describe, in broad terms, the application of specific technology, process, weapon system, or unit to perform a particular task or procedure. They are the most specific of all military concepts and contain a level of guidance sufficient to inform the establishment of programmatic requirements. CONEMPS’ focus on the cross-domain employment of capabilities and techniques in areas like space, cyberspace, and the electro-magnetic spectrum (EMS) to enable joint information advantage.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff **Date:** February 2020

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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Joint Operating Environment (JOE) and the Gamechangers report: Developed in partnership with DIA, this report describes the future security environment and projects the implications of change for the Joint Force. The documents describe the circumstances that may alter the security environment and explores how the intersection and interaction of these changes might impact the character of war in the future. They provide a framework to think about the full range of Joint Force missions and how they may evolve over time in order to support development of threat-based future Joint concepts and concepts of operations.

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

	FY 2019	FY 2020	FY 2021
<p>Title: Future Joint Force Development</p> <p>Description: Future joint force development provides analytic support required to develop future-based joint concepts. The goal is to enable investment decisions balancing near and long term risk. Threat-informed joint concepts drive capability development and promote horizontal integration for force development and design across the Services, Combatant Commands, Defense agencies, OSD and Joint Staff.</p> <p>FY 2020 Plans: Execute the Chairman's Joint Concept program. Continue CONOP and CONEMP development to support the FY21 Globally Integrated War Game and related experimentation with a focus on the Joint Warfighting Concept and Joint Supporting Concepts for global C2, logistics, global fires, and information advantage. Publish the Joint Operating Environment 2040 and Gamechangers report in partnership with DIA. Support assessment of concepts in terms of how well the Joint force is achieving the CJCS's Capstone Concept for Joint Operations: Joint Force 2030 as input to the Joint Military Net Assessment. In partnership with the concept sponsors, CCMDs, the Services and other Joint Staff Directorates, complete development and obtain CJCS approval of supporting Joint Concepts. In partnership with selected Combatant Commands and Services, complete final drafts of the Joint Supporting Concepts in the areas of Global C2 (including an allied Five Eyes (FVEY) version), space, intelligence operations, logistics, operating in a CBRN environment, global fires, homeland defense, and information advantage. Support development of the NATO Warfighting Concept with Allied Command Transformation /NATO. Continue futures study to inform our understanding of the challenges of the future operating environment. Maintain and enhance multi-national partnerships in concept development. Support integration of Joint Concepts across the Joint Staff to inform concept driven, threat informed capability development.</p> <p>FY 2021 Plans: Execute the Chairman's Joint Concepts Program. Support the execution of the FY 2021 Globally Integrated War Game. Complete Joint Warfighting Concept and Joint Supporting Concepts. Continue global CONOP and CONEMP development to support evaluation of joint concepts in exercises, war games, and experimentation. In partnership with DIA, begin development of the next Gamechangers report and continue to lead the futures community of interest.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: (DWR) The FY 2021 funding request was reduced during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.</p>	5.301	4.216	3.058
Accomplishments/Planned Programs Subtotals	5.301	4.216	3.058

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff Date: February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
0400 / 6	PE 0204571J / <i>Joint Staff Analytical Support</i>	P001 / <i>Future Joint Force Development</i>

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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P003: GFM DI Enterprise Force Structure (EFS) Integration	18.900	11.357	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	35.257
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 2019	FY 2020	FY 2021
Title: GFM Data Initiative (GFM DI) Enterprise Force Structure Integration (EFS)	11.357	5.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
<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 2020 Plans: Developing and fielding 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 2021 Plans: Migrate program to sustainment which will be funded by the Operation and Maintenance appropriation.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Net funding decrease from FY 2019 to FY 2020 reflects project nearing full operational capability. Project moves to sustainment in FY 2021 and is funded by the Operation and Maintenance appropriation.</p>			
Accomplishments/Planned Programs Subtotals	11.357	5.000	0.000

<p>C. Other Program Funding Summary (\$ in Millions) N/A</p> <p>Remarks</p> <p>D. Acquisition Strategy N/A</p>

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	35.809	0.638	0.553	0.545	-	0.545	0.545	0.545	0.545	0.545	Continuing	Continuing
001: <i>Joint Information Operations Range</i>	35.809	0.638	0.553	0.545	-	0.545	0.545	0.545	0.545	0.545	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 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 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 communities 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.652	0.553	0.545	-	0.545
Current President's Budget	0.638	0.553	0.545	-	0.545
Total Adjustments	-0.014	0.000	0.000	-	0.000
• Congressional General Reductions	0.000	-			
• Congressional Directed Reductions	0.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.014	-			

Change Summary Explanation

Project funding decrease from FY 2020 to FY 2021 reflects minor program adjustment to maintain program balance.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
001: Joint Information Operations Range	35.809	0.638	0.553	0.545	-	0.545	0.545	0.545	0.545	0.545	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 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 communities 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 2019	FY 2020	FY 2021
Title: Joint Information Operations Range	0.638	0.553	0.545
Description: The Joint Information Operations Range (JIOR) is a closed-loop network that forms a live-fire, distributed range complex utilizing encrypted tunneling to conduct mission rehearsal, training, testing, and experimentation in a threat representative environment to support Information Operations (IO), Cyberspace, Electronic Warfare (EW), Spectrum Warfare, Space Operations and Special Operations Forces (SOF) mission areas.			
FY 2020 Plans: Continue testing and evaluating new, cutting edge technologies and refining networking configurations for optimization of the JIOR. Refine network automation strategy.			
FY 2021 Plans: Continue testing and evaluating new, cutting edge technologies and refining networking configurations for optimization of the JIOR. Refine network automation strategy.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
Decrease from FY 2020 to FY 2021 reflects minor program adjustment to maintain program balance.			
Accomplishments/Planned Programs Subtotals	0.638	0.553	0.545

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	42.653	40.073	31.125	-	31.125	32.695	32.188	32.002	32.002	Continuing	Continuing
758: Joint National Training Capability (JNTC)	0.000	29.584	27.293	22.375	-	22.375	25.040	24.849	24.663	24.663	Continuing	Continuing
769: Joint Knowledge Development & Distribution Capability (JKDDC)	0.000	1.126	1.608	1.108	-	1.108	1.108	1.108	1.108	1.108	Continuing	Continuing
701: Air Force Joint National Training Capability (JNTC)	0.000	2.917	2.811	2.869	-	2.869	2.869	2.869	2.869	2.869	Continuing	Continuing
772: Navy Joint National Training Capability (JNTC)	0.000	3.260	3.041	3.042	-	3.042	3.042	3.042	3.042	3.042	Continuing	Continuing
773: Joint Interoperability Division (JID)	0.000	1.845	1.419	1.095	-	1.095	0.000	0.000	0.000	0.000	Continuing	Continuing
774: USMC Joint National Training Capability (JNTC)	0.000	0.921	0.901	0.636	-	0.636	0.636	0.320	0.320	0.320	Continuing	Continuing
775: Advanced Distributed Learning (ADL)	0.000	3.000	3.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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)
- Navy Joint National Training Capability (JNTC)
- Joint Interoperability Division (JID)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff		Date: February 2020
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>	
<p>- Marine Corps Joint National Training Capability (JNTC)</p> <p>- Advanced Distributed Learning (ADL)</p> <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: 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 as well supporting development of cross-domain solutions. Additionally, the Air Force invests in development of capabilities to enhance the rigor and fidelity of training for live and virtual members of joint training audiences.</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, and integration of a common, realistic, joint and coalition, operational to tactical level training architecture to deliver individual and collective constructive joint training for use in Fleet Synthetic Training (FST) events, CCDR exercises, Ballistic Missile Defense Exercises (BMDEX) certification events, and BMD at Sea training events in support of CCDR's training, deployment certification and operational requirements.</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 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.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff **Date:** February 2020

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>
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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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	42.653	40.073	37.998	-	37.998
Current President's Budget	42.653	40.073	31.125	-	31.125
Total Adjustments	0.000	0.000	-6.873	-	-6.873
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program reduction	-	-	-6.873	-	-6.873

Change Summary Explanation

Changes from FY 2020 to FY 2021:

\$3,000K reduction based on transfer of Advanced Distributed Learning (775) to OSD (Personnel and Readiness).

\$25K reduction based on revised economic assumptions for non-pay, non-fuel purchase inflation.

(DWR) The FY 2021 funding request was reduced by \$3,848K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
758: Joint National Training Capability (JNTC)	0.000	29.584	27.293	22.375	-	22.375	25.040	24.849	24.663	24.663	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 2019	FY 2020	FY 2021
Title: Joint National Training Capability (JNTC)	29.584	27.293	22.375
<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 2020 Plans:</p> <ol style="list-style-type: none"> 1. Integrate, test, and validate Service and Agency JLVC capabilities (annual requirement). 2. Enhance joint simulation (within JLVC) to keep pace with operational environment changes (annual requirement). 3. Execute Agile development to identify and build new capabilities into the JTT environment to include modular aggregate simulation capability. Expand JTT user base by shadowing more exercises in order to elicit additional functional requirements and user acceptance under the Agile development concept. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020		
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 2019	FY 2020	FY 2021
<p>4. Use web-enabled JTT exercise design and planning services as the primary tool supporting a Tier 1 (National and Combatant Command) and Tier 2 (Joint Task Force) joint training exercises.</p> <p>5. Conduct “proof of concept” use of web-enabled JTT simulation service. Continue planning transition of the JTT as the primary tool supporting all aspects of Tier 1 and Tier 2 joint training exercises.</p> <p>FY 2021 Plans:</p> <p>1. Expand use of web-enabled JTT exercise design and planning services as the primary tool supporting Tier 1 and Tier 2 joint training exercise.</p> <p>2. Conduct “proof of concept” use of web-enabled modular JTT simulation service. Continue planning transition of the JTT as the primary tool supporting all aspects of Tier 1 and Tier 2 joint training exercises where aggregate simulation capabilities are required.</p> <p>3. Integrate, test, and validate Service and Agency JLVC capabilities.</p> <p>4. Enhance joint simulation (within JLVC) to keep pace with operational environment changes (annual requirement).</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$1,659K due to internal realignment from RDT&E to O&M for continued sustainment of modeling and simulation training enablers. Decrease of \$25K due to revised economic assumptions for non-pay, non-fuel purchase inflation. (DWR) The FY 2021 funding request was reduced by \$3,234K during the Secretary of Defense’s Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.</p>				
Accomplishments/Planned Programs Subtotals		29.584	27.293	22.375
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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
769: <i>Joint Knowledge Development & Distribution Capability (JKDDC)</i>	0.000	1.126	1.608	1.108	-	1.108	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's research and development will improve all components of the Joint Content Management Architecture (JCMA) including:

1. JKO Learning Management System (LMS): 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 LMS.
2. JKO Course Builder: JKO's Course Builder is a separate component used as a force multiplier for organizations to develop online content by both internal and external joint enterprise teams. Course Builder mitigates the need to have programmer's code Shareable Content Object Reference Model (SCORM) standards into content with automation that promotes fiscal efficiency as well as operational responsiveness. Course Builder will also support the new development methodology of micro-learning.
3. 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.
4. JKO Virtual Classroom (VClass): JKO's new virtual classroom, or VClass, meets the need for an enhanced distributed learning capability with the introduction of a collaborative learning environment. VClass is a customizable platform within JKO's architecture and will provide JKO elevated users the tools to meet the unique needs of DoD's training and education audience by providing online/blended course support with syllabus, messaging, gradebook, resources, announcements and synchronous instructional forums.
5. JKO mobile training development: Development and enhancements in JKO's new approach to Responsive Design will significantly increase availability and access of web-based joint training content on portable, hand-held platforms (e.g. cell phones and tablets).

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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)	FY 2019	FY 2020	FY 2021
<p>Title: Joint Knowledge Development & Distribution Capability (JKDDC)</p> <p>Description: Joint Knowledge Online (JKO) advance technology initiatives primarily include the JKO Learning Management System (LMS) application, Course Builder, Small Group Scenario Trainer (SGST) desktop modeling and simulation based training capability, Virtual Classroom, 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 Joint and Combined/Joint Task Force (C/JTF) billets. JKO LMS 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" and combatant command (CCMD) personnel will be better trained, as individuals and as staffs, based on SGST, VClass development, and implementation throughout the joint training enterprise. JKO mobile courseware training development via Responsive Design facilitates the global distribution of web-based joint training content on portable, hand-held platforms for DoD personnel.</p> <p>FY 2020 Plans: Continue development of the LMS, Course Builder, SGST, VClass, and JKO mobile initiatives.</p> <p>Research, develop, test, and evaluate a virtual classroom (VClass) open source capability (Sakai) to be integrated into the JKO LMS 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 LMS 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 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>FY 2021 Plans: Continue to integrate and expand the virtual classroom (VClass) open source capability (Sakai) into the Global Content Distribution System (GCDS) and the JKO LMS suite of tools for synchronous (live) and non-synchronous (video-taped) instructor led training as well as a locally developed micro learning technology called the JKO Personal Accelerated Learning Manager (JPALM) leveraging the PERLS methodology offered by ADL. 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</p>	1.126	1.608	1.108

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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)	FY 2019	FY 2020	FY 2021
<p>assignments. PERLS delivers self-regulated micro-learning training that is designed to be engaging, usable and practical, allowing individuals to quickly access 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. JPALM/PERLS and micro-learning provide that edge and optimization.</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> There was a one year increase to the program baseline in FY 2020 to fund open source virtual classroom (VClass), Sakai and micro learning technology (PERLS) research, test, development, and evaluation to keep pace with current state-of-the-art on-line collaborative training. The baseline returns to its pre-FY 2020 programmed baseline in FY 2021.</p>			
Accomplishments/Planned Programs Subtotals	1.126	1.608	1.108

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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
701: Air Force Joint National Training Capability (JNTC)	0.000	2.917	2.811	2.869	-	2.869	2.869	2.869	2.869	2.869	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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 as well as supporting development of cross-domain solutions. Additionally, the Air Force invests in development of capabilities to enhance the rigor and fidelity of training for live and virtual members of joint training audiences.

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

	FY 2019	FY 2020	FY 2021
Title: Air Force Joint National Training Capability (JNTC)	2.917	2.811	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. These capability enhancements provide a thinking and reactive OPFOR to challenge and engage both live and virtual Blue Forces using a combination of kinetic and non-kinetic cyber capabilities. Additionally, it 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. It also builds on prior investments in the One War Training System (OWTS) to enhance exercise control, safety, and feedback to training audiences in blended live and synthetic air and land domains.</p> <p>FY 2020 Plans:</p> <ol style="list-style-type: none"> 1. Develop capability for live OPFOR surface-to-air threats to engage virtual as well as live BLUFOR aircraft. 2. Sustain development of and enhance 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. Sustain 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. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
<p>4. Enhance OWTS feedback capability to training audiences by adding an automated near-real time kill removal capability against OPFOR ground targets.</p> <p>FY 2021 Plans:</p> <p>1. Develop capability for live OPFOR surface-to-air threats to engage virtual as well as live BLUFOR aircraft.</p> <p>2. Sustain development of and enhance 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.</p> <p>3. Sustain 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.</p> <p>4. Enhance OWTS feedback capability to training audiences by adding an automated near-real time kill removal capability against OPFOR ground targets.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: N/A</p>			
Accomplishments/Planned Programs Subtotals	2.917	2.811	2.869

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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
772: Navy Joint National Training Capability (JNTC)	0.000	3.260	3.041	3.042	-	3.042	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, and integration of a common, realistic, joint and coalition, operational to tactical level training architecture to deliver individual and collective constructive joint training for use in Fleet Synthetic Training (FST) events, CDRR exercises, Ballistic Missile Defense Exercises (BMDEX) certification events, and BMD at Sea training events in support of CDRR's training, deployment certification and operational requirements.

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

	FY 2019	FY 2020	FY 2021
Title: Navy Joint National Training Capability (JNTC)	3.260	3.041	3.042
<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. This program provides a current and emerging multi-functional and multi-domain near-peer threat environment and associated warfighting challenges to stimulate Joint and Navy training audiences, enabling the Fleet Commander to certify deploying forces in a synthetic Joint training environment and JFMCCs to participate in realistic Combatant Commander Exercises.</p> <p>FY 2020 Plans:</p> <ol style="list-style-type: none"> 1. Continue FY2019 efforts. 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). 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. <p>FY 2021 Plans:</p> <ol style="list-style-type: none"> 1. Continue FY 2020 efforts. 			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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) 772 / <i>Navy Joint National Training Capability (JNTC)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
2. Provide development of new capability for integration with annual software release of the Navy Training Baseline (NTB) to enable tactics, techniques and procedures (TTP) development for contested environments and ballistic missile defense (BMD).			
3. Develop advanced models to support Navy and Joint Operational Level of War (OLW) exercises and tactical training; to include Anti-ship Cruise Missile (ASCM) defense, Counter-ISR, including unmanned system (UxS) defense, theater and regional BMD, and AEGIS Weapons System, maritime air, tactical air and unmanned sensor and weapon system capability upgrades.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> N/A			
Accomplishments/Planned Programs Subtotals	3.260	3.041	3.042

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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
773: Joint Interoperability Division (JID)	0.000	1.845	1.419	1.095	-	1.095	0.000	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 2019	FY 2020	FY 2021
Title: Joint Interoperability Division (JID)	1.845	1.419	1.095
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 2020 Plans: 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.			
FY 2021 Plans: Show data link operations effects with degraded satellites and SIPR connectivity. Provide multi-level security to Partner Nations' picture.			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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) 773 / <i>Joint Interoperability Division (JID)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Inject TDL information (including NATO Link-22) into CCMD, Component and Partner Nation operations centers.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> (DWR) The FY 2021 funding request was reduced by \$324K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.			
Accomplishments/Planned Programs Subtotals	1.845	1.419	1.095

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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
774: USMC Joint National Training Capability (JNTC)	0.000	0.921	0.901	0.636	-	0.636	0.636	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 2019	FY 2020	FY 2021
Title: Marine Corps Joint National Training Capability (JNTC)	0.921	0.901	0.636
<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 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 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
<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 2021 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 to FY 2021 Increase/Decrease Statement:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff	Date: February 2020
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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) 774 / <i>USMC Joint National Training Capability (JNTC)</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
(DWR) The FY 2021 funding request was reduced by \$265K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.			
Accomplishments/Planned Programs Subtotals	0.921	0.901	0.636

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 2021 The Joint Staff										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
775: Advanced Distributed Learning (ADL)	0.000	3.000	3.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The 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 2019	FY 2020	FY 2021
Title: Advanced Distributed Learning (ADL)	3.000	3.000	0.000
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.			
FY 2020 Plans:			
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).			
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.			
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. FY 2020 TRL = 6			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
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 2019	FY 2020	FY 2021
4. Support enhancements to multinational training by continuing collaboration with coalition partners and gaining support to integrate e-learning into multination exercises.			
<i>FY 2021 Plans:</i> The Advanced Distributed Learning project is transferred to OSD (Personnel and Readiness) under a mutually agreed memorandum of understanding. Under the agreement, OSD(P&R) assumes responsibility for all Advanced Distributed Learning activities.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Decrease due to program transfer to OSD (Personnel and Readiness).			
Accomplishments/Planned Programs Subtotals	3.000	3.000	0.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff **Date:** February 2020

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>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	20.834	3.037	4.537	3.039	-	3.039	3.101	3.431	3.431	3.360	Continuing	Continuing
P001: <i>Planning and Decision Aid System OPS</i>	20.834	3.037	4.537	3.039	-	3.039	3.101	3.431	3.431	3.360	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 command and control system supporting the Combatant Commanders, Services, and Department of Defense agencies.

Classified details provided in a separate CLASSIFIED budget exhibit.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	3.037	4.537	3.104	-	3.104
Current President's Budget	3.037	4.537	3.039	-	3.039
Total Adjustments	0.000	0.000	-0.065	-	-0.065
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program realignment	-	-	-0.065	-	-0.065

Change Summary Explanation

Minor program decrease to maintain program balance.

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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



United States Special Operations Command

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

04 Feb 2020

Appropriation -----	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
-----	-----	-----	-----	-----	-----
Research, Development, Test & Eval, DW	612,634	840,127		11,726	851,853
Total Research, Development, Test & Evaluation	612,634	840,127		11,726	851,853

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Department of Defense
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 (Dollars in Thousands)

04 Feb 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	719,806		11,982	11,982	731,788
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Department of Defense
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 (Dollars in Thousands)

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	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Summary Recap of Budget Activities					

Applied Research	34,635	37,569			37,569
Advanced Technology Development	77,010	99,404			99,404
Operational Systems Development	500,989	703,154		11,726	714,880
Total Research, Development, Test & Evaluation	612,634	840,127		11,726	851,853
Summary Recap of FYDP Programs					

Intelligence and Communications	6,286	6,359			6,359
Special Operations Forces	606,348	833,768		11,726	845,494
Total Research, Development, Test & Evaluation	612,634	840,127		11,726	851,853

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Department of Defense
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 (Dollars in Thousands)

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	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities -----					
Applied Research	42,464				42,464
Advanced Technology Development	89,072				89,072
Operational Systems Development	588,270		11,982	11,982	600,252
Total Research, Development, Test & Evaluation	719,806		11,982	11,982	731,788
Summary Recap of FYDP Programs -----					
Intelligence and Communications	6,066				6,066
Special Operations Forces	713,740		11,982	11,982	725,722
Total Research, Development, Test & Evaluation	719,806		11,982	11,982	731,788

Defense-Wide
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Total Research, Development, Test & Evaluation	612,634	840,127		11,726	851,853

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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 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
23	1160401BB	SOF Technology Development	02	34,635	37,569			37,569 U
		Applied Research		34,635	37,569			37,569
70	1160402BB	SOF Advanced Technology Development	03	77,010	99,404			99,404 U
		Advanced Technology Development		77,010	99,404			99,404
238	0305208BB	Distributed Common Ground/Surface Systems	07	6,286	6,359			6,359 U
256	1105219BB	MQ-9 UAV	07	17,745	20,697			20,697 U
257	1160279BB	Small Business Innovative Research/Small Bus Tech Transfer Pilot Prog	07	18,445				U
258	1160403BB	Aviation Systems	07	168,026	267,695			267,695 U
259	1160405BB	Intelligence Systems Development	07	10,625	15,484			15,484 U
260	1160408BB	Operational Enhancements	07	98,395	159,922		726	160,648 U
261	1160431BB	Warrior Systems	07	74,250	75,514		6,000	81,514 U
262	1160432BB	Special Programs	07	2,885	21,005			21,005 U
263	1160434BB	Unmanned ISR	07	44,970	37,377		5,000	42,377 U
264	1160480BB	SOF Tactical Vehicles	07	1,806	11,150			11,150 U
265	1160483BB	Maritime Systems	07	40,600	72,626			72,626 U
266	1160489BB	Global Video Surveillance Activities	07	4,780	5,363			5,363 U

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		Applied Research		42,464				42,464	
70	1160402BB	SOF Advanced Technology Development	03	89,072				89,072	U
		Advanced Technology Development		89,072				89,072	
238	0305208BB	Distributed Common Ground/Surface Systems	07	6,066				6,066	U
256	1105219BB	MQ-9 UAV	07	21,265				21,265	U
257	1160279BB	Small Business Innovative Research/Small Bus Tech Transfer Pilot Prog	07						U
258	1160403BB	Aviation Systems	07	230,812				230,812	U
259	1160405BB	Intelligence Systems Development	07	19,558				19,558	U
260	1160408BB	Operational Enhancements	07	136,041		1,186	1,186	137,227	U
261	1160431BB	Warrior Systems	07	59,511		5,796	5,796	65,307	U
262	1160432BB	Special Programs	07	10,500				10,500	U
263	1160434BB	Unmanned ISR	07	19,154		5,000	5,000	24,154	U
264	1160480BB	SOF Tactical Vehicles	07	9,263				9,263	U
265	1160483BB	Maritime Systems	07	59,882				59,882	U
266	1160489BB	Global Video Surveillance Activities	07	4,606				4,606	U

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267	1160490BB	Operational Enhancements Intelligence	07	12,176	9,962			9,962 U
		Operational Systems Development		500,989	703,154		11,726	714,880
Total Research, Development, Test & Eval, DW				612,634	840,127		11,726	851,853

Defense-Wide
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267	1160490BB	Operational Enhancements Intelligence	07	11,612				11,612	U
		Operational Systems Development		588,270		11,982	11,982	600,252	
Total Research, Development, Test & Eval, DW				719,806		11,982	11,982	731,788	

U.S., Special Operations Command
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	Advanced Technology Development			77,010	99,404			99,404
238	0305208BB	Distributed Common Ground/Surface Systems	07	6,286	6,359			6,359 U
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263	1160434BB	Unmanned ISR	07	44,970	37,377		5,000	42,377 U
264	1160480BB	SOF Tactical Vehicles	07	1,806	11,150			11,150 U
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U.S., Special Operations Command
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265	1160483BB	Maritime Systems	07	59,882				59,882	U
266	1160489BB	Global Video Surveillance Activities	07	4,606				4,606	U
267	1160490BB	Operational Enhancements Intelligence	07	11,612				11,612	U

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U.S., Special Operations Command
 FY 2021 President's Budget
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Appropriation: 0400D Research, Development, Test & Eval, DW

Program			FY 2020				FY 2020
Line	Element	Item	FY 2019	FY 2020	FY 2020	FY 2020	Total Enacted S
No	Number		(Base + OCO)	Base Enacted	Emergency	OCO Enacted	(Base+Emerg+ e
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		Act					OCO) c
		---					-
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Total U.S., Special Operations Command			612,634	840,127		11,726	851,853

U.S., Special Operations Command
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	Operational Systems Development			588,270		11,982	11,982	600,252	
	Total U.S., Special Operations Command			719,806		11,982	11,982	731,788	

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261	07	1160431BB	Warrior Systems.....	Volume 5 - 1139
262	07	1160432BB	Special Programs.....	Volume 5 - 1223
263	07	1160434BB	Unmanned ISR.....	Volume 5 - 1225
264	07	1160480BB	SOF Tactical Vehicles.....	Volume 5 - 1243
265	07	1160483BB	Maritime Systems.....	Volume 5 - 1251
266	07	1160489BB	Global Video Surveillance Activities.....	Volume 5 - 1287
267	07	1160490BB	Operational Enhancements Intelligence.....	Volume 5 - 1289

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Intelligence Systems Development	1160405BB	259	07.....	Volume 5 - 1115
MQ-9 Unmanned Aerial Vehicle (UAV)	1105219BB	256	07.....	Volume 5 - 1029
Maritime Systems	1160483BB	265	07.....	Volume 5 - 1251
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SOF Advanced Technology Development	1160402BB	70	03.....	Volume 5 - 1007
SOF Tactical Vehicles	1160480BB	264	07.....	Volume 5 - 1243
SOF Technology Development	1160401BB	23	02.....	Volume 5 - 1001
Small Business Innovation Research/Small Bus Tech Transfer	1160279BB	257	07.....	Volume 5 - 1037
Special Programs	1160432BB	262	07.....	Volume 5 - 1223
Unmanned ISR	1160434BB	263	07.....	Volume 5 - 1225
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ACRONYMS

Acronym	Full Naming Convention
A2/AD	Anti-Access/Area Denial
AA	Air-to-Air
AbMN	Airborne Mission Networking
ACT	AFT Cabin Trainer
AMLCD	Active Matrix Liquid Crystal Display
ADS-B	Automatic Dependent Surveillance-Broadcast
A&FC	Airworthiness and Flight Characteristics
AI	Artificial Intelligence
AISR	Airborne Intelligence, Surveillance, Reconnaissance
ALFPK	Austere Location Force Protection Kits
AM	Amplitude Modulation
AMLCD	Active Matrix Liquid Crystal Display
AMN	Airborne Mission Network
AMS	Aviation Management System
APAS	Active Parallel Actuator System
ASE	Aircraft Survivability Equipment
ASIF	All Source Information Fusion
ATD	Advanced Technology Demonstration
ATPIALS	Advanced Target Pointer Illuminator Aiming Laser System
ATW	Advanced Threat Warning
AvFID	Aviation Foreign Internal Defense
AVS	Air Variant System
AWR	Air Worthiness Release
BAA	Broad Area Announcement
BFT	Blue Force Tracking
BLOS	Beyond Line of Site
BOA	Basic Ordering Agreement
CASEVAC	Casualty Evacuation
C2	Command and Control
C3	Command, Control, and Communications
C4	Command, Control, Communications, and Computer

ACRONYMS

C4I	Command, Control, Communications, Computers, and Intelligence
C4IAS	Command, Control, Communications, and Computer Intelligence Automation Systems
CA	Civil Affairs
CAAS	Common Avionics Architecture Systems
CAR	Combat Assault Rifle
CASEVAC	Casualty Evacuation
CBA	Cost Benefit Analysis
CCFLIR	Combatant Craft Forward Looking Infrared Radar
CCA	Combatant Craft - Assault
CCH	Combatant Craft - Heavy
CCM	Combatant Craft - Medium
CCME	Combatant Craft Mission Equipment
CDR	Critical Design Review
CDU	Control Display Units
CERP	Capital Equipment Replacement Program
CFE	Contractor Furnished Equipment
CHMD	Color Helmet Mounted Display
CIO	Chief Information Officer
CIM	Civil Information Management
CIMDPS	Civil Information Management Data Processing System
CMNS	Combat Mission Needs Statement
CMS	Combat Mission Simulator
CNVD	Clip-On Night Vision Device
COD	Correction of Deficiencies
COP	Common Operational Picture
COSI	Clip-On Short Wave Infrared Imager
COTI	Clip-On Thermal Imager
COTM	Communications-on-the-Move
COTS	Commercial-Off-The-Shelf
CP	Counter-Proliferation
CPD	Capabilities Production Document
CQC	Close Quarter Combat

ACRONYMS

CT	Counter-Terrorism
C-UAS	Counter - Unmanned Aerial Systems
DAMS	Distributed Audio Media System
DCGS-SOF	Distributed Common Ground/Surface System--Special Operations Forces
DCM	Defensive Countermeasures
DCS	Dry Combat Submersible
DCU	Data Concentrator Unit
DDS	Dry Deck Shelter
DI2E	Defense Intelligence Information Environment
DOD	Department of Defense
DRWG	Distributed Common Ground/Surface System Working Group
DT	Developmental Testing
DVE	Degraded Visual Environment
DVEPS	Degraded Visual Environment Pilotage System
DWS	Defensive Weapon System
EAC	Exploitation Analysis Centers
ECM	Electronic Countermeasures
ECOS	Enhanced Combat Optical Sights
ECP	Engineering Change Proposal
EDM	Engineering Development Model
EGPWS	Enhanced Ground Proximity Warning
ELINT	Electronic Intelligence
EMD	Engineering and Manufacturing Development
ENT/ASIF	Enterprise All Source Information Fusion
EO/IR	Electro-Optical Infrared
EOSS	Electro-Optical Sensor System
EOTACS	Expeditionary Organic Tactical AISR Capability Set
ER	Extended Range
ESA	Enhanced Situational Awareness
ETI	Evolutionary Technology Insertion
EUD	End User Devices
EW	Electronic Warfare

ACRONYMS

FABS	Fly-Away Broadcast System
FAR	Federal Acquisition Regulation
FADE	Fusion Analysis and Development Effort
FCD	Field Computing Devices
FFRDC	Federally Funded Research Development Center
FDWS	Forward Defensive Weapon System
FM	Frequency Modulation
FMV	Full Motion Video
FOC	Full Operational Capability
FoS	Family of Systems
FRP	Full Rate Production
FSOV	Family of Special Operations Vehicles
FVL	Future Vertical Lift
FY	Fiscal Year
FYDP	Fiscal Year Defense Plan
GATM	Global Air Traffic Management
GCC	Geographical Combatant Commander
GCS	Ground Control Station
GEOINT	Geospatial Intelligence
GFE	Government Furnished Equipment
GIG	Global Information Grid
GMV	Ground Mobility Vehicle
GOTS	Government-Off-The-Shelf
GPPU	General Purpose Processing Units
GPS	Global Positioning System
GSK	Ground Signals Intelligence Kit
GTR	Gun Training Room
HEL	High Energy Laser
HF	High Frequency
HFIS	Hostile Fire Indicator System
HFTTL	Hostile Forces Tagging, Tracking, and Locating
HHI	Hand Held Imager

ACRONYMS

HLM	Handheld Laser Marker
IC	Intelligence Community
IDIQ	Indefinite Delivery/Indefinite Quantity
ILS	Integrated Logistics Support
IM	Insensitive Munitions
INOD	Improved Night/Day Observation/Fire Control Device
IOC	Initial Operational Capability
IPN	Installation Processing Node
IR	Infrared
IRAD	Industrial Research and Development
IRCM	Infrared Countermeasures
IRSS	Infrared Suppression System
ISP	Integrated Survey Plan
ISR	Intelligence, Surveillance and Reconnaissance
ISR&T	Intelligence, Surveillance, Reconnaissance, and Targeting
IT	Information Technology
ITMS	Integrated Tactical Mission Systems
JIE	Joint Information Environment
JOS	Joint Operational Stocks
JTAC	Joint Terminal Attack Controller
JTWS	Joint Threat Warning System
LAM	Laser Aiming Marker
LCM	Low Cost Modification
LCS	Load Carriage System
LFT&E	Live Fire Test and Evaluation
LiDAR	Light Detection and Ranging
LMAMS	Lethal Miniature Aerial Munition Systems
LOS	Line of Sight
LPI/LPD	Low Probability of Intercept/Low Probably of Detection
LRBS	Long Range Broadcast System
LRE	Long Range Endurance
LRIP	Low Rate Initial Production

ACRONYMS

LRU	Line Replaceable Unit
LSDB	Laser--Small Diameter Bomb
LTATV	Lightweight Tactical All Terrain Vehicle
LWIR	Long-Wave Infrared
MALET	Medium Altitude Long Endurance Tactical
MAAWS	Multi-Purpose Anti-Armor/Anti-Personnel Weapons System
MANET	Mobile Ad-hoc Networking
MC/COP	Mission Command/Common Operational Picture
MCE	Military Construction Collateral Equipment
MEDVAC	Medical Evacuation
MELB	Mission Enhanced Little Bird
MERIT	Military Exploitation of Reconnaissance and Intelligence Technology
MFD	Multi-Function Display
MFP	Major Force Program
MG	Machine Gun
MGS	Modular Glove System
MICH	Modular Integrated Communications Helmet
MIP	Military Intelligence Program
MIPR	Military Interdepartmental Purchase Request
MISO	Military Information Support Operations
MLE	Military Liaison Element
MMP	Multi-Mission Payload
MPE	Maritime Precision Engagement
MPU	Mission Processor Unit
MS	Milestone
MSSEP	Mobile SOF Strategic Entry Points
MTA	Middle Tier Acquisition
MTD	Mission Training Devices
MTPS	Mission Training and Preparation Systems
MTS-B	Multi-Spectral Targeting System--B
MTTE	Maritime Technology Transition and Exploitation
MWC	Mid-Water Column

ACRONYMS

MWIR	Mid-Wave Infrared
MWS	Missile Warning System
MYP	Multiyear Procurement
NDI	Non-Developmental Item
NDS	National Defense Strategy
NET	New Equipment Training
NGA	National Geospatial-Intelligence
NGFLIR	Next Generation Forward Looking Infrared Radar
NG CCFLIR	Next Generation Combatant Craft Forward Looking Infrared Radar
NGLS	Next Generation Loud Speakers
NLP	Natural Language Processing
NM	Nautical Mile
NRE	Non-Recurring Engineering
NSAV	Non-Standard Aviation
NSCV	Non-Standard Commercial Vehicle
NSSS	National Systems Support to SOF
NTM	National Technical Means
NVD	Night Vision Devices
OA	Operational Assessment
OCO	Overseas Contingency Operations
OEM	Original Equipment Manufacturer
OFP	Operational Flight Program
OT	Operational Test
OT&E	Operational Test and Evaluation
P3I	Pre-Planned Product Improvement
PCAS	Persistent Close Air Support
PCU	Protective Combat Uniform
PDR	Preliminary Design Review
PE	Program Element
PED	Processing, Exploitation, and Dissemination
PGL	Precision Geo Location
PGM	Precision Guided Munitions

ACRONYMS

PISA	Predator Integrated Signals Intelligence Architecture
PME	Prime Mission Equipment
POR	Program of Record
PSM	Personal Signature Management
PSP	Precision Strike Package
PTT	Part Task Trainer
QL-CBA	Quick-Look Capabilities-Based Assessment
RAMS	Removable Airborne Military Information Support Operations System
RC-IED	Counter Radio Controlled-Improvised Explosive Device
R&D	Research and Development
RDT&E	Research, Development, Test, and Evaluation
RECCE	Tactical Reconnaissance Kit
RF	Radio Frequency
RFCM	Radio Frequency Countermeasures
RIS	Radio Integration System
ROP	Remote Observation Post
RSTA	Reconnaissance, Surveillance, and Targeting Acquisition
RWR	Radar Warning Receiver
SA	Surface-to-Air
SAFC	Special Applications for Contingencies
SAPNET	Special Access Program Network
SATCOM	Satellite Communications
SBIR	Small Business Innovative Research
SBUD	Simulator Block Updates
SCE	Special Communications Enterprise
SCO	SOF Cryptologic Operator
SDB	Small Diameter Bomb
SDN	SOF Deployable Node
SDN-EP	SOF Deployable Node--Extension Packages
SDN-H	SOF Deployable Node-Heavy
SDN-L	SOF Deployable Node-Light
SDN-M	SOF Deployable Node-Medium

ACRONYMS

SDV	Sea, Air, Land (SEAL) Delivery Vehicle
SEAL	Sea, Air, Land
SEALION	Sea, Air, Land, Insertion Observation Neutralization
SFAC	Security Forces Assistance Craft
SGM	Small Glide Munition
SIE	Special Operations Forces Information Environment
SIGINT	Signals Intelligence
SIL	System Integration Lab
SIM	Sensor Integration Module
SIRFC	Suite of Integrated Radio Frequency Countermeasures
SKR	Silent Knight Radar
SMS	Special Mission System
SOCRATES	Special Operations Command, Research, Analysis and Threat Evaluation System
SOF	Special Operations Forces
SOF-P	Special Operations Forces--Peculiar
SOFNET	Special Operations Forces Network
SOFPREP	Special Operations Forces Planning, Rehearsal, and Execution Preparation
SOFSA	Special Operations Forces Support Activity
SOMPE	Special Operations Mission Planning and Execution
SOPGM	Standoff Precision Guided Munitions
SoS	System of Systems
SPCOM	Special Communications Field Segment - Enterprise
SPEAR	SOF Personal Equipment Advanced Requirements
SPPN	Special Purpose Processing Node
SMU	Special Mission Units
SR	Special Reconnaissance
SRTV	Secure Real-Time Video
SSE	Sensitive Site Exploitation
STAMP	SOCOM Tactical Airborne Multi-Sensor Platform
STC	SOF Tactical Communications
STLD	Small Target Location Devices
STTR	Small Business Technology Transfer

ACRONYMS

STUAS	Small Tactical Unmanned Aerial Systems
SURG	Suppressed Upper Receiver Group
SWAP	Size, Weight and Power
SWCS	Shallow Water Combat Submersible
SWIR	Shortwave Infrared
TACLAN	Tactical Local Area Network
TAK	Tactical Assault Kit
TALOS	Tactical Assault Lightweight Operator Suit
TAS	Threat Awareness System
TCCC	Tactical Combat Casualty Care
TDL	Tactical Data Link
TENCAP	Tactical Exploitation of National Capabilities
TF/TA	Terrain Following/Terrain Avoidance
TOCNET	Tactical Operations Center
TMN	Tactical (Airborne) Mission Network
TMS	Tactical Mission Systems
TMMR	Technology Maturation and Risk Reduction
TPAN	Tactical Personal Area Networks
TRL	Technical Readiness Level
TSOC	Theater Special Operations Command
TTV	Team Transportable Variant
TTL	Tagging, Tracking and Locating
TV	Television
TVS/RSTA	Tactical Video System/Reconnaissance, Surveillance, and Target Acquisition
UARC	University Affiliated Research Agreement
UAS	Unmanned Aircraft System
UAV	Unmanned Aerial Vehicle
UGS/UMS	Unattended Ground Sensors/Unattended Maritime Sensors
UHF	Ultra High Frequency
UI	User Interface
URG	Upper Receiver Groups
VAK	Virtual Accompany Kits

ACRONYMS

VAS	Visual Augmentation Systems
VAS-BM	Visual Augmentation-Binocular-Monocular
VASWA	Visual Augmentation System-Weapons Accessories
VBIED	Vehicle-Borne Improvised Explosive Device
VBL	Visible Bright Light
VBSS	Visit, Board, Search, and Seizure
VHF	Very High Frequency
VTC	Video Teleconferencing
VTOL	Vertical Take Off and Landing
WAN	Wide Area Network
WPAN	Wireless Personal Area Networks
WPNAC	Weapons Accessories

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
0400: Research, Development, Test & Evaluation, Defense-Wide / BA 2: Applied Research					PE 1160401BB / SOF Technology Development							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	552.604	34.635	37.569	42.464	-	42.464	45.304	46.274	47.388	48.336	Continuing	Continuing
S100: SOF Technology Development	552.604	34.635	37.569	42.464	-	42.464	45.304	46.274	47.388	48.336	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element enables United States Special Operations Command (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 (SOF). 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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	35.921	40.569	46.674	-	46.674
Current President's Budget	34.635	37.569	42.464	-	42.464
Total Adjustments	-1.286	-3.000	-4.210	-	-4.210
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.286	-			
• Other Adjustment	-	-	-4.210	-	-4.210

Change Summary Explanation

Funding:

FY 2019: Decrease of \$1.286 million is due to transfer of funds to Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) programs.

FY 2020: Decrease of \$3.000 million is due to a Congressional directed reduction due to underexecution.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>

FY 2021: Decrease of \$4.210 million is due to a comprehensive analysis of future capability by USSOCOM resulting in a reduction of technology concept demonstrations, prototyping, and evaluation of advanced capabilities to better align with the Department's priorities as outlined in the National Defense Strategy (-\$4.210 million).

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>S100: SOF Technology Development</i>	552.604	34.635	37.569	42.464	-	42.464	45.304	46.274	47.388	48.336	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 Department of Defense (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 capability deficiencies, capability objective, 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 2019	FY 2020	FY 2021
<p>Title: SOF Technology Development</p> <p>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. Beginning in FY 2021, this project will continue to exploit and integrate emerging technologies for sensors and surveillance enabling systems. Increases focus on tactical sensors and enabling technologies in support of the Intelligence, Surveillance, and Reconnaissance (ISR) mission set focused leading edge technology, biometric and biotechnology, which is directed towards the development of revolutionary tags, taggants, sensors, communications, and data processing.</p> <p>FY 2020 Plans: Continue ongoing technology development 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. Advance technologies for combat medical equipment, biotechnologies, tactics, human performance, optics, sensor, information sources, and processing improvements, improve human-machine interfaces and display, identify SOF specific 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 status, and continue development and exploration of novel technologies 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.</p> <p>FY 2021 Plans:</p>	15.833	17.967	38.389

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 1160401BB / SOF Technology Development	Project (Number/Name) S100 / SOF Technology Development

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>Continues ongoing technology development 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, biotechnologies, tactics, human performance, optics, sensor, information sources, and processing improvements, 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. Continues to exploit and integrate emerging technologies for sensors and surveillance enabling systems. Increases focus on tactical sensors and enabling technologies in support of the Intelligence, Surveillance, and Reconnaissance mission set. 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 2020 to FY 2021 Increase/Decrease Statement: Net Increase of \$20.422 million is due to an increase for the integration of SOF Tagging, Tracking, and Locating Technologies (TTL) Project (\$15.862 million) and increase for the integration of Artificial Intelligence (AI) and biotechnologies (\$4.560 million).</p>			
<p>Title: Tagging, Tracking, and Locating Technologies (TTL) Project</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 2020 Plans: Complete projects to exploit technology, biotechnology and chemistry for application to TTL and TTL-enabling systems. Complete projects linked to the USSOCOM/DoD TTL and ISR Roadmaps, which are updated via the Joint Chief of Staff (JCS)/J8-approved annual TTL QL-CBA.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$15.956 million is due to the transition to the SOF Special Technology Project.</p>	15.008	15.956	-
<p>Title: Classified Sub-Project</p> <p>Description: Classified Sub-Project (provided under separate cover).</p> <p>FY 2020 Plans:</p>	3.794	3.646	4.075

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021
Details provided under separate cover.			
<i>FY 2021 Plans:</i> Details provided under separate cover.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Details provided under separate cover.			
Accomplishments/Planned Programs Subtotals	34.635	37.569	42.464

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	1,377.147	77.010	99.404	89.072	-	89.072	94.659	96.485	98.602	100.486	Continuing	Continuing
S200: <i>Advanced Technology Development</i>	1,315.751	56.107	72.960	69.985	-	69.985	75.263	76.772	78.523	80.098	Continuing	Continuing
SF101: <i>Engineering Analysis</i>	37.384	16.475	21.845	19.087	-	19.087	19.396	19.713	20.079	20.388	Continuing	Continuing
S225: <i>Information and Broadcast Systems Adv Tech</i>	24.012	4.428	4.599	0.000	-	0.000	0.000	0.000	0.000	0.000	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 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 2021 United States Special Operations Command **Date:** February 2020

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 1160402BB / <i>SOF Advanced Technology Development</i>
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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	79.380	89.154	100.729	-	100.729
Current President's Budget	77.010	99.404	89.072	-	89.072
Total Adjustments	-2.370	10.250	-11.657	-	-11.657
• Congressional General Reductions	-0.030	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.250			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.500	-			
• SBIR/STTR Transfer	-2.840	-			
• Other Adjustments	-	-	-11.657	-	-11.657

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

Project: S200: *Advanced Technology Development*

Congressional Add: *Classified Project*

Congressional Add Subtotals for Project: S200

	FY 2019	FY 2020
	-	6.000
	-	6.000
	-	4.250
	-	4.250
	-	10.250

Project: SF101: *Engineering Analysis*

Congressional Add: *Soldier System Engineering Analysis*

Congressional Add Subtotals for Project: SF101

Congressional Add Totals for all Projects

Change Summary Explanation

Funding:

FY 2019: Net decrease of \$2.370 million is due to a transfer of funds to support emerging command priorities (-\$0.030 million), Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) programs (-\$2.490 million for SBIR and -\$0.350 million for STTR), and transfer from Program Element 110604BB, Aviation Systems (\$0.500 million).

FY 2020: Net increase of \$10.250 million is due to Congressional Adds for Ballistic and Laser Protective Eyewear (\$4.250 million) and Identity Management (\$6.000 million).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>

FY 2021: Net decrease of \$11.657 million is due to the transition of funds to Program Element 1160431BB, Warrior Systems, (-\$4.599 million); decrease for the transition of funds to Program Element 1160403BB, Aviation Systems or Aviation Engineering Analysis (-\$3.947 million), increase to support the integration of technology within the Experimentation Force Project (\$4.000 million), and minor adjustments (-\$0.110 million). For the Defense Wide Review, USSOCOM performed a comprehensive analysis of future capability and is reducing SOF Advanced Technology concept demonstrations, prototyping, and evaluation of advanced capabilities to better align with the Department's priorities as outlined in the National Defense Strategy (-\$7.001 million).

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 1160402BB / SOF Advanced Technology Development				Project (Number/Name) S200 / Advanced Technology Development			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S200: <i>Advanced Technology Development</i>	1,315.751	56.107	72.960	69.985	-	69.985	75.263	76.772	78.523	80.098	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 of sufficient time sensitivity to accelerate prototyping efforts of a normal acquisition program in any phase.

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

	FY 2019	FY 2020	FY 2021
Title: SOF Special Technology Project	31.886	41.118	63.940
Description: This project integrates emerging technologies and presents them in technology demonstrations, in conjunction with joint experiments and other assessment events. Beginning in FY 2021 this project will continue to exploit and integrate emerging technologies for sensors and surveillance enabling systems. Increases focus on tactical sensors and enabling technologies in support of the Intelligence, Surveillance, and Reconnaissance (ISR) mission set focused leading edge technology, biometric and biotechnology, which is directed towards the development of revolutionary tags, taggants, sensors, communications, and data processing.			
FY 2020 Plans: Continue the development and insertion of technology into existing programs. Technologies include, but are not limited to: reduced signature profiles, improved tailorable lethality and precision strike weapons, assured communications, command and control systems, machine learning/artificial intelligence, optics, sensors, information sources, and situational awareness tools; lightweight armor and materials, power and energy enablers, and technologies that reduce the load of the operator. Continue development of technologies supporting undersea, ground and air mobility. Evaluate and develop sensors across the electromagnetic spectrum to meet operational requirements. Continue the integration of critical technologies focused on providing the dismantled special operator leap-ahead capabilities via innovative collaborative processes. Continue to develop sensors, surveillance, network and data management technology to provide tactically relevant situational awareness and point of need. Continue effort for field prototype system incorporating technologies likely to transition to fielded systems. Based upon agreed			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021
<p>technology maturity metrics, transfers successful projects into programs of record, and conducts field experimentations at various venues to facilitate technology insertion.</p> <p>FY 2021 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 and precision strike weapons, assured communications, command and control systems, machine learning/artificial intelligence, optics, sensors, information sources, and situational awareness tools; lightweight armor and materials, power and energy enablers, and technologies that reduce the load of the operator. Continues the development of technologies and materials which support 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 sensors, surveillance, network and data management 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. Beginning in FY 2021, this project will continue to exploit and integrate emerging technologies for sensors and surveillance enabling systems. Increases focus on tactical sensors and enabling technologies in support of the ISR mission set focused leading edge technology, biometric and biotechnology, which is directed towards the development of revolutionary tags, taggants, sensors, communications, and data processing. 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 2020 to FY 2021 Increase/Decrease Statement: Net increase of \$22.822 million due to an increase for the integration with SOF Tagging, Tracking, and Locating Technologies (TTL) Project (\$21.926 million) and integration of Artificial Intelligence and Biotechnologies (\$0.896 million).</p>			
<p>Title: Tagging, Tracking, and Locating Technologies (TTL) 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 2020 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 Joint Chiefs of Staff (JCS)/J8-</p>	18.079	19.915	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021
approved annual TTL QL-CBA. Continue to increase focus on tactical sensors and enabling technologies in support of the special reconnaissance mission set. FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$19.915 million is due to the integration of the SOF Tagging, Tracking, and Locating Technologies (TTL) Project into the SOF Special Technology Project.			
Title: Classified Project Description: Classified Project (provided under separate cover). FY 2020 Plans: Details provided under separate cover. FY 2021 Plans: Details provided under separate cover. FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.118 million will be provided under separate cover.	6.142	5.927	6.045
Accomplishments/Planned Programs Subtotals	56.107	66.960	69.985

	FY 2019	FY 2020
Congressional Add: Classified Project FY 2020 Plans: Details provided under separate cover.	-	6.000
Congressional Adds Subtotals	-	6.000

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 2021 United States Special Operations Command **Date:** February 2020

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1160402BB / SOF Advanced Technology Development	Project (Number/Name) SF101 / Engineering Analysis
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
SF101: <i>Engineering Analysis</i>	37.384	16.475	21.845	19.087	-	19.087	19.396	19.713	20.079	20.388	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 2019	FY 2020	FY 2021
<p>Title: Platform Engineering Analysis</p> <p>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.</p> <p>FY 2020 Plans: Continue to assess concepts and prototypes that provide increased capability of air, ground and undersea mobility platforms to include improvements to meet emerging threats. Assess and evaluate advanced methods to deliver tailorable lethality. Identify, assess, and evaluate improved network and data management systems that incorporate significant improvements to operate in contested environments, systems that improve situational awareness on the battlefield, and disruptive technologies to enable Intelligence, Surveillance, and Reconnaissance (ISR) in future environments.</p> <p>FY 2021 Plans: Future Platform Engineering Analysis efforts will continue under the Engineering Analysis Project.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$10.192 million is due to the consolidation and integration of technology insertion funding to the Engineering Analysis Project.</p>	11.452	10.912	0.000
<p>Title: Soldier System Engineering Analysis</p> <p>Description: Funding supports engineering assessments and evaluation of technology 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</p>	0.472	0.500	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021
<p>load carriage systems and 5) soldier worn head borne communications that provide greater situational awareness and hearing protection.</p> <p>FY 2020 Plans: Continue to assess materials, concepts and prototypes to reduce soldier load and provide increased protection against the latest emerging threats. Evaluate soldier worn sensors and heads up displays for operability within soldier worn components and subsystems. Assess technology feasibility and integration readiness of next generation load carriage systems such as exoskeletons and load-assist devices. Assess proofs of concept and technologies for next generation communications systems that integrate situational awareness in all environments.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.500 million is due to the consolidation and integration of Future Soldier System Engineering Analysis efforts into the Engineering Analysis Project.</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 2020 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 2021 Plans: 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.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.045 million is for minor adjustments.</p>	0.726	2.236	2.281
<p>Title: Aviation Mission Improved Survivability</p> <p>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.</p> <p>FY 2020 Plans:</p>	3.825	3.947	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020		
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 2019	FY 2020	FY 2021
<p>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.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$3.947 million due to the integration of Future Aviation Mission Improved Survivability Project efforts into Aviation Systems (Program Element 1160403BB) under project SF100 Aviation Engineering Analysis (AEA).</p>				
<p>Title: Engineering Analysis</p> <p>Description: Funding supports the development of rapid response capabilities to support SOF platform and soldier systems. Supports technology development to correct system deficiencies, improve platform asset life, and enhance mission capabilities. Supports engineering assessments and evaluation of technology feasibility, producibility, and integration into next generation soldier equipment. Supports engineering analysis activities to address platform survivability such as signature management, situational awareness, and versatile mission equipment (payloads, communications, and weapons) to achieve SOF mission objectives. Rapidly addresses technology needs for insertion into Programs of Record.</p> <p>FY 2020 Plans: N/A</p> <p>FY 2021 Plans: Begins to assess concepts and prototypes that provide increased capability of SOF mobility platforms to include improvements to meet emerging threats. Assesses and evaluates advanced methods to deliver tailorable lethality. Identifies, assesses, and evaluates improved network and data management 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. Continues to assess materials, concepts, and prototypes to increase operator effectiveness and situational awareness in all environments. Continues engineering analysis activities to improve SOF platform 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.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$12.806 million due to the consolidation and integration of technology insertion funding from Platform Engineering Analysis and Soldier System Engineering Analysis Projects.</p>		0.000	0.000	12.806
Title: Experimentation Force		0.000	0.000	4.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>Description: Funding supports the integration of technology with operational vignette-based experiments designed to stimulate innovative applications across all domains addressing SOF specific modernization needs.</p> <p>FY 2020 Plans: N/A</p> <p>FY 2021 Plans: Begins the development of innovative concepts and conducts experimentation to develop hyper-enabled teams capable of conducting globally integrated special operations across all domains.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$4.000 million due to funding the development of the Experimentation Force infrastructure.</p>			
Accomplishments/Planned Programs Subtotals	16.475	17.595	19.087

	FY 2019	FY 2020
<p>Congressional Add: Soldier System Engineering Analysis</p> <p>FY 2020 Plans: Continue to assess materials, concepts and prototypes to reduce soldier load and provide increased protection against the latest emerging threats. Evaluate soldier worn sensors and heads up displays for operability within soldier worn components and subsystems. Assess technology feasibility and integration readiness of next generation load carriage systems such as exoskeletons and load-assist devices. Assess proofs of concept and technologies for next generation communications systems that integrate situational awareness in all environments.</p>	-	4.250
Congressional Adds Subtotals	-	4.250

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 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>S225: Information and Broadcast Systems Adv Tech</i>	24.012	4.428	4.599	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project conducts development, rapid prototyping, and 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 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 2019	FY 2020	FY 2021
Title: Broadcast and Dissemination Modernization	4.428	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 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1160402BB / <i>SOF Advanced Technology Development</i>	Project (Number/Name) S225 / <i>Information and Broadcast Systems Adv Tech</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Continue performance of engineering studies, development, and demonstrations of planning, analysis, distribution, and broadcast capabilities in the digital domain.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Decrease of \$4.599 million is due to funding being transitioned to PE 1160431BB, Warrior Systems.			
Accomplishments/Planned Programs Subtotals	4.428	4.599	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 0305208BB / <i>Distributed Common Ground/Surface Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	48.714	6.286	6.359	6.066	-	6.066	6.179	6.290	6.412	6.047	Continuing	Continuing
S400A: <i>Distributed Common Ground/Surface Systems</i>	48.714	6.286	6.359	6.066	-	6.066	6.179	6.290	6.412	6.047	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 (ISR) Processing, Exploitation, Dissemination (PED), and analytical capabilities at the Component/Theater Special Operations Commands (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: Enterprise/All Source Information Fusion (ENT/ASIF) provides infrastructure, processing, and intelligence analytical tools 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 for the PED of manned and unmanned sensors. SOF Signals Intelligence (SIGINT) Processing, Exploitation, Dissemination (PED) provides SIGINT exploitation capability in both garrison and deployed environments. These technologies will be pursued via rapid prototyping efforts when appropriate.

B. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	6.286	6.359	6.487	-	6.487
Current President's Budget	6.286	6.359	6.066	-	6.066
Total Adjustments	0.000	0.000	-0.421	-	-0.421
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.421	-	-0.421

Change Summary Explanation

Funding:
FY 2019: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 0305208BB / <i>Distributed Common Ground/Surface Systems</i>
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FY 2020: None.

FY 2021: Net decrease of \$0.421 million is due to rebaseline of funding to continue rapid integration and user testing of emerging standards and technology in the Integrated Survey Program (ISP) (-\$0.380 million).

For the Defense Wide Review (DWR), USSOCOM performed a comprehensive analysis of future capabilities and is streamlining contract support costs as a result of better buying power initiatives which aligns with the Department's priorities as outlined in the National Defense Strategy (-\$0.041 million).

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. Modernization efforts with SGIP and SOF SIGINT PED modify technology development objectives and timelines.

Technical: Usability testing and requirements refinement led to market research and technology shifts across DCGS-SOF.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S400A: <i>Distributed Common Ground/Surface Systems</i>	48.714	6.286	6.359	6.066	-	6.066	6.179	6.290	6.412	6.047	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/Theater Special Operations Commands (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: Enterprise All Source Information Fusion (ENT/ASIF) provides infrastructure, processing, and intelligence analytical tools 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 for the PED 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 2019	FY 2020	FY 2021
Title: DCGS	6.286	6.359	6.066
Description: DCGS-SOF is composed of three major components: Enterprise/ASIF, SGIP and SOF SIGINT PED. DCGS-SOF develops and integrates SOF networks providing USSOCOM with unique decision capabilities to include: measurement and signature data, sensor exploitation, data compressions and man-portable workstations. DCGS-SOF provides the supporting architecture to link the Global Sensor Network to those who will interpret the data for rapid transmission to collaborative partners via the SOF Information Environment (SIE).			
FY 2020 Plans: Continue tech development, integration of emerging technologies and capabilities enhancements for DCGS-SOF ENT/ASIF requirements including but not limited to: Advanced analytics, User Interfaces (UI), cloud computing, machine learning, disconnected operations capability and completion of current Natural Language Processing (NLP) efforts. Continue tech development and integration of emerging technologies for SGIP. Enhances SGIP capabilities including but not limited to next generation analytics processing, and finishes speech to text analyst tool upgrades. Continue SOF SIGINT PED language enhancements. Continue DCGS-SOF Limited Objective Events and exercise participation to test emerging tech integration			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
efforts. Continue interoperability improvements with Coalition partners and Joint Information Environment and begin compatibility development for the next generation Defense Intelligence Information Enterprise (DI2E) framework.			
<i>FY 2021 Plans:</i> Continues tech development, integration of emerging technologies and capabilities enhancements for DCGS-SOF ENT/ASIF requirements including but not limited to: Advanced analytics, User Interfaces (UI), cloud computing, machine learning, and disconnected operations capability. Continues tech development and integration of emerging technologies for SGIP and begins these same efforts for SOF SIGINT PED. Continues DCGS-SOF Limited Objective Events and exercise participation to test emerging tech integration efforts. Continues interoperability improvements with Coalition partners, DI2E framework and Joint Information Environment.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Decrease of \$0.293 million is due to better buying power initiatives as a result of commonality of integrating emerging technologies and software enhancements within Fusion Analysis and Development Effort (FADE) Department of Defense (DoD)/ Intelligence Community (IC) partners.			
Accomplishments/Planned Programs Subtotals	6.286	6.359	6.066

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PROC/020401INTL: <i>Distributed Common Ground/Surface System</i>	18.597	12.522	11.645	-	11.645	13.316	13.591	14.009	14.222	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. 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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

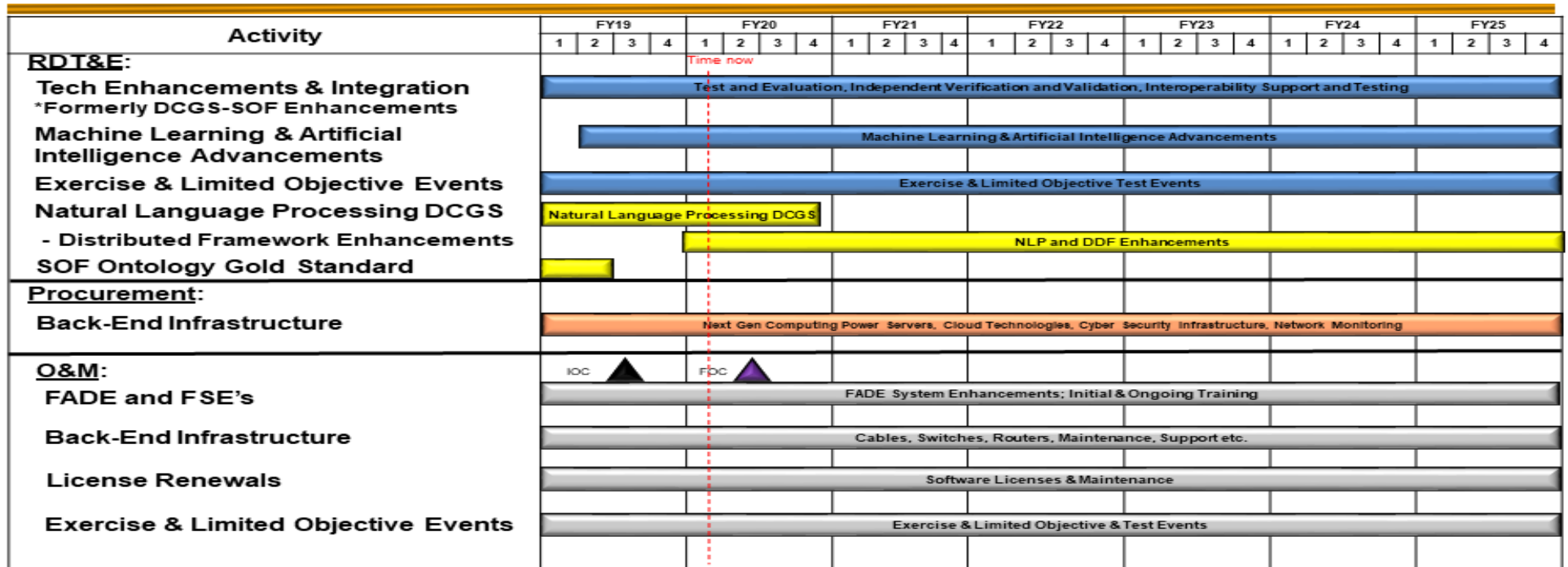
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208BB / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) S400A / <i>Distributed Common Ground/Surface Systems</i>
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development and Integration - Enterprise / All Source Information Fusion (ENT/ASIF)	Various	Various : Various	10.648	2.347	Jan 2019	1.459	Jan 2020	2.957	Jan 2021	-		2.957	Continuing	Continuing	-
Capabilities Modernization - SOF Geospatial Intelligence Processing Exploitation, and Dissemination (SGIP)	Various	Various : Various	16.581	0.749	Jan 2019	2.500	Jan 2020	0.730	Jan 2021	-		0.730	Continuing	Continuing	-
Independent Verification and Validation - SOF Signals Intelligence Processing Exploitation, and Dissemination (SOF SIGINT PED)	MIPR	Various : Various	2.020	0.301	Mar 2019	0.615	Mar 2020	0.829	Mar 2021	-		0.829	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	1.788	-		-		-		-		-	0.000	1.788	-
Subtotal			31.037	3.397		4.574		4.516		-		4.516	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 (ENT/ASIF)	C/FFP	SITEC : Various	5.077	1.646	Mar 2019	0.259	Mar 2020	1.100	Mar 2021	-		1.100	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	0.576	-		-		-		-		-	0.000	0.576	-
Subtotal			5.653	1.646		0.259		1.100		-		1.100	Continuing	Continuing	N/A

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 PEO-Managed Enterprise / ASIF Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

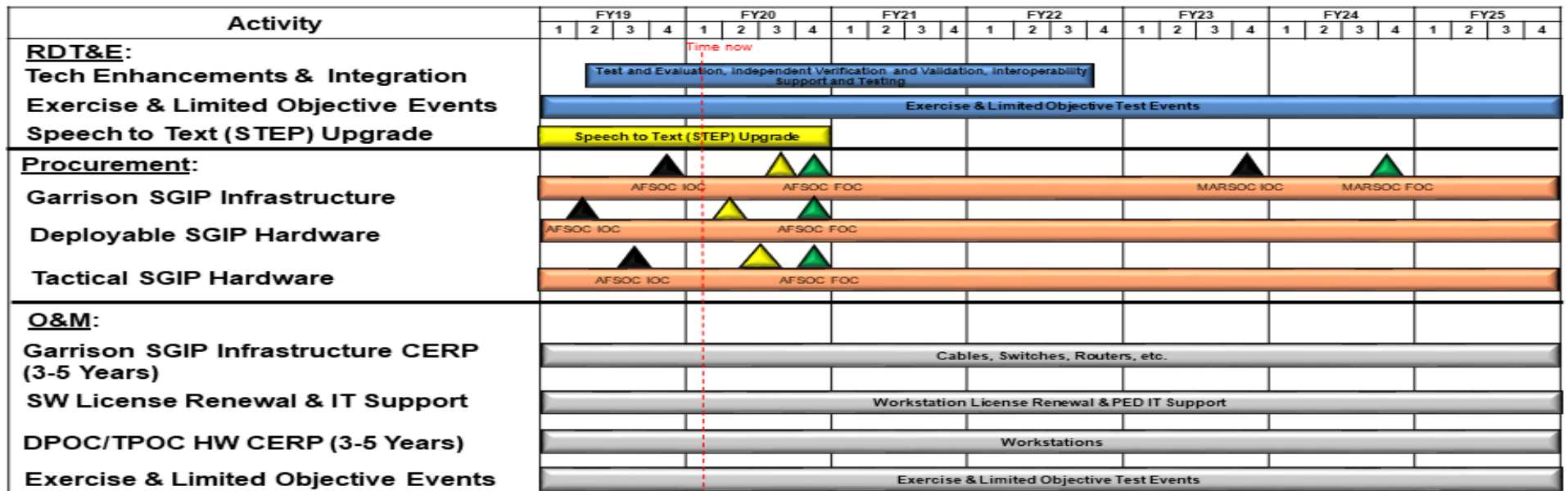
Date: February 2020

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 0305208BB / Distributed Common
Ground/Surface Systems

Project (Number/Name)
S400A / Distributed Common Ground/
Surface Systems

DCGS-SOF PEO-Managed SGIP Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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 PEO-Managed SOF SIGINT PED Schedule

Activity	FY19				FY20				FY21				FY22				FY23				FY24				FY25			
	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>																												
Tech Enhancements & Integration					Time now								Test and Evaluation, Independent Verification and Validation, Interoperability Support and Testing															
Exercise & Limited Objective Events	Exercise & Limited Objective Test Events																											
Language Enhancements	Language Enhancements																											
<u>Procurement:</u>																												
Communication SDNs	FOC for +1 BOI TSOC																											
CERP (3 Years)	CERP (3 Years)																											
<u>O&M:</u>																												
Network Support Service	24/7 Support Services																											
End User Support Service																												
Global Network Control Center																												
Garrison Partial CERP (3 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 2021 United States Special Operations Command		Date: February 2020
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 - Enterprise/ASIF</i>				
Tech Enhancements & Integration	1	2019	4	2025
Machine Learning and Artificial Intelligence Advancements	2	2019	4	2025
Exercise & Limited Objective Events	1	2019	4	2025
<i>Distributed Common Ground/Surface Systems - SGIP</i>				
Tech Enhancements & Integration	2	2019	4	2022
Exercise & Limited Objective Events	1	2019	4	2025
<i>Distributed Common Ground/Surface Systems - SOF SIGINT PED</i>				
Tech Enhancements & Integration	1	2021	4	2023
Exercise & Limited Objective Events	1	2019	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 1105219BB I MQ-9 Unmanned Aerial Vehicle (UAV)							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	113.559	17.745	20.697	21.265	-	21.265	19.446	19.847	20.310	20.716	Continuing	Continuing
S851: <i>MQ-9 Unmanned Aerial Vehicle (UAV)</i>	113.559	17.745	20.697	21.265	-	21.265	19.446	19.847	20.310	20.716	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. These technologies will be pursued via rapid prototyping efforts when appropriate.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	18.403	20.697	21.265	-	21.265
Current President's Budget	17.745	20.697	21.265	-	21.265
Total Adjustments	-0.658	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.658	-			

Change Summary Explanation

Funding:

FY 2019: Decrease of -\$0.658 million is due to a transfer to Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) programs.

FY 2020: None.

FY 2021: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S851: MQ-9 Unmanned Aerial Vehicle (UAV)	113.559	17.745	20.697	21.265	-	21.265	19.446	19.847	20.310	20.716	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. The majority of the developmental funds provides for the Operational Flight Software (OFP) for the aircraft, Ground Control Station, and Turret. SOF peculiar modifications to the OFP allow for a rapid integration of emerging capabilities in order to maintain relevance and dominance of the MQ-9 in support of the National Defense Strategy.

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

	FY 2019	FY 2020	FY 2021
Title: MQ-9 UAV	17.745	20.697	21.265
Description: Identifies, develops, 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.			
FY 2020 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 2021 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 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.568 million due to continued test and integration of SOF-peculiar emerging technology mission kits, mission payloads, weapons and modifications on MQ-9 UAVs, GCSs, and training systems.			
Accomplishments/Planned Programs Subtotals	17.745	20.697	21.265

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PROC/1108MQ9: MQ-9 Unmanned Aerial Vehicle	24.621	7.238	6.746	-	6.746	8.442	13.571	14.325	14.682	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 may require sole source contracting to the original equipment manufacturer. MQ-9 UAV leverages service common Contractor Logistics Support (CLS) contracts for aircraft and ancillary equipment sustainment.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	64.318	14.040	Oct 2018	16.538	Apr 2020	16.992	Feb 2021	-		16.992	Continuing	Continuing	-
MQ-9 UAVs, Ground Control Stations, and Training Systems	SS/ Various	Raytheon : McKinney, TX	9.945	1.292	Oct 2018	1.456	Apr 2020	1.496	Feb 2021	-		1.496	Continuing	Continuing	-
Prior Years Completed Projects	Various	Various : Various	15.900	-		-		-		-		-	0.000	15.900	-
Subtotal			90.163	15.332		17.994		18.488		-		18.488	Continuing	Continuing	N/A

Remarks
IDIQ awards every two years for MQ-9 UAVs, Ground Control Stations, and Training Systems

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	18.096	2.413	Jun 2019	2.703	Apr 2020	2.777	Feb 2021	-		2.777	Continuing	Continuing	-
Prior Years Completed Projects	Various	Various : Various	5.300	-		-		-		-		-	0.000	5.300	-
Subtotal			23.396	2.413		2.703		2.777		-		2.777	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		113.559	17.745	20.697	21.265	-	21.265	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

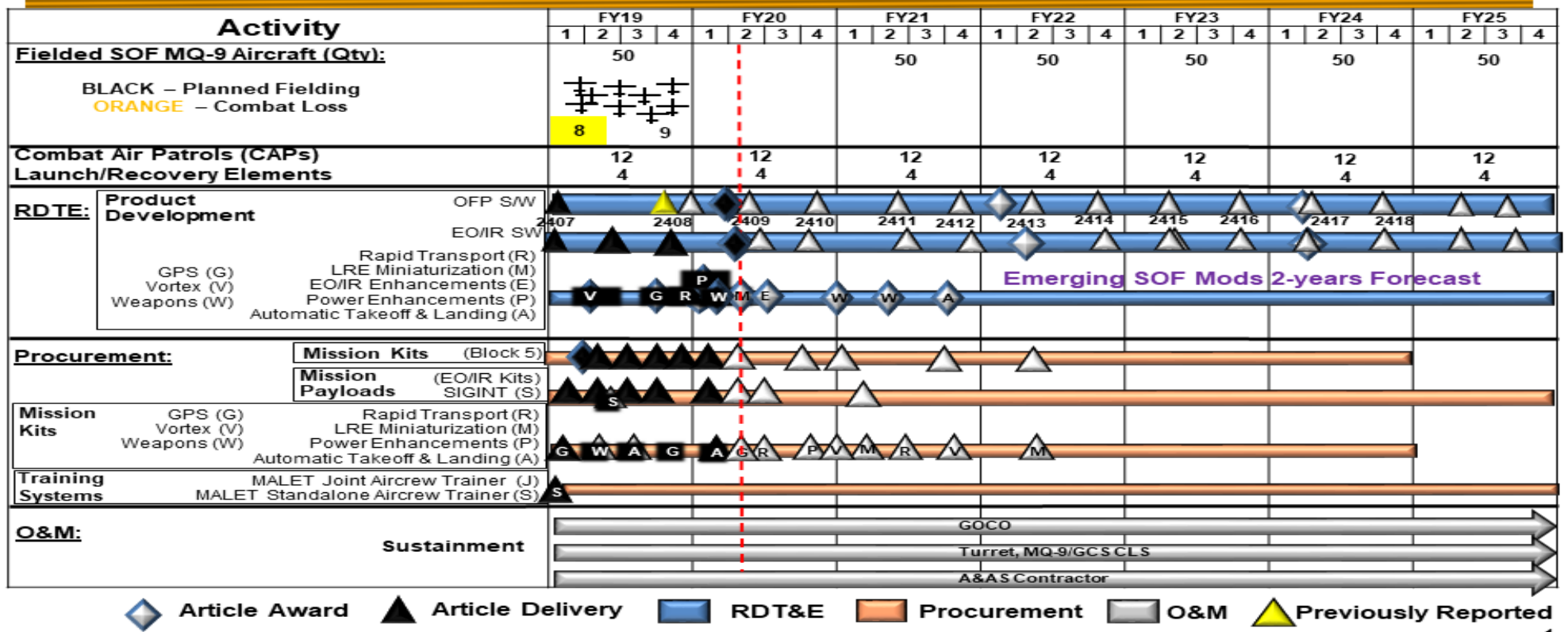
Date: February 2020

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 2021 United States Special Operations Command		Date: February 2020
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	2019	4	2025
Electro-optical/Infrared (EO/IR) Software (SW)	1	2019	4	2025
Weapons (W)	1	2020	2	2022
Global Positioning System (G)	3	2019	4	2020
Automated Takeoff and Landing (A)	4	2021	4	2022
Vortex Integration (V)	2	2019	3	2020
Long Range Endurance Miniaturization (M)	2	2020	2	2021
Power Enhancements (P)	3	2019	3	2020
EO/IR Enhancements (E)	3	2020	2	2021
Rapid Transport (R)	4	2019	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>Small Business Innovation Research/Small Bus Tech Transfer</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	244.272	18.445	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
S050: <i>Small Business Innovation Research</i>	234.094	16.171	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
S051: <i>Small Business Technology Transfer</i>	10.178	2.274	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 merit and feasibility of an idea. Phase II projects expand the results of, and further pursue, the developments of Phase I. Phase III commercializes 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 additionally seeks to expand public/private sector partnerships between small business and nonprofit U.S. research institutions.

B. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	18.445	0.000	0.000	-	0.000
Total Adjustments	18.445	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	18.445	-			

Change Summary Explanation

Funding:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019: Net increase of \$18.445 million is due to reprogramming from various program elements for the congressionally mandated SBIR (\$16.171 million) and STTR (\$2.274 million) programs.

FY 2020: None.

FY 2021: None.

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S050: <i>Small Business Innovation Research</i>	234.094	16.171	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 commercializes 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 2019	FY 2020	FY 2021
Title: Small Business Innovation Research (SBIR)	16.171	-	-
Accomplishments/Planned Programs Subtotals	16.171	-	-

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command											Date: February 2020		
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>					

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	19.651	9.681	Sep 2019	-		-		-		-	Continuing	Continuing	-
Phase II >\$750K	C/Various	Various : Various	15.932	6.490	Aug 2019	-		-		-		-	Continuing	Continuing	-
Prior Year Funding	C/Various	Various : Various	198.511	-		-		-		-		-	0.000	198.511	-
Subtotal			234.094	16.171		-		-		-		-	Continuing	Continuing	N/A

Remarks
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	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	234.094	16.171	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 2021 United States Special Operations Command			Date: February 2020		
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 2021 United States Special Operations Command		Date: February 2020
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	2019	3	2019
Phase II Efforts	2	2019	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S051: <i>Small Business Technology Transfer</i>	10.178	2.274	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 United States (U.S.) research institutions.

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

	FY 2019	FY 2020	FY 2021
<i>Title:</i> Small Business Technology Transfer (STTR)	2.274	-	-
Accomplishments/Planned Programs Subtotals	2.274	-	-

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

N/A

Remarks

D. Acquisition Strategy

STTR provides early-stage Research and Development funding directly to small companies working cooperatively with researchers at universities and other research institutions. STTR is also a three-phased program 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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
STTR Phase I <\$150K	C/FFP	Various Vendors : Various Locations	3.499	1.251	May 2019	-		-		-		-	Continuing	Continuing	-
STTR Phase II >\$750K	C/Various	Various Vendors : Various Locations	1.556	1.023	May 2019	-		-		-		-	Continuing	Continuing	-
Prior Year Funding	C/Various	Various : Various	5.123	-		-		-		-		-	0.000	5.123	-
Subtotal			10.178	2.274		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.178	2.274	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 2021 United States Special Operations Command			Date: February 2020		
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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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>																												
STTR Phase I Efforts																												
STTR Phase II Efforts																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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>				
STTR Phase I Efforts	1	2019	3	2020
STTR Phase II Efforts	2	2019	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	1,328.111	168.026	267.695	230.812	-	230.812	144.939	122.572	132.585	168.726	Continuing	Continuing
SF100: <i>Aviation Systems Advanced Development</i>	979.207	98.093	153.860	102.431	-	102.431	37.556	9.365	17.237	51.122	Continuing	Continuing
SF200: <i>CV-22</i>	15.936	27.344	28.081	16.773	-	16.773	9.634	17.942	18.360	18.727	Continuing	Continuing
SF300: <i>Armed Overwatch/ Targeting</i>	-	0.000	0.000	5.000	-	5.000	0.000	0.000	0.000	0.000	Continuing	Continuing
S750: <i>Mission Training and Preparation Systems</i>	34.573	7.251	8.595	9.630	-	9.630	9.548	9.747	9.972	10.172	Continuing	Continuing
S875: <i>AC/MC-130J</i>	47.277	16.480	29.391	55.083	-	55.083	53.742	54.797	56.069	57.182	Continuing	Continuing
D615: <i>Rotary Wing Aviation</i>	251.118	18.858	47.768	41.895	-	41.895	34.459	30.721	30.947	31.523	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; SOF Common Terrain Following/Terrain Avoidance (TF/TA) radar, best known as Silent Knight Radar (SKR) 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; Tactical Mission Networking (TMN), formerly known as 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; mission systems automation 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 (infill), exfiltration (exfill), and resupply to SOF 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, SOF communications, defensive/survivability systems, maneuverability, mission deployment and improved reliability and maintainability of the CV platform.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command	Date: February 2020
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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 1160403BB / <i>Aviation Systems</i>
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CV-22 SOF Common TF/TA SKR 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 AN/APQ-174/186 Multi-Mode Radar (MMR). The Full-azimuth Defensive Weapon System (FDWS), in combination with the ramp-mounted gun, provides a ~360 degree field of fire to suppress/eliminate enemy targets. The FDWS integrates the fielded GAU-17 belly gun system currently employed on the United States Marine Corps (USMC) MV-22 aircraft with the SOF peculiar Color Helmet Mounted Display (CHMD) and cockpit firing controls for pilot operation.

SF300: Armed Overwatch:

Armed Overwatch provides Special Operations Forces (SOF) deployable and sustainable aircraft systems fulfilling Close Air Support, Precision Strike, and SOF Intelligence, Surveillance & Reconnaissance (ISR) requirements in austere and permissive environments for the Countering-Violent Extremist Organizations mission. Armed Overwatch missions include: Armed ISR, Strike Coordination & Reconnaissance, and Airborne Forward Air Control. The funding in this project supports development, integration, prototype demonstrations, testing of SOF-unique capabilities and Air Worthiness Release efforts.

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.

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 provide clandestine single or multi-ship low-level aerial refueling for special operations helicopters and CV-22 aircraft; and conducts airdrops of leaflets, 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. Incremental upgrade and agile software delivery approaches will be used to rapidly prototype, integrate and mature SOF capabilities onto the aircraft. SOF capabilities include, but are not limited to: Airborne Mission Networking (AbMN), 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 (AFSOC) legacy C-130 fleet.

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 includes modifications to Aircraft Survivability Equipment (ASE), avionics, and weapons systems

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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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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 in the multi-domain operations (MDO) environments and against near peer threats. 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.

These technologies will be pursued via rapid prototyping efforts when appropriate.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	175.862	245.795	206.685	-	206.685
Current President's Budget	168.026	267.695	230.812	-	230.812
Total Adjustments	-7.836	21.900	24.127	-	24.127
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	16.000			
• Congressional Directed Transfers	-	8.400			
• Reprogrammings	-1.652	-			
• SBIR/STTR Transfer	-6.184	-			
• Other	-	-	24.127	-	24.127

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: *Classified Project*

Congressional Add Subtotals for Project: SF100

Project: D615: *Rotary Wing Aviation*

Congressional Add: *Future Vertical Lift (FVL)*

Congressional Add Subtotals for Project: D615

Congressional Add Totals for all Projects

	FY 2019	FY 2020
	3.000	-
	-	8.000
Congressional Add Subtotals for Project: SF100	3.000	8.000
	-	8.000
Congressional Add Subtotals for Project: D615	-	8.000
Congressional Add Totals for all Projects	3.000	16.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command Date: February 2020

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*

Change Summary Explanation

Funding:

FY 2019: Net decrease of \$7.836 million is due to transfer of funds to Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) reductions (-\$6.184 million) and funding made available to support emergent Command requirements in the year of execution (-\$1.652 million).

FY 2020: Net increase of \$13.900 million includes: \$8.000 million Congressional Add to Future Vertical Lift (FVL) enables engineering design work on SOF-peculiar requirements for two prototype Future Attack Reconnaissance Aircraft (FARA) air vehicles; while simultaneously executing prototype and engineering on other lines of effort; Future Long Range Assault Aircraft (FLRAA), Air Launched Effects (ALE) and Modular Open System Architecture (MOSA). Congressional add of net \$8.400 million is for Electronic Warfare Radio Frequency Countermeasures (EW-RFCM) to support product development, support, test and evaluation. Congressional directed reduction of \$2.500 million from Integrated Tactical Mission Systems (ITMS) due to unjustified growth.

FY 2021: Net increase of \$24.127 million is due to an increase for the Tactical (Airborne) Mission Networking (TMN) to explore capabilities to enable the rapid incorporation of advanced waveforms and the incorporation of advanced communications and networking hardware onto the ARSOA Aircraft (\$3.000 million); an increase in Future Vertical Lift (FVL) to deploy and integrate SOF-unique capabilities in the FVL Family of Systems (FoS) (\$2.000 million); the Improved Rotary Wing Electro-Optical Sensor (IRES) program, formerly known as Next Generation Forward Looking Infrared (NGFLR), to commence software changes to integrate onto AH-6, MH-6, and MH-60M platforms, and complete combined development and operations testing (\$3.500 million); an increase for the Aviation Engineering Analysis (AEA) to improve SOF aviation mission survivability (\$3.947 million); an increase for the CV-22 SOF Common TF/TA Silent Knight Radar (SKR) to continue integration and testing (\$6.680 million); and an increase of funding provided for the Armed Overwatch/Targeting program as a departmental directed requirement (\$5.000 million)

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
SF100: Aviation Systems Advanced Development	979.207	98.093	153.860	102.431	-	102.431	37.556	9.365	17.237	51.122	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 aviation and training requirements. Timely application of SOF Common technology is critical and necessary to meet requirements in such areas as: SOF common avionics; SOF Common Terrain Following/Terrain Avoidance (TF/TA) radar, best known as Silent Knight Radar (SKR) 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; Tactical Mission Networking (TMN), formerly known as 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; mission systems automation 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 2019	FY 2020	FY 2021
Title: EW – RFCM	17.094	53.139	52.934
Description: EW-RFCM supports development, integration, and test activities to provide Electronic Warfare (EW) capability against Radio Frequency (RF) threats for SOF-unique AC/MC-130J aircraft. The RFCM system is part of the Defensive Countermeasures (DCM) suite that provides situational awareness and threat response processing required for SOF missions.			
FY 2020 Plans: Reintroduce competition to address struggling vendor performance. Begin hardware in the Loop system demonstration activities for up to four vendors at Government labs to support a best value decision and program restart in 3QFY20. Remaining funds support incremental funding of the follow-on development contract for remaining aircraft integration, hardware and software qualification, software development, and developmental and operational test.			
FY 2021 Plans: Begins first test kit installations of new RFCM system for AC-130J and MC-130J aircraft, interoperability design with MC-130J SOF Common TF/TA Radar, and begins system developmental test. Continues aircraft integration, system qualification, and software deficiency resolution.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020		
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 2019	FY 2020	FY 2021
Decrease of \$0.205 million due to reduced Government test facility costs going from three vendor demonstrations in FY20 to one vendor developmental test in FY21.				
<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, 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 2020 Plans: Continue development, integration, test, and system improvement of the PSP, to include defensive systems, EO/IR sensors, and adverse weather and special mission processor capabilities on SOF C-130s and other SOF aircraft. Complete development of the infrared suppression system and other defensive systems.</p> <p>FY 2021 Plans: Continues development, integration, test, and system improvement of the PSP, to include defensive systems, EO/IR sensors, and adverse weather and special mission processor capabilities on SOF C-130s and other SOF aircraft.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$23.899 million is due to the expected completion of developing the infrared suppression system and other defensive systems.</p>		14.697	28.528	4.629
<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 2020 Plans: Take receipt of subsystems ordered and begin assembly of subsystems into weapon systems. Begin integration and ground testing of assembled subsystems. Complete purchase of developmental long lead items.</p> <p>FY 2021 Plans: Continues assembly of subsystems into weapon systems. Continues integration and ground testing of assembled subsystems. Begins flight testing of subsystems.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>		26.022	27.227	24.195

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021
Decrease of \$3.032 million is due to completion of purchase of developmental long lead items.			
<p>Title: C-130 SOF Common TF/TA SKR</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 MC-130 tankers and penetrators.</p> <p>FY 2020 Plans: Continue MC-130J TF/TA developmental flight test on aircraft modified with SOF Common TF/TA radar. Begin development and interoperability testing on MC-130J TF/TA radar and airborne mission networking systems. Complete MC-130J SOF Common TF/TA SKR development and integration testing.</p> <p>FY 2021 Plans: Completes MC-130J TF/TA developmental flight test and integration testing on aircraft modified with SOF Common TF/TA radar. Continues development and interoperability testing on MC-130J TF/TA systems, electronic warfare systems, and airborne mission networking systems. Trains AFSOC aircrews on an MC-130J modified with a SOF Common TF/TA SKR for operational testing. Resolves deficiencies reported during developmental or operational flight testing.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$20.068 million is due to the completion of MC-130J SOF Common TF/TA SKR development and integration testing.</p>	32.477	32.524	12.456
<p>Title: MH-47/MH-60 SOF Common TF/TA SKR</p> <p>Description: MH-47/MH-60 SOF Common TF/TA (Silent Knight) radar supports continuing capability enhancements, testing, and qualification of the TF/TA Low Probability of Intercept and Low Probability of Detection (LPI/LPD) radar to defeat advanced passive detection threats while maintaining safe Terrain Following (TF) capabilities.</p> <p>FY 2020 Plans: Continues software spiral efforts to include design, development, integration, and testing of SOF Common TF/TA SKR to reduce Terrain Following signature, improve Aircraft Survivability Equipment (ASE) interoperability support, sensor fusion initiatives, and increase reliability.</p> <p>FY 2021 Plans:</p>	3.089	2.476	2.362

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020		
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 2019	FY 2020	FY 2021
Continues software spiral efforts to include design, development, integration, and testing of SOF Common TF/TA SKR to reduce Terrain Following signature, improve ASE interoperability support, sensor fusion initiatives, and increase reliability. FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.114 million is due to minor adjustments.				
Title: ISR Payload 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. FY 2020 Plans: Continue spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing. FY 2021 Plans: Continues spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing. FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.058 million is due to minor adjustments.		1.214	1.966	1.908
Title: Aviation Engineering Analysis (AEA) 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 2021 Plans: Performs engineering analysis 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. FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$3.947 million is due to transfer from SOF Advanced Technology Development (PE 1160402BB).		-	-	3.947
Title: Avionics Modifications (AVNCS) Description: Funding supports software development and integration for the MC/EC-130J GPS Hardening effort.		0.500	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021
Accomplishments/Planned Programs Subtotals	95.093	145.860	102.431

	FY 2019	FY 2020
Congressional Add: Vertical Takeoff and Landing (VTOL) Unmanned Aircraft System (UAS) Research <i>FY 2019 Accomplishments:</i> Funds to be reprogrammed to the Army.	3.000	-
Congressional Add: Classified Project <i>FY 2020 Plans:</i> Details provided under Separate Cover	-	8.000
Congressional Adds Subtotals	3.000	8.000

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/5000C13000: <i>C-130 Modifications</i>	72.942	15.582	20.414	-	20.414	14.985	15.545	18.217	18.595	Continuing	Continuing
• PROC/2012C130J: AC/MC-130J	163.181	143.232	163.914	-	163.914	213.649	296.535	322.669	333.789	Continuing	Continuing
• PROC/1202PSP: <i>Precision Strike Package</i>	229.674	232.930	243.111	-	243.111	167.714	141.180	134.636	137.334	Continuing	Continuing
• PROC0201RWUPGR: Rotary <i>Wing Upgrades and Sustainment</i>	148.907	172.020	211.041	-	211.041	230.870	247.497	267.854	258.750	Continuing	Continuing

Remarks

D. Acquisition Strategy

- EC-130J Upgrades: Operational Flight Program (OFF) 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, Warrior Systems, 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: Scope current contract with BAE Systems to a B-Kit demonstration, and in parallel, execute three Other Transaction Authority (OTA) demonstrations with new industry partners for a best value decision and follow on award for remaining development effort in 3QFY20.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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>
<ul style="list-style-type: none">• 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 (NSWC) Dahlgren Division as the government Lead System Integrator of HEL components. HEL system components are either purchased under Defense Ordinance Technology Consortium OTA or developed and assembled by NSWC Dahlgren. Both of these approaches provide flexibility for rapid prototyping.• C-130 SOF Common TF/TA SKR: Awarded delivery order on Cost Plus Incentive Fee (CPIF) contract to integrate and test the SOF Common TF/TA SKR on MC-130J aircraft and develop modifications to aircraft displays and controls.• MH-47/MH-60 SOF Common TF/TA SKR: Continue software spiral development to improve the reliability and usability of the radar.• 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 Command and Control and Communications systems as appropriate.• Aviation Engineering Analysis: Utilize DoD Information Analysis Center sponsored by the Defense Technical Information Center (DTIC) to analyze aircraft survivability and recommend material solutions for demonstration and potential integration on Fixed Wing aircraft.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	-
Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)	C/CPIF	BAE Systems, Inc. : Totowa, NJ	140.061	13.494	Nov 2018	-		-		-		-	0.000	153.555	-
EW - RFCM B-Kit Competitive Demonstration	C/FFP	Various : Various	-	-		10.050	Nov 2019	-		-		-	0.000	10.050	-
EW - RFCM Follow-on Development Contract	C/TBD	TBD : TBD	-	-		34.089	May 2020	44.534	Nov 2020	-		44.534	Continuing	Continuing	-
Precision Strike Package (PSP) for SOF - Defensive Systems	C/Various	Various : Various	2.510	6.750	Jan 2019	18.641	Jan 2020	-		-		-	0.000	27.901	-
PSP for SOF - Deficiency Resolution	C/Various	Various : Various	0.600	1.400	Jan 2019	4.789	Mar 2020	-		-		-	0.000	6.789	-
PSP for SOF - Adverse Weather	C/Various	Various : Various	3.240	0.192	Jan 2019	1.000	Mar 2020	4.380	Jan 2021	-		4.380	Continuing	Continuing	-
PSP for SOF - Alternate Position, Navigation & Timing	C/Various	Various : Various	3.708	5.652	Dec 2019	-		-		-		-	0.000	9.360	-
PSP High Energy Laser (HEL) - Risk Reduction	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	1.300	3.400	Jan 2019	-		-		-		-	0.000	4.700	-
PSP HEL - High Power Laser	C/CPFF	Lockheed Martin Aculite : Bothell, WA	3.750	13.250	Dec 2018	-		2.300	Nov 2020	-		2.300	0.000	19.300	-
PSP HEL - Subsystem Assembly	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	5.658	Mar 2019	10.127	Jan 2020	6.690	Jan 2021	-		6.690	Continuing	Continuing	-
PSP HEL - Battery Development	C/CPFF	General Technical Services : Wall, NJ	-	1.914	Feb 2019	3.600	Jan 2020	-		-		-	0.000	5.514	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 HEL - Thermal Development	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	1.800	Jan 2019	6.500	Jan 2020	-		-		-	0.000	8.300	-
PSP HEL - Integration and Ground Testing	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	-		7.000	Jan 2020	12.905	Jan 2021	-		12.905	Continuing	Continuing	-
PSP HEL-Flight Testing/ Demonstration	C/CPFF	Various : Various	-	-		-		2.300	Mar 2021	-		2.300	Continuing	Continuing	-
C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) Silent Knight Radar (SKR)	C/CPIF	Lockheed Martin Aero : Marietta, GA	165.926	21.955	Jan 2019	19.407	Jan 2020	5.847	Jan 2021	-		5.847	Continuing	Continuing	-
MH-47/MH-60 SOF Common TF/TA SKR	SS/FP	Raytheon : McKinney, TX	9.553	1.877	Apr 2019	1.733	Apr 2020	1.653	Apr 2021	-		1.653	Continuing	Continuing	-
Intelligence, Surveillance, and Reconnaissance Payload (ISR)	Various	Various : Various	4.328	1.214	Apr 2019	1.966	Nov 2019	1.908	Nov 2020	-		1.908	Continuing	Continuing	-
Aviation Engineering Analysis (AEA) – Aircraft Survivability Analysis	C/CPFF	DSIAC : Belcamp, MD	-	-		-		1.500	Jan 2021	-		1.500	Continuing	Continuing	-
AEA – Alternate Position Navigation and Timing Demo	C/CPFF	SRI : Menlo, CA	-	-		-		2.447	Jan 2021	-		2.447	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	346.629	-		-		-		-		-	0.000	346.629	-
C-130 Avionics Modifications	C/CPFF	Lockheed Martine : SOFSA Lexington, KY	-	0.500	Sep 2019	-		-		-		-	0.000	0.500	-
Classified Project	C/Various	Under Separate Cover : Under Separate Cover	-	-		8.000		-		-		-	Continuing	Continuing	-
Subtotal			681.605	82.056		126.902		86.464		-		86.464	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 SKR	C/CPIF	Various : Various	14.230	1.859	Jan 2019	3.887	Dec 2019	1.185	Dec 2020	-		1.185	Continuing	Continuing	-
EW-RFCM	C/Various	Robins AFB : Warner Robins, GA	20.334	3.600	Jan 2019	5.919	Jan 2020	3.400	Jan 2021	-		3.400	Continuing	Continuing	-
PSP for SOF - Other Government Costs	C/Various	Various : Various	2.960	0.703	Sep 2019	4.098	Apr 2020	0.249	Feb 2021	-		0.249	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	28.802	-		-		-		-		-	0.000	28.802	-
Subtotal			66.326	6.162		13.904		4.834		-		4.834	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
EW-RFCM	C/Various	Robins AFB : Warner Robins, GA	8.380	-		3.081	Dec 2019	5.000	Dec 2020	-		5.000	Continuing	Continuing	-
C-130 SOF Common TF/ TA SKR	C/CPIF	Various : Various	27.699	8.000	Jan 2019	9.230	Dec 2019	5.424	Dec 2020	-		5.424	Continuing	Continuing	-
MH-47/MH-60 SOF Common TF/TA SKR	SS/FP	Various : Various	124.159	1.212	Jan 2019	0.743	Jan 2020	0.709	Jan 2021	-		0.709	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	29.130	-		-		-		-		-	0.000	29.130	-
Subtotal			189.368	9.212		13.054		11.133		-		11.133	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 SKR	C/CPIF	Various : Various	10.742	0.663	Jan 2019	-		-		-		-	0.000	11.405	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

Date: February 2020

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 PEO Managed Schedule

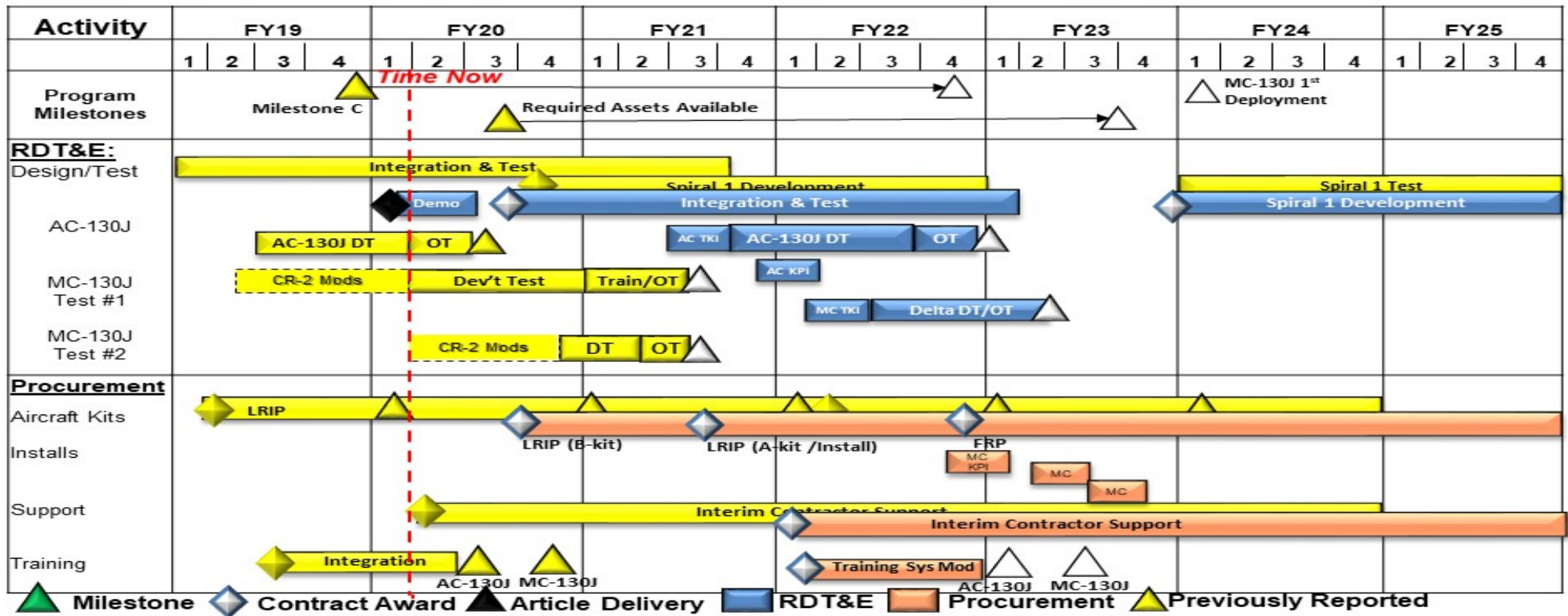
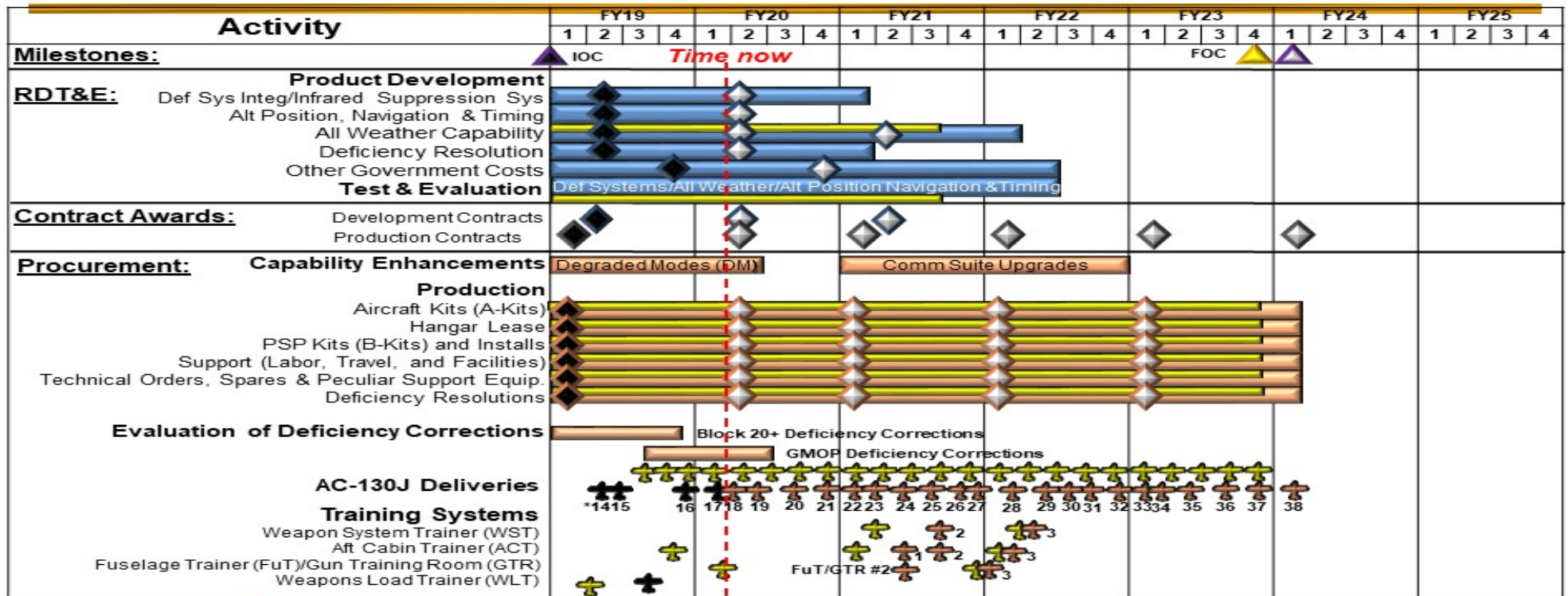


Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

AC-130J/PSP PEO Managed Schedule



▲ Milestones
 ◆ Contract Award
 ✈ Article Delivery
 ■ RDT&E
 ■ Procurement
 ▲ Previously Reported

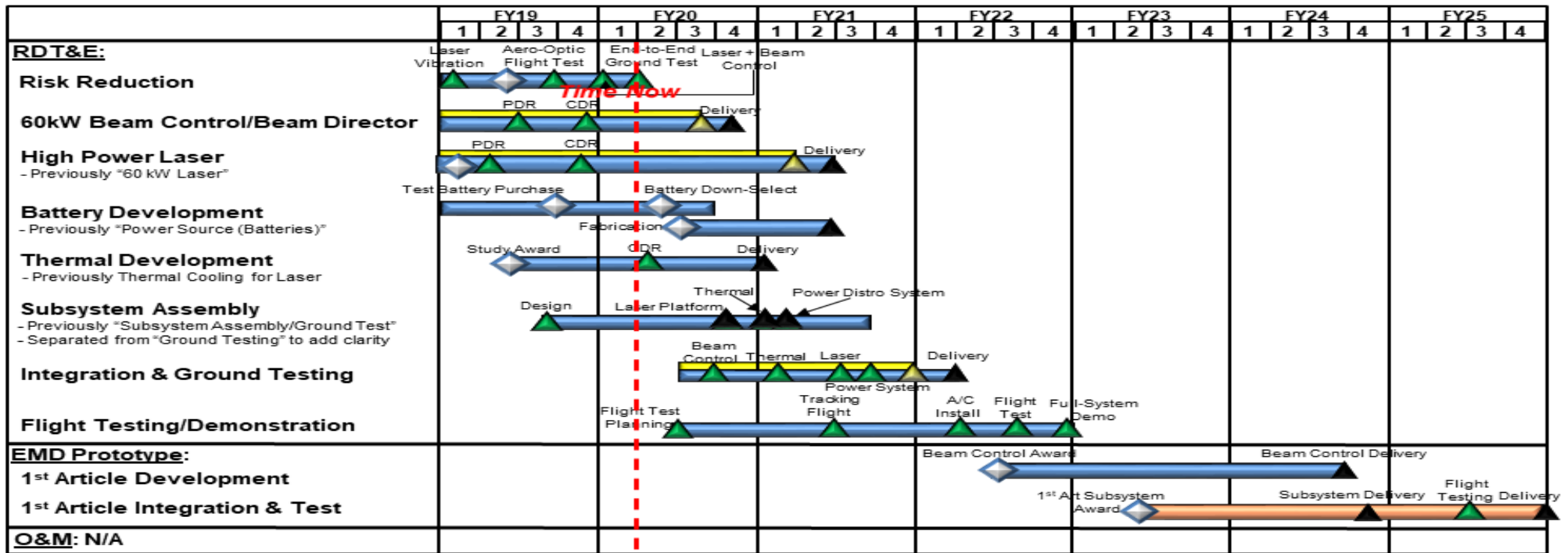
*A/C14 – first article with GMOP, cheek racks & Combat System Operator station

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command Date: February 2020

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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AC-130J High Energy Laser Schedule PEO-Managed Schedule

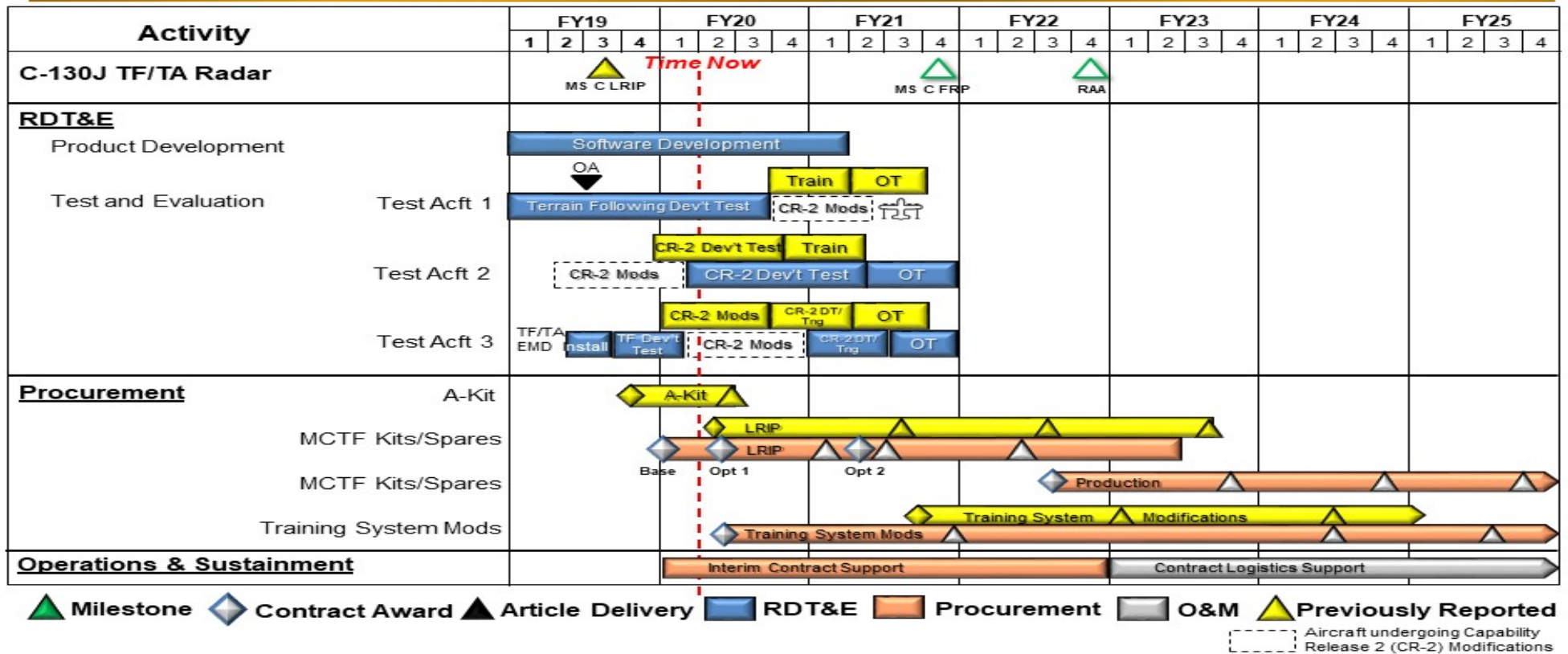


▲ FOC
 ▲ Milestone
 ◆ Contract Award
 ▲ Article Delivery
 ▬ RDT&E
 ▬ Procurement
 ▬ O&M
 ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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 Silent Knight Radar (SKR) PEO Managed Schedule

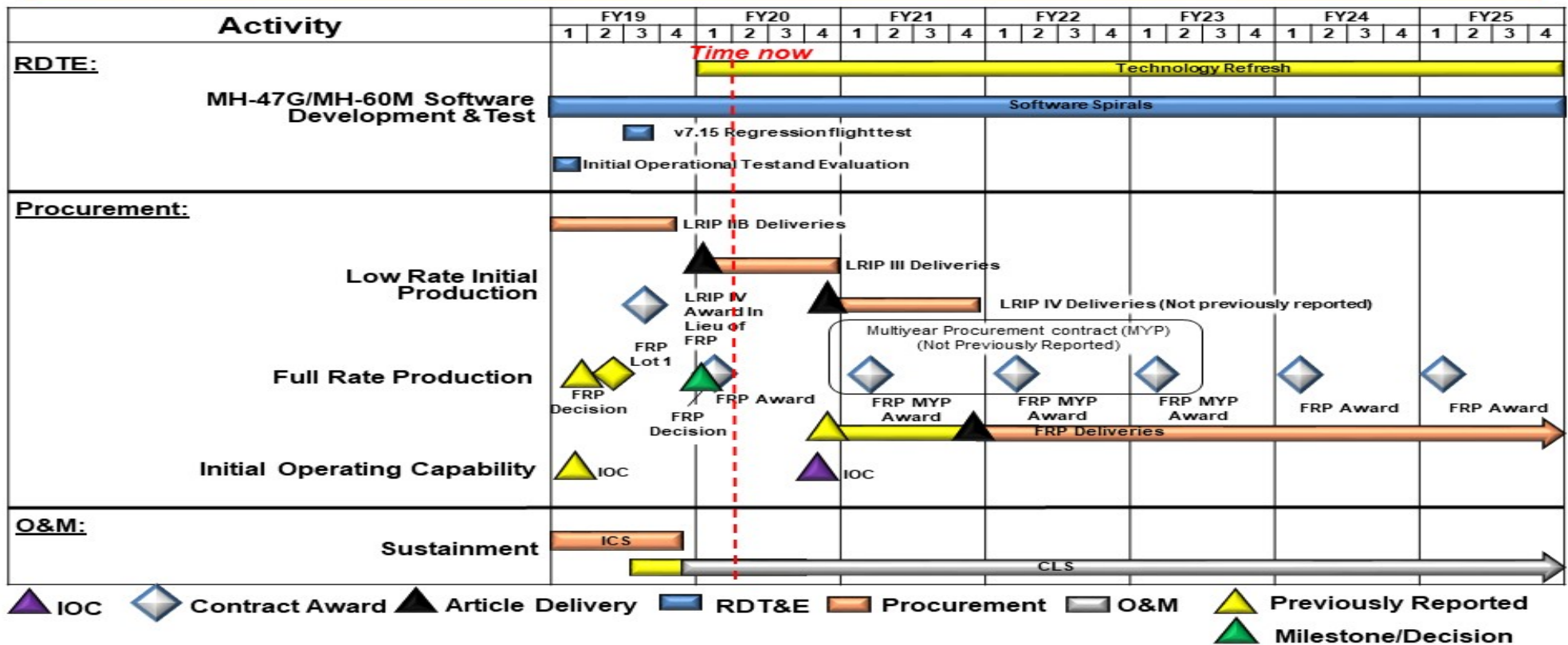


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
SF100 / Aviation Systems Advanced
Development

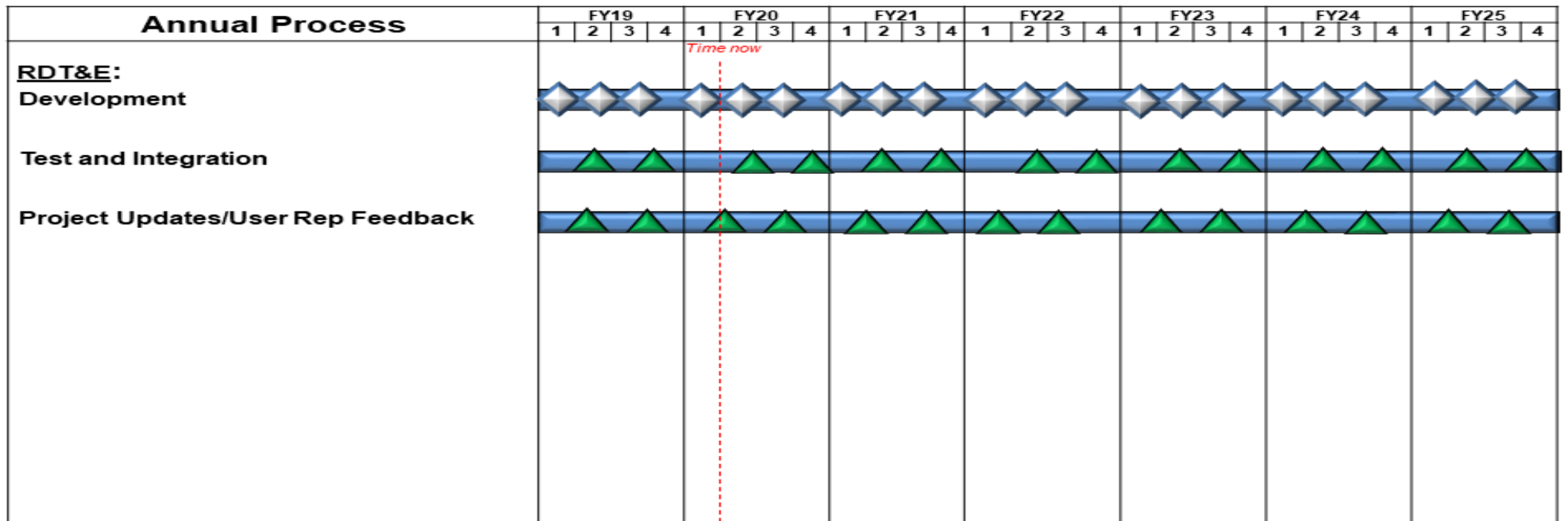
MH-47/MH-60 SOF Common TF/TA (Silent Knight) Radar PEO-Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

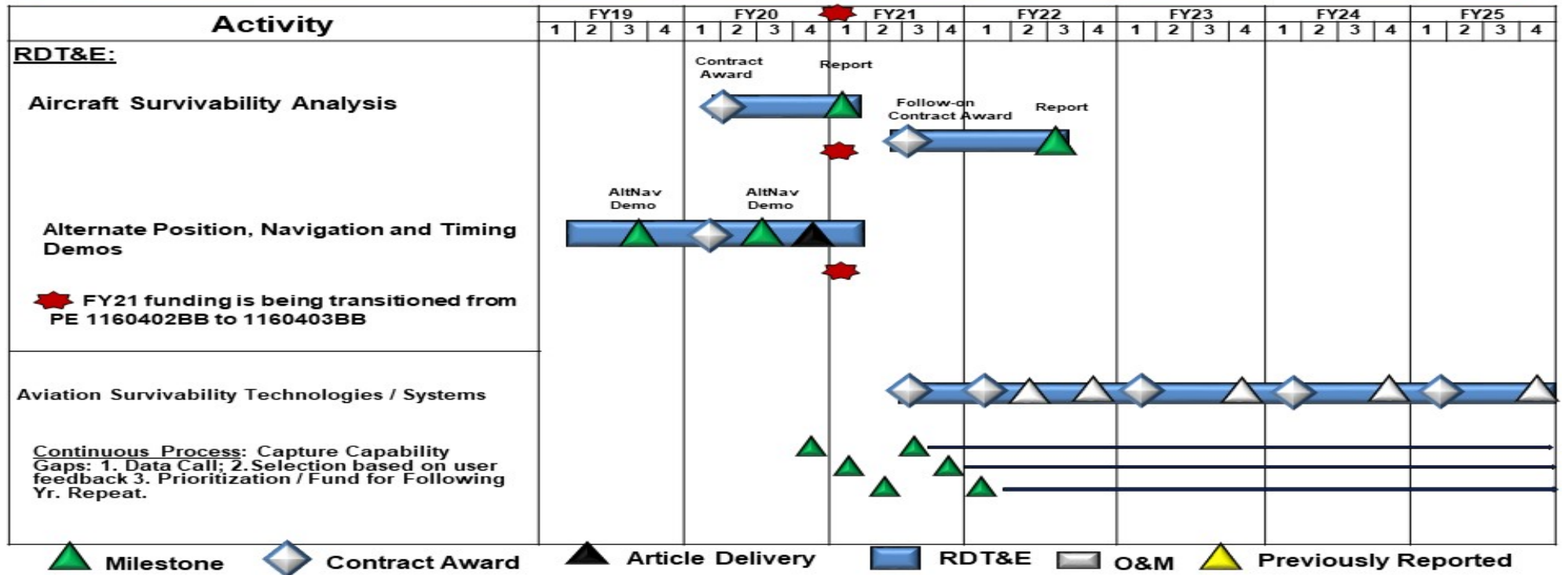
Intelligence, Surveillance, and Reconnaissance (ISR) Payload Sub-Project PEO-Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF100 / Aviation Systems Advanced Development

Aviation Engineering Analysis (AEA) PEO Managed Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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
Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)				
Product Development, Integration and Test	3	2020	1	2023
Spiral 1 Development	1	2024	4	2025
Development Test and Operational Test (DT/OT) AC-130J	2	2021	4	2022
Development Test and Operational Test #1 (DT/OT) MC-130J	3	2022	2	2023
Precision Strike Package (PSP) for SOF				
Defensive Systems Product Development	1	2019	1	2021
Alternate Position, Navigation and Timing Product Development	1	2019	2	2020
Adverse Weather Product Development	1	2019	1	2022
Deficiency Resolution Product Development	1	2019	1	2021
Other Capability Enhancements Product Development	1	2019	2	2022
Capability Enhancements Test and Evaluation	1	2019	2	2022
PSP High Energy Laser (HEL)				
PSP HEL Risk Reduction	1	2019	2	2020
PSP HEL 60kW Beam Control/Beam Director	1	2019	4	2020
PSP HEL High Power Laser	1	2019	2	2021
PSP HEL Battery Development	1	2019	2	2021
PSP HEL Thermal Development	2	2019	1	2021
PSP HEL Subsystem Assembly	3	2019	3	2021
PSP HEL Integration and Ground Testing	3	2020	1	2022
PSP HEL Flight Testing/Demonstration	2	2020	4	2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) Silent Knight Radar (SKR)</i>				
Software Development	1	2019	1	2021
Development/Flight Testing	1	2019	2	2021
Operational Testing	2	2021	4	2021
<i>MH-60/MH-47 SOF Common (TF/TA) SKR</i>				
MH-47G/MH-60M Product Development & Test (Software Spirals)	1	2019	4	2025
Regression Flight Test	3	2019	3	2019
Initial Operation Test and Evaluation	1	2019	1	2019
<i>Intelligence, Surveillance, and Reconnaissance (ISR) Payload</i>				
Development	1	2019	4	2025
Testing and Integration	1	2019	4	2025
Project Update/User Rep Feedback	1	2019	4	2025
<i>Aviation Engineering Analysis (AEA)</i>				
Aircraft Survivability Analysis	1	2020	3	2022
Alternate Position, Navigation, and Timing Demo	1	2019	1	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
SF200: CV-22	15.936	27.344	28.081	16.773	-	16.773	9.634	17.942	18.360	18.727	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 SOF 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, SOF communications, avionics, defensive/survivability systems, 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 (SKR): 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.

CV-22 Block 20 Systems: 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, ISR, weapons, SOF communications, avionics, defensive/survivability systems, maneuverability, mission deployment, improved reliability and maintainability of the CV platform. Included within Block 20 is the Full-azimuth 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 United States Marine Corps 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 2019	FY 2020	FY 2021
Title: CV-22 SOF Common TF/TA SKR	27.344	27.587	14.644
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 AN/APQ-174/186 Multi-Mode Radar (MMR) currently integrated on CV-22 aircraft. This effort includes development of the CV-22 SOF Common TF/TA SKR Operational Flight Program (OFP) software, and development of CV-22 platform software and hardware to support integration and test.			
FY 2020 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) SF200 / CV-22

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>Continue integration/testing of CV-22 SOF Common TF/TA SKR Operational Flight Program (OFF) software development and continues integration/testing of the CV-22 SOF Common TF/TA (Silent Knight) radar.</p> <p>FY 2021 Plans: Continues integration/testing of CV-22 SOF Common TF/TA SKR Operational Flight Program (OFF) software development and continues integration/testing of the CV-22 SOF Common TF/TA (Silent Knight) radar.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$12.943 million is due to transitioning to final phases of developmental testing of CV-22 SOF Common TF/TA SKR.</p>			
<p>Title: CV-22 Block 20 Systems</p> <p>Description: Improves situational awareness, weapons, avionics, survivability, maneuverability, mission deployment, reliability, and maintainability of the CV-22 platform. Included within Block 20 is the Full-azimuth 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.</p> <p>FY 2020 Plans: Continue engineering and integration/testing of Block 20 FDWS onto CV-22. Previous efforts leading up to FY20 were MFP-4 funded.</p> <p>FY 2021 Plans: Continues engineering integration/testing of Block 20 FDWS onto CV-22. Previous efforts leading up to FY20 were MFP-4 funded.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$1.635 million is due to increased engineering and integration/testing of the Block 20 FDWS onto CV-22.</p>	-	0.494	2.129
Accomplishments/Planned Programs Subtotals	27.344	28.081	16.773

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PROC/1000CV22: CV-22 SOF Modification	34.029	17.256	14.829	-	14.829	38.770	45.569	70.188	71.591	Continuing	Continuing
• PROC/V022A0: Aircraft Procurement CV-22 (MYP)	-	-	-	-	-	-	-	-	-	0.000	4,415.234

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDT&E1/0401318F: <i>RDT&E, USAF</i>	18.502	16.606	14.873	-	14.873	15.183	15.459	-	-	64.350	225.577
• RDT&E/0604262N: <i>V-22 RDT&E, N BA-05</i>	143.079	184.705	133.425	-	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 SKR was developed by USSOCOM to provide a SOF Common TF/TA capability for SOF aircraft. The SKR replaces the obsolescing APQ-186 TF/TA multimode radar on the CV-22. The acquisition strategy for the CV-22 SOF Common TF/TA SKR program is to procure radar units and radar software modifications through the USSOCOM SKR program management office, buy aircraft modification kits, and integrate SKR into CV-22 aircraft using a mixture of both sole source and competitive contracts.

The Block 20 Full-azimuth Defensive Weapon System (FDWS) will be based on modifications to the legacy Defensive Weapon System (DWS) currently fielded on USMC MV-22 aircraft and previously ground tested on a CV-22. These modifications will integrate the DWS with the CV-22 pilots color helmet mounted displays and cockpit controls to correct deficiencies/improve system effectiveness. They will be awarded on a competitive EMD contract for development.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 (SKR) - Operational Flight Program (OFF) Development	C/CPFF	Various : Various	5.417	13.985	Nov 2018	16.123	Nov 2019	7.720	Nov 2020	-		7.720	Continuing	Continuing	-
CV-22 SF Common TF/TA SKR- Integration	C/CPFF	Various : Various	5.774	12.434	Feb 2019	9.082	Feb 2020	3.982	Nov 2020	-		3.982	Continuing	Continuing	-
CV-22 Block 20 Systems	Various	Various : Various	1.057	-		0.494	Feb 2020	2.129	Nov 2020	-		2.129	Continuing	Continuing	-
Subtotal			12.248	26.419		25.699		13.831		-		13.831	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 - OFF	C/CPFF	Various : Various	1.241	0.404	Nov 2018	1.132	Nov 2019	2.412	Nov 2020	-		2.412	Continuing	Continuing	-
CV-22 SF Common TF/ TA (Silent Knight) Radar - Integration	C/CPFF	Various : Various	0.511	0.521	Feb 2019	1.250	Feb 2020	0.530	Nov 2020	-		0.530	Continuing	Continuing	-
Prior Year	Various	Various : Various	1.936	-		-		-		-		-	0.000	1.936	-
Subtotal			3.688	0.925		2.382		2.942		-		2.942	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.936	27.344	28.081	16.773	-	16.773	Continuing	Continuing	N/A

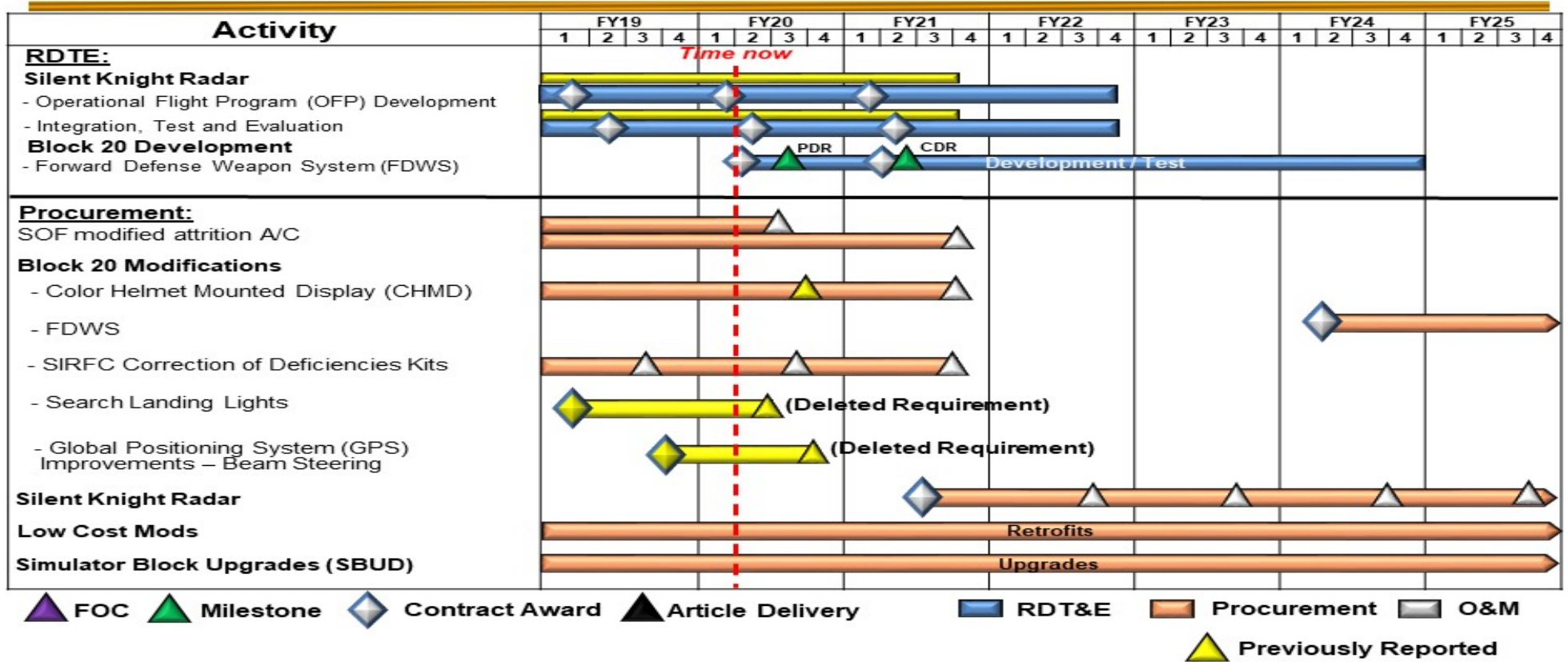
Remarks

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
SF200 / CV-22

CV-22 PEO-Managed Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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	1	2019	4	2022
SOF Common TF/TA (Silent Knight) Radar - Radar Integration, Test & Evaluation	1	2019	4	2022
Block 20 Full-azimuth Defensive Weapon System (FDWS) Development/Test	2	2020	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	Project (Number/Name) SF300 / <i>Armed Overwatch/Targeting</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
SF300: <i>Armed Overwatch/Targeting</i>	-	0.000	0.000	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

Armed Overwatch provides Special Operations Forces (SOF) deployable and sustainable aircraft systems fulfilling Close Air Support, Precision Strike, and SOF Intelligence, Surveillance & Reconnaissance (ISR) requirements in austere and permissive environments for the Countering-Violent Extremist Organizations mission. Armed Overwatch missions include: Armed ISR, Strike Coordination & Reconnaissance, and Airborne Forward Air Control. The funding in this project supports development, integration, prototype demonstrations, testing of SOF-unique capabilities and Air Worthiness Release efforts.

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

	FY 2019	FY 2020	FY 2021
Title: Armed Overwatch/Targeting	-	-	5.000
Description: The funding in this project supports development, integration, prototype demonstrations, testing of SOF-unique capabilities and Air Worthiness Release efforts.			
FY 2021 Plans: Initiates and completes development, integration, prototype demonstrations, testing of SOF-unique capabilities and Air Worthiness Release efforts.			
FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$5.000 million provided as a departmental directed requirement from the United States Air Force (Program Element 0207100F transfer).			
Accomplishments/Planned Programs Subtotals	-	-	5.000

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/0201ARMOWT: <i>Armed Overwatch/Targeting</i>	-	-	101.000	-	101.000	170.000	204.000	208.000	210.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

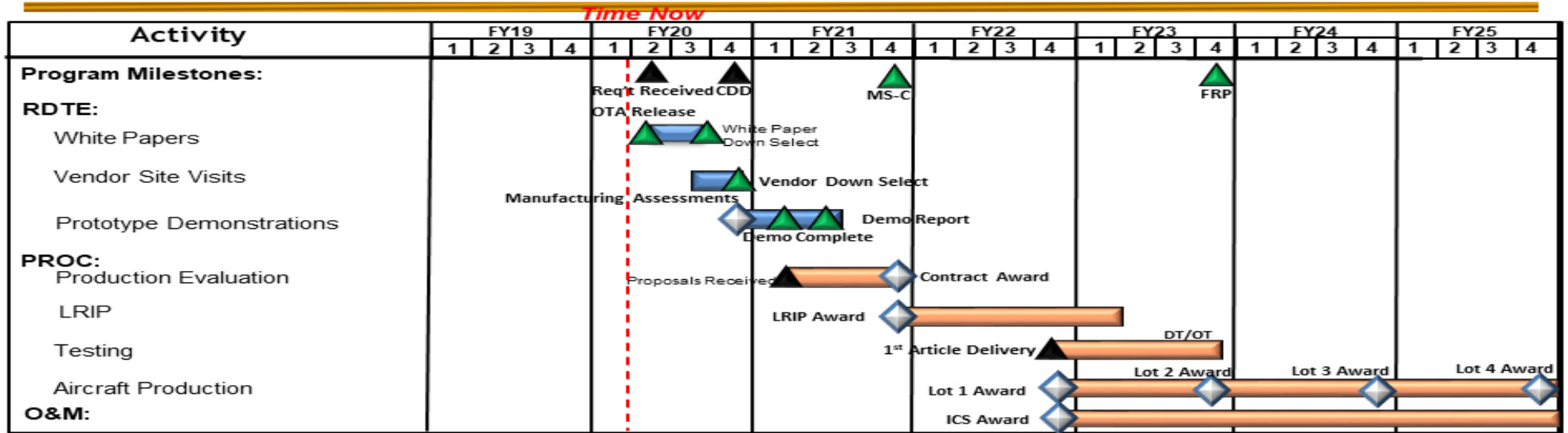
Armed Overwatch/Targeting: These technologies will be pursued via rapid prototyping and/or rapid fielding, when appropriate, to industry partners for flight demonstrations in FY21. The demonstrations will inform a best value decision for follow on production contract.

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
SF300 / Armed Overwatch/Targeting

Armed Overwatch/Targeting PEO-Managed Schedule



▲ 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 2021 United States Special Operations Command **Date:** February 2020

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	Project (Number/Name) SF300 / <i>Armed Overwatch/Targeting</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Armed Overwatch/Targeting</i>				
Prototype Testing/Demonstration	1	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S750: Mission Training and Preparation Systems	34.573	7.251	8.595	9.630	-	9.630	9.548	9.747	9.972	10.172	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 2019	FY 2020	FY 2021
Title: Special Operations Mission Planning and Execution (SOMPE)	7.251	8.595	9.630
<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 (UAS) 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 (TSOC), Joint Special Operations Task Forces, Joint Special Operations Aviation Components, SOF warfighters, and SOF warfighter platforms.</p> <p>FY 2020 Plans: Continue 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. Continue updates to mission planning, data transfer, and performance software. Continue development of software applications for smaller mobile computer devices (tablets, smart phones, etc).</p> <p>FY 2021 Plans:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021
<p>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 updates to mission planning, data transfer, and performance software. Continues development of software applications for smaller mobile computer devices (tablets, smart phones, etc).</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$1.035 million is due to product development and integration of new software capabilities within the Mission Planning and Execution Application.</p>			
Accomplishments/Planned Programs Subtotals	7.251	8.595	9.630

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	27.314	6.073	Jan 2019	7.032	Jan 2020	7.880	Jan 2021	-		7.880	Continuing	Continuing	-
Subtotal			27.314	6.073		7.032		7.880		-		7.880	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	2.326	0.371	Feb 2019	0.388	Feb 2020	0.434	Feb 2021	-		0.434	Continuing	Continuing	-
Subtotal			2.326	0.371		0.388		0.434		-		0.434	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	4.933	0.807	Jan 2019	1.175	Jan 2020	1.316	Jan 2021	-		1.316	Continuing	Continuing	-
Subtotal			4.933	0.807		1.175		1.316		-		1.316	Continuing	Continuing	N/A

			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			34.573	7.251	8.595	9.630	-	9.630	Continuing	Continuing	N/A

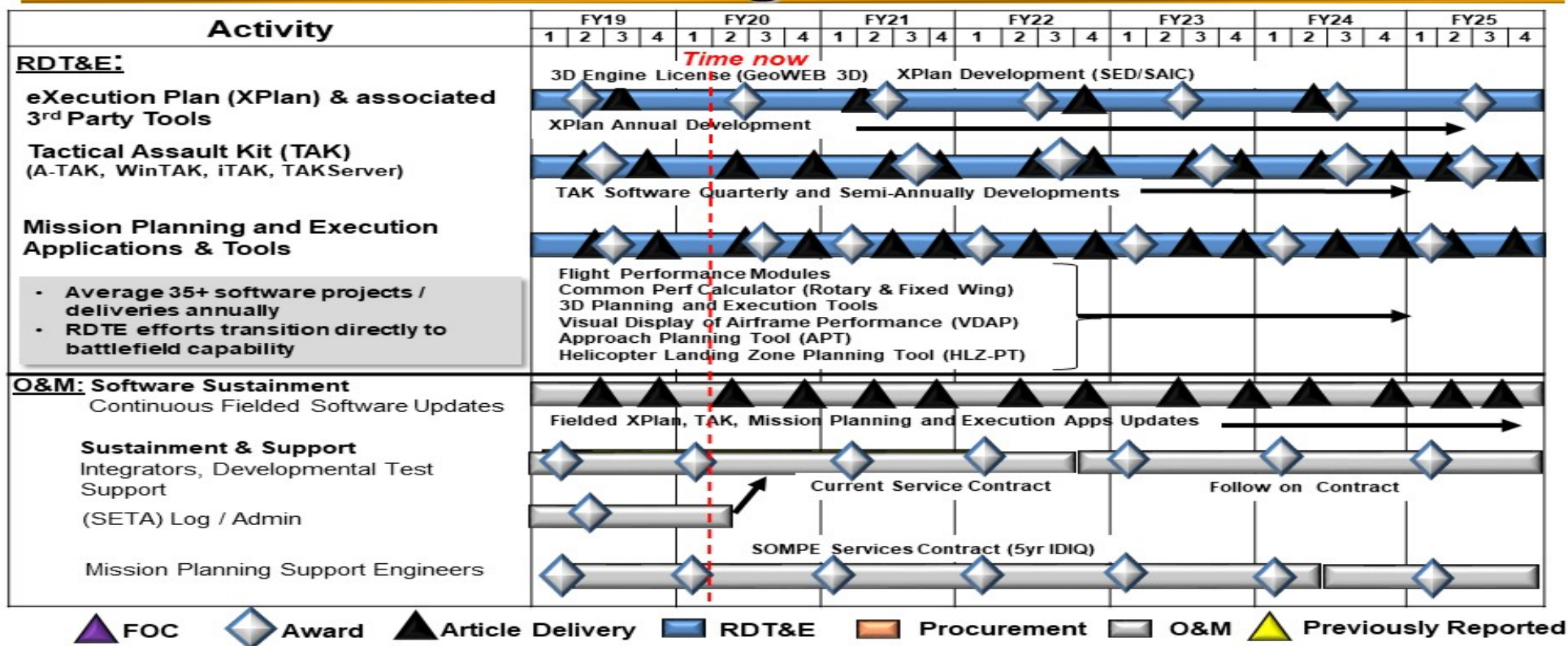
Remarks

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 & Execution (SOMPE) PEO Managed Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / <i>Aviation Systems</i>	Project (Number/Name) S750 / <i>Mission Training and Preparation Systems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Special Operations Mission Planning and Execution (SOMPE)</i>				
eXecution Plan (XPlan) & Associated 3rd Part Tools	1	2019	4	2025
Tactical Assault Kit (TAK)	1	2019	4	2025
Mission Planning and Execution Applications & Tools	1	2019	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems				Project (Number/Name) S875 / AC/MC-130J			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S875: AC/MC-130J	47.277	16.480	29.391	55.083	-	55.083	53.742	54.797	56.069	57.182	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 provide clandestine single or multi-ship low-level aerial refueling for special operations helicopters and CV-22 aircraft; conduct airdrops of leaflets, 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. Incremental upgrade and agile software development approaches will be used to integrate SOF capabilities onto the aircraft and training systems. SOF capabilities include, but are not limited to: Airborne Mission Networking (AbMN), data fusion, threat detection and avoidance, integrated Terrain Following/Terrain Avoidance (TF/TA), 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 2019	FY 2020	FY 2021
Title: MC-130J Airborne Mission Networking (AbMN)	4.169	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 (LOS)/Beyond Line-of-Sight (BLOS) voice/data communications, friendly force identification, mission tracking, threat identification, full-motion video, collaboration, chat, e-mail, integrated tactical map and data links. AbMN enables SOF 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 2020 Plans: Complete contractor ground testing. Begin developmental, operational, and interoperability testing on the MC-130J along with the SOF Common Terrain Following/Terrain Avoidance (TF/TA) radar, special missions systems, and electronic warfare systems.</p> <p>FY 2021 Plans: Completes developmental, operational, and interoperability testing on the MC-130J along with the SOF Common Terrain Following/Terrain Avoidance (TF/TA) radar, special missions systems, and electronic warfare systems.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
None.			
<p>Title: Integrated Tactical Mission Systems (ITMS)</p> <p>Description: The ITMS program increases operational crew performance and aircraft survivability by integrating the MC-130J green aircraft and multiple SOF mission systems as an interoperable system-of-systems. Automated software capabilities will be developed, integrated, and tested with SOF-peculiar and green aircraft flight information, displays, and controls through the Special Mission Systems (SMS) suite. By increasing system-of-systems data interoperability through an Open Mission Systems (OMS) compliant Modular Open System Architecture (MOSA), an agile software development infrastructure will be employed to integrate multiple subsystems and continuously deliver automated software capabilities. Capabilities include, but are not limited to; automated route replanning, tactical flight management, integrated aircraft defensive systems, defensive countermeasures, and embedded training. The NextGen Special Mission Processor (SMP) resolves current diminishing manufacturing sources issues with a MOSA compliant design to perform central processing for ITMS software. ITMS enables dynamic operations with integrated real-time information, automation, and decision making data for safe TF/TA flight and mission execution (MC-130J aircraft) and seamless employment of the PSP (AC-130J aircraft).</p> <p>FY 2020 Plans: Continue capability prototype and demonstration, infrastructure development, system-of-systems integration, tactical map enhancements, TF/TA integration, and increased situational awareness capabilities. Continue OMS development for data and communications interoperability risk reduction. Complete the NextGen SMP prototype demonstration and continue development to replace the legacy SMP. Continue development of SMS capabilities required for ITMS to include, but not limited to; data fusion, threat correlation, and applications of machine learning and artificial intelligence. Begin Tactical Flight Mission Systems (TFMS), Defensive Countermeasures (DCM), auto route replanner integration and test on the MC-130J.</p> <p>FY 2021 Plans: Continues capability prototype and demonstration, infrastructure development, system-of-systems integration, tactical map enhancements, TF/TA integration, and increased situational awareness capabilities. Continues OMS development for data and communications interoperability. Continues development of SMS capabilities required for ITMS to include, but not limited to; data fusion, threat correlation, and applications of machine learning and artificial intelligence. Continues TFMS, DCM, auto route replanner integration and test on the MC-130J. Begins capability replication, performance, and test on the AC-130J.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$25.692 million due to increased development focused on interoperability of MC-130J Common TF/TA Radar, Airborne Mission Network, tactical flight management, defensive countermeasures, and refresh of the MC-130J Software Integration Lab to meet ITMS technical testing requirements.</p>	12.311	26.703	52.395
Accomplishments/Planned Programs Subtotals	16.480	29.391	55.083

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PROC/2012C130J: <i>AC/MC-130J</i>	163.181	143.232	163.914	-	163.914	213.649	296.535	322.669	333.789	Continuing	Continuing
• PROC/1202PSP: <i>Precision Strike Package</i>	229.674	232.930	243.111	-	243.111	167.714	141.180	134.636	137.334	Continuing	Continuing

Remarks

D. Acquisition Strategy

As a core strategy, rapid prototyping has been 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 (LRIP) followed by a competitive Firm-Fixed Price (FFP) contract for production, aircraft integration, and fielding.

ITMS: Develop virtual environment to enable collaborative integration of modular software services procured through competitive, sole source contracts, and 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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

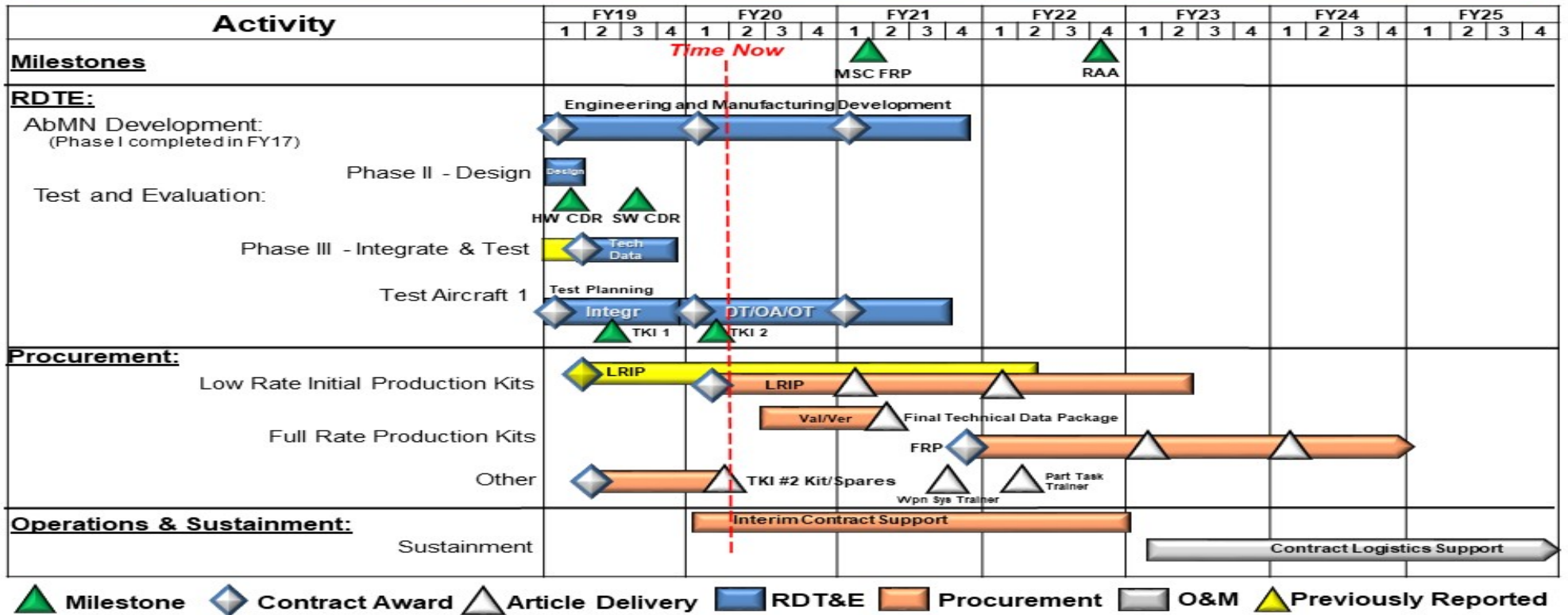
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) S875 / AC/MC-130J
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	15.922	3.441	Nov 2018	1.708	Dec 2019	1.264	Dec 2020	-		1.264	Continuing	Continuing	-
Tactical Flight Management, Auto Route Replanner, Defensive Countermeasures (DCM) and MC-130J Systems Integration	C/CPFF	Lockheed Martin Aeronautics : Marietta	-	1.500	Jul 2019	4.252	Apr 2020	10.870	Nov 2020	-		10.870	Continuing	Continuing	-
Systems Interoperability & Tactical Map enhancements	C/Variou	Sierra Nevada Corporation : Nevada	29.906	5.500	May 2019	6.157	Nov 2019	5.436	Dec 2020	-		5.436	Continuing	Continuing	-
Open Mission System (OMS) Capabilities, Integration & Demonstration	C/Variou	Various : Various	-	1.511	Aug 2019	4.732	Nov 2019	3.624	Nov 2020	-		3.624	Continuing	Continuing	-
NextGen SMP Demonstration, Development, Integration and Test	C/Variou	Various : Various	-	3.800	Aug 2019	4.419	Nov 2019	1.200	Dec 2020	-		1.200	Continuing	Continuing	-
Tactical Flight Management, Auto Route Replanner, DCM and AC-130J Systems Integration	C/Variou	Various : Various	-	-		-		9.670	Dec 2020	-		9.670	Continuing	Continuing	-
AC/MC-130J OMS Software Development	C/Variou	Various : Various	-	-		-		7.034	Jan 2021	-		7.034	Continuing	Continuing	-
Subtotal			45.828	15.752		21.268		39.098		-		39.098	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Tactical Mission System (ITMS) - Support	C/Variou	Various : Various	-	-		3.200	Apr 2020	2.718	Mar 2021	-		2.718	Continuing	Continuing	-

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) S875 / AC/MC-130J

MC-130J Airborne Mission Networking (AbMN) PEO Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

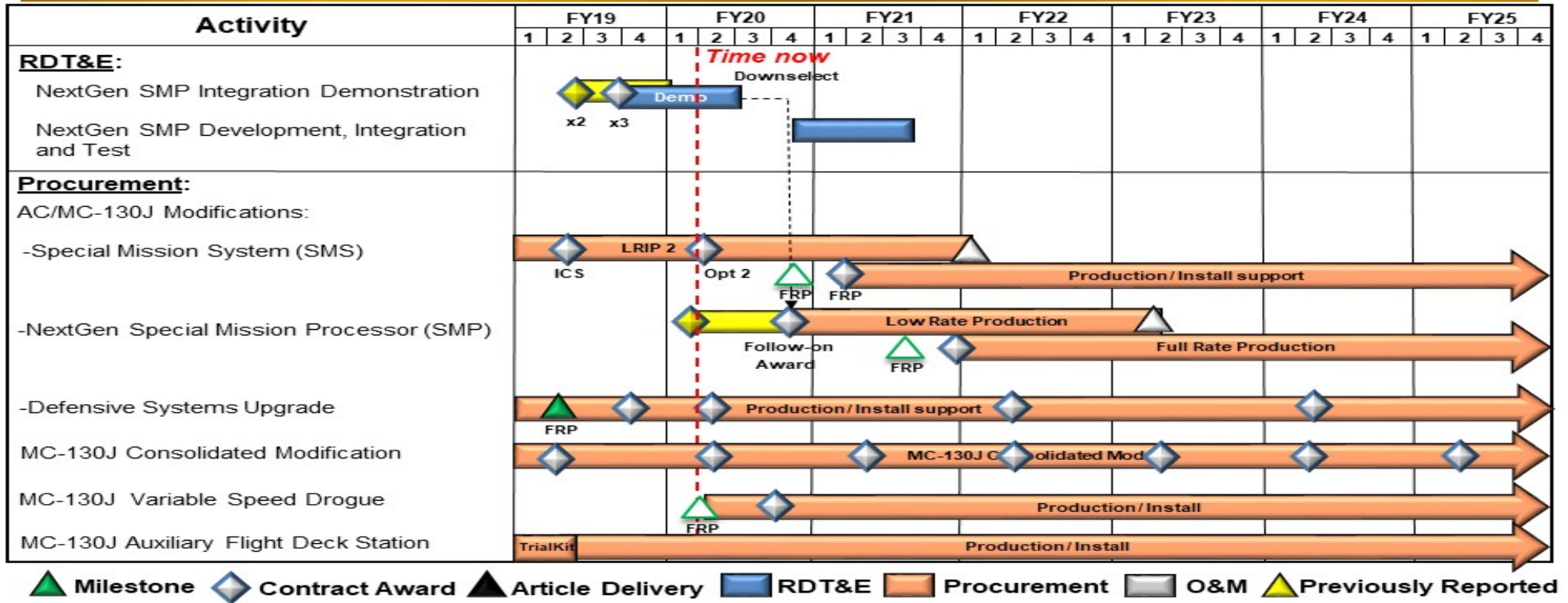
Date: February 2020

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 PEO Managed Schedule

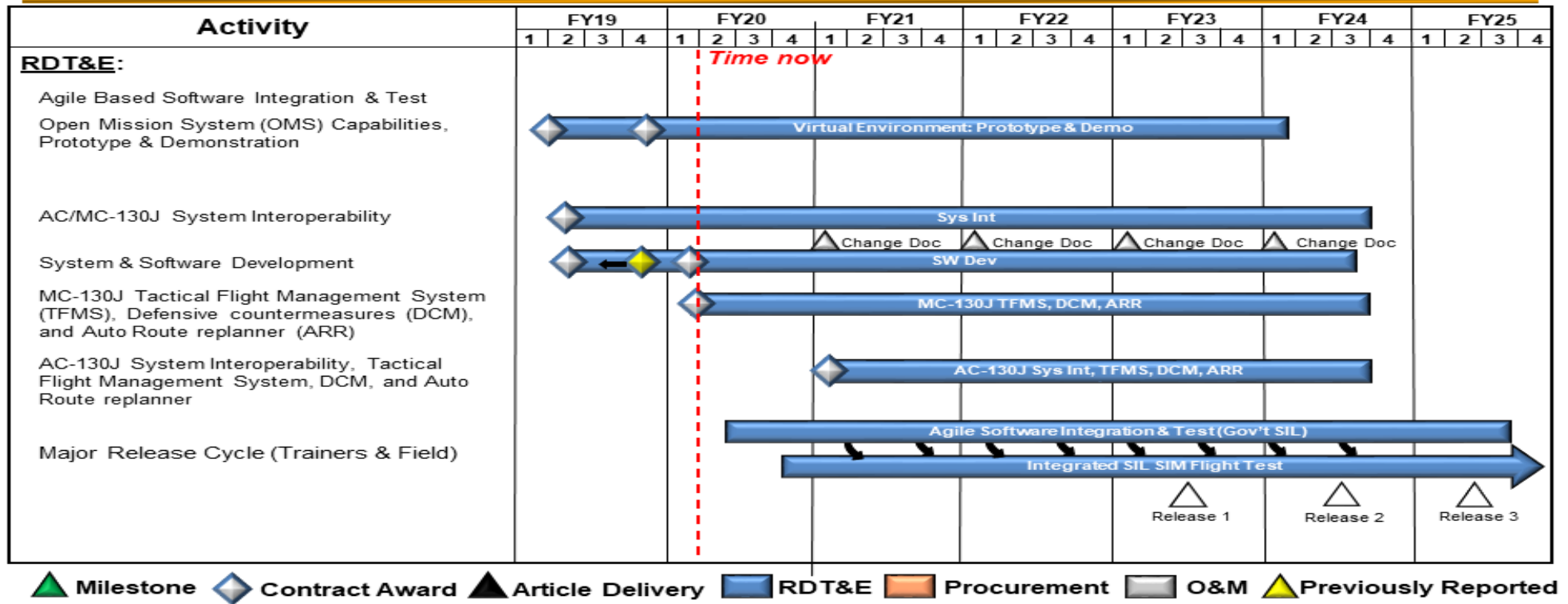


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
S875 / AC/MC-130J

Integrated Tactical Mission Systems (ITMS) PEO Managed Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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	2019	4	2021
Phase II Design	1	2019	2	2019
Phase III Integration & Test (Includes Tech Data, Aircraft Integration, & Testing)	2	2019	4	2019
<i>Integrated Tactical Mission Systems (ITMS) Agile Based Software Integration & Test</i>				
Virtual Environment Prototype and Demonstration	1	2019	1	2024
Next Generation Special Mission System Integration Demo	3	2019	3	2020
Agile Software Integration and Test	2	2020	3	2025
Integrated SIL SIM Flight Test	4	2020	4	2025
Tactical Flight Management Systems Development	1	2020	3	2024
Defensive Countermeasures	1	2021	3	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
D615: Rotary Wing Aviation	251.118	18.858	47.768	41.895	-	41.895	34.459	30.721	30.947	31.523	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.

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

	FY 2019	FY 2020	FY 2021
<p>Title: A/MH-6M Block 3.0 Upgrade</p> <p>Description: This effort funds the development and testing of Special Operations Forces Peculiar (SOF-P) equipment and modifications for the A/MH-6M. It will include software development and testing to integrate new capability, development and qualification of new hardware, and test and evaluation of new weapons, sensors, communications systems, or aircraft modifications that increase systems performance.</p> <p>FY 2020 Plans: Complete Airworthiness and Flight Characteristics (A&FC) testing efforts, Electromagnetic Environmental Effects (E3) testing, and radio communications performance testing.</p> <p>FY 2021 Plans: Begins software updates to incorporate communications upgrades and/or crypto modernization, follow-on testing on Block 3 components to improve sustainability, improved tail rotor blade development and test, improved main rotor transmission study, improved main rotor study, test and evaluate anti-jamming antennas, and weapons system test.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.095 million is due to crypto modernization mandate.</p>	3.008	2.688	2.783
<p>Title: MH-60M Modifications and Upgrades</p> <p>Description: Develops technologies to improve safety and performance of the MH-60 while decreasing operational costs. Efforts include, but are not limited to, MH-60 engineering changes and product improvements to SOF-P equipment, munitions utilized for testing, modifications to ASE and weapons systems designed to counter rapidly emerging threats, improve lethality, and</p>	2.608	6.533	3.428

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020		
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 2019	FY 2020	FY 2021
<p>enhance aircraft self-protection in the multi-domain operations (MDO) environment and against near peer threats. 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 2020 Plans: Complete Upturned Exhaust System (UES) II qualification and testing, continue integration and testing of 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 2021 Plans: Continue testing of Joint Air-to-Ground Missile software, payload restoration efforts, and other technologies to improve safety and decrease operational costs to aircraft survivability equipment, weapons systems improvement, and munitions.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$3.105 million due to the completion of the UES II qualification and testing.</p>				
<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-P avionics with the unique skills of the SOF aviator.</p> <p>FY 2020 Plans: Begin airworthiness release support efforts.</p> <p>FY 2021 Plans: Complete airworthiness release documentation for fielding.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.292 million due to a reduction in post-test air worthiness/engineering activities.</p>		3.580	0.871	0.579
<p>Title: Future Vertical Lift (FVL)</p> <p>Description: Provides for the development of USSOCOM platform capabilities that address SOF-unique requirements. This family of systems significantly increases 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</p>		0.922	1.208	3.324

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020		FY 2021
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injecting USSOCOM requirements and equities into the initial development and design efforts to minimize SOF-P modifications to the common aircraft.

FY 2020 Plans:

Provide engineering and design work to ensure SOF-unique requirements are incorporated in the baseline Army aircraft.

FY 2021 Plans:

Continues to provide guidance and infrastructure necessary for FVL to implement a mission systems architecture that enables the integration of SOF capabilities into the aircraft.

FY 2020 to FY 2021 Increase/Decrease Statement:

Increase of \$2.116 million is due to increased engineering and design work of SOF-unique requirements.

Title: Infrared Countermeasures (IRCM)	1.763	3.425		0.625
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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, and flare testing for emerging threats.

FY 2020 Plans:

Begin market research for an infrared exhaust suppressor for the A/MH-6 aircraft. Continue advanced flare testing. Complete qualification testing of missile warning and lightweight IRCM systems.

FY 2021 Plans:

Continues advanced flare testing. Completes development of and begins qualification testing of IR exhaust suppressor for the A/ MH-6 aircraft.

FY 2020 to FY 2021 Increase/Decrease Statement:

Decrease of \$2.800 million is due to completion of qualification testing of a lightweight IRCM system.

Title: MH-47 Modifications and Upgrades	3.178	8.906		8.455
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Description: Develops technologies to improve the performance and safety of the MH-47G and decrease operational costs. Efforts include, but are not limited to, the Active Parallel Actuator Subsystem (APAS). This sub-project also includes modifications to ASE and weapons systems to counter rapidly emerging threats and enhance aircraft self-protection.

FY 2020 Plans:

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020		
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 2019	FY 2020	FY 2021
<p>Continue APAS development, including integration with MH-47G subsystems, such as Common Avionics Architecture System. Complete APAS Critical Design Review.</p> <p>FY 2021 Plans: Continues APAS development, including integration with MH-47G subsystems, such as Common Avionics Architecture System.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.451 million is due to planned completion of APAS Critical Design Review.</p>				
<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, night conditions, and next generation ARSOA cockpit.</p> <p>FY 2020 Plans: Continue exploration of the next generation ARSOA cockpit, to include Video Processing Module (VPM) development and testing.</p> <p>FY 2021 Plans: Continue exploration of the next generation ARSOA cockpit, to include architectures studies/development and individual enabling/enhancing technologies</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.016 million due to anticipated work required to be completed in support of the next generation ARSOA cockpit in FY 2021.</p>		0.362	0.604	0.588
<p>Title: Tactical (Airborne) Mission Networking (TMN)</p> <p>Description: Provides for continued development of systems (software and hardware) to enable the aircraft to effectively adapt and overcome the challenges of the highly contested and congested RF environment. This effort will enable the aircrew to use advanced radio waveforms and communications equipment that can survive and thrive in contested and congested radio frequency environments. Upgrading antennas, processors, radios and other enabling communications equipment will be a persistent requirement as the RF environment becomes increasingly more complex. Additionally, the Army intends to upgrade its</p>		-	-	3.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020		
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 2019	FY 2020	FY 2021
networks every two years – so this funding will ensure Special Operations Aircraft can adapt and keep pace with both SOF and conventional forces' communications and networking improvements/upgrades.				
<p>FY 2021 Plans: Begins to develop software and hardware to rapidly incorporate advanced waveforms, advanced communications, and networking hardware onto the ARSOA aircraft.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$3.000 million to support development work on ARSOA aircraft.</p>				
<p>Title: Aircraft Survivability Equipment (ASE) Radio Frequency Countermeasures (RFCM) Upgrades</p> <p>Description: Develops, integrates, and tests critical active and passive SOF-P 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 evolving technically at an unprecedented rate, requiring rapid countermeasure 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, and associated qualification testing. P3I upgrades may include, but are not limited to, expansion of loadsets 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.</p> <p>FY 2020 Plans: Continue development of new systems, P3I/upgrades of fielded survivability equipment, and continues development of countermeasures. Complete RF improvements test and evaluation. Additional details can be provided under separate cover.</p> <p>FY 2021 Plans: Continues development of new systems, P3I/upgrades of fielded survivability equipment, and continues development of countermeasures. Additional details can be provided under separate cover.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.080 million supports development of prototypes and integration.</p>		3.437	15.533	15.613
<p>Title: Improved Rotary Wing Electro-Optical Sensor (IRES)</p> <p>Description: The IRES program, formally known as Next Generation FLIR, is a Commercial Off The Shelf (COTS)/non-developmental lighter-weight Electro-Optical Sensor System (EOSS) needed to reduce aircraft weight and mitigate obsolescence of the currently fielded Q2 and Q3 FLIR systems on the MH-47, MH-60, and A/MH-6 aircraft. Both assault and attack turreted</p>		-	-	3.500

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021
systems will include multi-spectrum infrared, day TV, laser spot tracker, laser range finder, and laser illuminator with the ability to fuse camera images. The attack turrets will also include a laser designator for targeting capabilities.			
FY 2021 Plans: Begins software changes/integration into A/MH-6, MH-47G, and MH-60M aircraft, and perform combined development and operational testing. Additional details can be provided under separate cover.			
FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$3.500 million supports the integration of software into ARSOA aircraft.			
Accomplishments/Planned Programs Subtotals	18.858	39.768	41.895

	FY 2019	FY 2020
Congressional Add: Future Vertical Lift (FVL)	-	8.000
FY 2020 Plans: Provides engineering and design work to ensure SOF-unique requirements are incorporated in the baseline Army aircraft.		
Congressional Adds Subtotals	-	8.000

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/0201RWUPGR: Rotary Wing Upgrades and Sustainment	148.907	172.020	211.041	-	211.041	230.870	247.497	267.854	258.750	Continuing	Continuing
• 0201MH60: MH-60 Blackhawk	27.600	25.264	-	-	-	-	-	-	-	981.513	981.513
• 0601MH47: MH-47 Chinook	157.892	206.093	135.482	-	135.482	132.888	135.644	138.951	141.728	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 (COTS) to the extent possible and will be competitively selected. Airframe modification and integration work will be conducted via a contract with the Special Operations Forces Support Activity (SOFSA).

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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>
<ul style="list-style-type: none"> • MH-60M Modifications and Upgrades supports systems integration and qualification efforts on MH-60M helicopters. The Mods and Upgrades are executed via various acquisition vehicles and includes, but are not limited to, government and contractor flight test support, engineering analysis, documentation, and airworthiness substantiation. Airframe modification and integration work will be conducted via a contract with the Special Operations Forces Support Activity (SOFSA). • 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, and continue flare testing for emerging threats. • 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. The upgrades and modifications are executed via various acquisition vehicles and consist mostly of government and contractor executed integration, testing, and qualification efforts with some analytical engineering services to be completed. Post-production block modifications are accomplished via a contract with the Special Operations Forces Support Activity (SOFSA). • 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. • Tactical (Airborne) Mission Networking provides for future communications and networking capability exploration and solution development that will ensure ARSOA platforms can communicate through voice and data in a highly contested and congested RF environment. Additionally, it will ensure ARSOA aircraft can maintain interoperability with the SOF and conventional ground forces’ plan of rapidly and continually updating their communications and networking infrastructure. Non-developmental communication equipment will be procured through existing DOD contracts. Aircraft integration will be through existing aircraft modification contracts. • ASE RFCM Upgrades develops and tests both new systems and pre-planned product improvements/upgrades of fielded aircraft survivability systems and countermeasures. 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. 		

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>

• IRES integrates non-developmental multi-spectral electro-optical sensor systems (EOSS) onto SOF Rotary Wing aircraft to address legacy system obsolescence, reduce aircraft weight, and provide improved system performance. To the maximum extent possible, systems will be procured through existing USSOCOM and Services contracts. Aircraft integration will be through existing aircraft modification contracts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Degraded Visual Environment (DVE)	C/Variou	PM TAPO : Fort Eustis, VA	66.168	3.580	Feb 2019	0.871	Apr 2020	0.579	Apr 2021	-		0.579	Continuing	Continuing	-
MH-47 Modifications and Upgrades	C/Variou	PM TAPO : Fort Eustis, VA	38.753	3.178	Dec 2018	8.906	Nov 2019	8.455	Nov 2020	-		8.455	Continuing	Continuing	-
Tactical (Airborne) Mission Networking (TMN)	C/Variou	PM TAPO : Fort Eustis, VA	-	-		-		3.000	Mar 2021	-		3.000	Continuing	Continuing	-
Aircraft Survivability Equipment (ASE) Radio Frequency Countermeasures (RFCM) Upgrades	C/Variou	PM TAPO : Fort Eustis, VA	13.002	3.437	Aug 2019	15.533	Mar 2020	15.613	Mar 2021	-		15.613	Continuing	Continuing	-
Improved Rotary Wing Electro-Optical Sensor (IRES), formerly known as Next Generation Forward Looking Infrared (NGFLR)	C/Variou	PM TAPO : Fort Eustis, VA	-	-		-		3.500	Dec 2020	-		3.500	Continuing	Continuing	-
Prior Years Funding	C/Variou	PM MELB : Fort Eustis, VA	59.820	-		-		-		-		-	0.000	59.820	-
Subtotal			177.743	10.195		25.310		31.147		-		31.147	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Vertical Lift (FVL)	C/Variou	PM TAPO : Fort Eustis, VA	3.131	0.922	Feb 2019	1.208	Feb 2020	3.324	Feb 2021	-		3.324	Continuing	Continuing	-
FVL Congressional Add	C/Variou	PM TAPO : Fort Eustis, VA	-	-		8.000	Feb 2020	-		-		-	0.000	8.000	-
Subtotal			3.131	0.922		9.208		3.324		-		3.324	Continuing	Continuing	N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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 Block 3 PEO-Managed Schedule

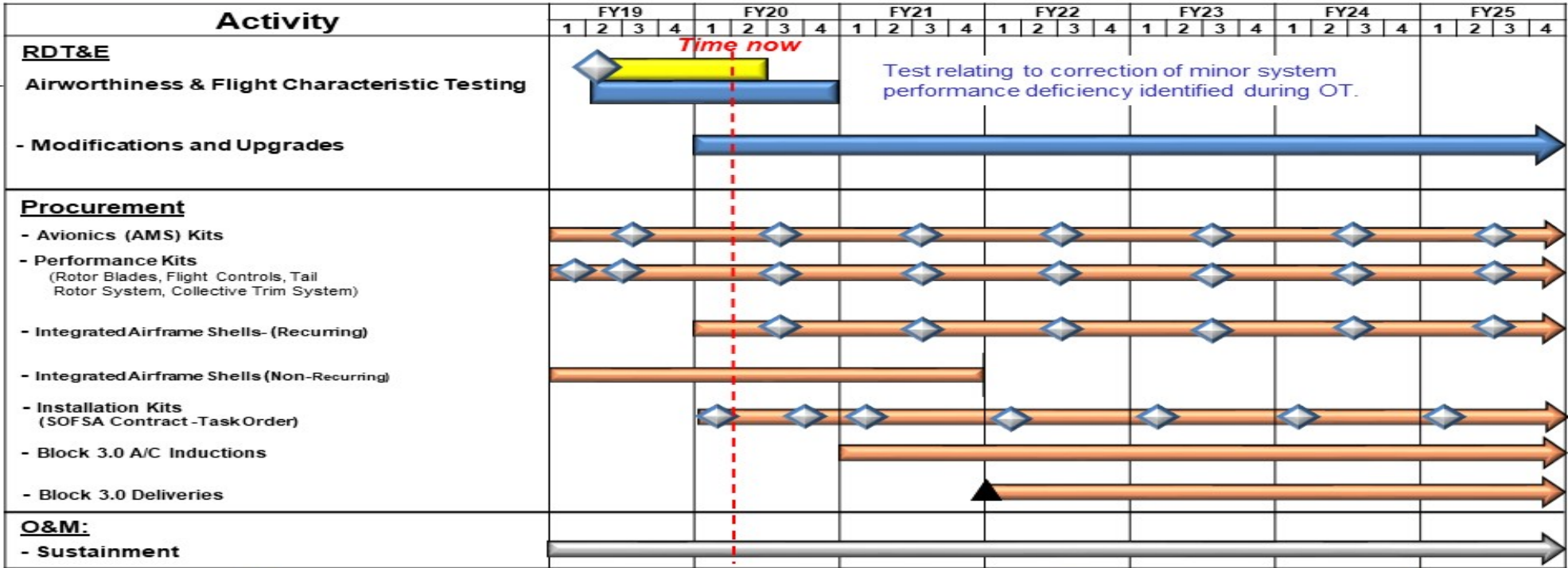
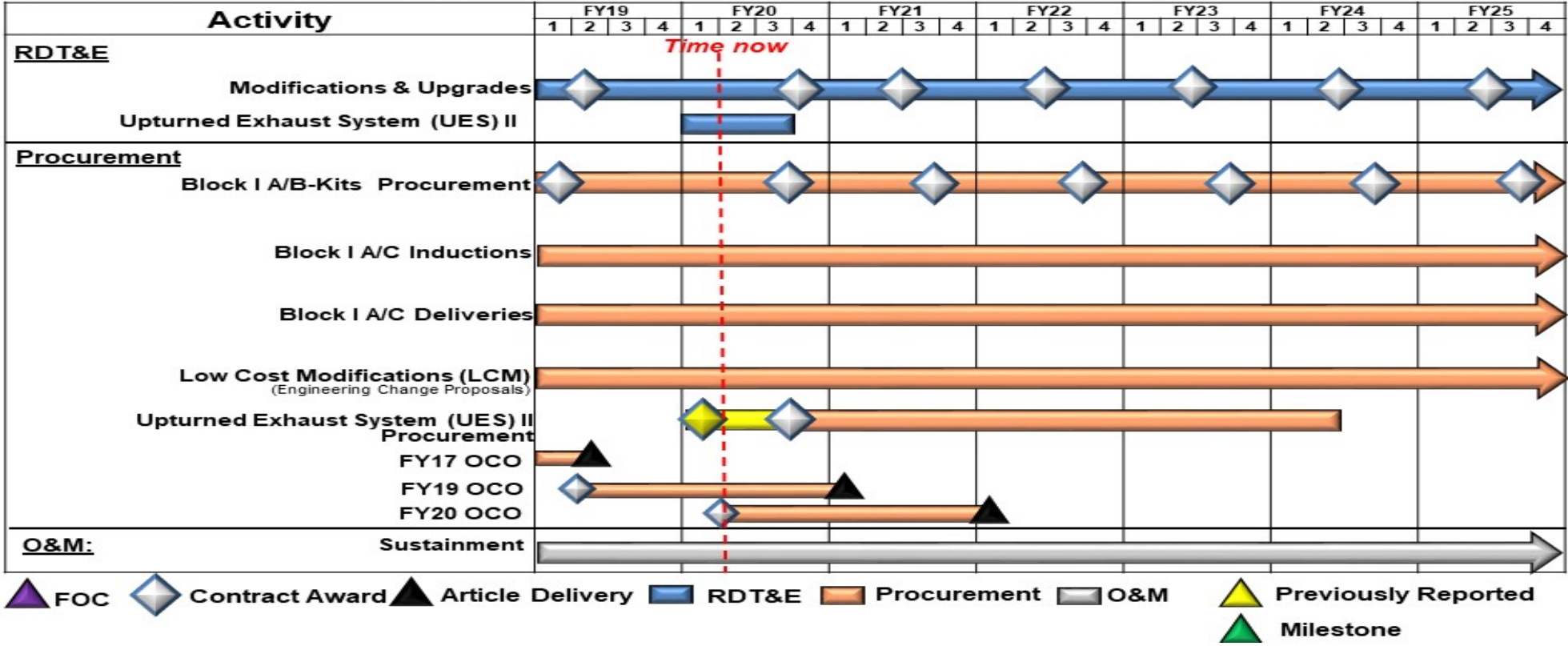


Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / Aviation Systems	Project (Number/Name) D615 / Rotary Wing Aviation

MH-60M Program PEO-Managed Schedule

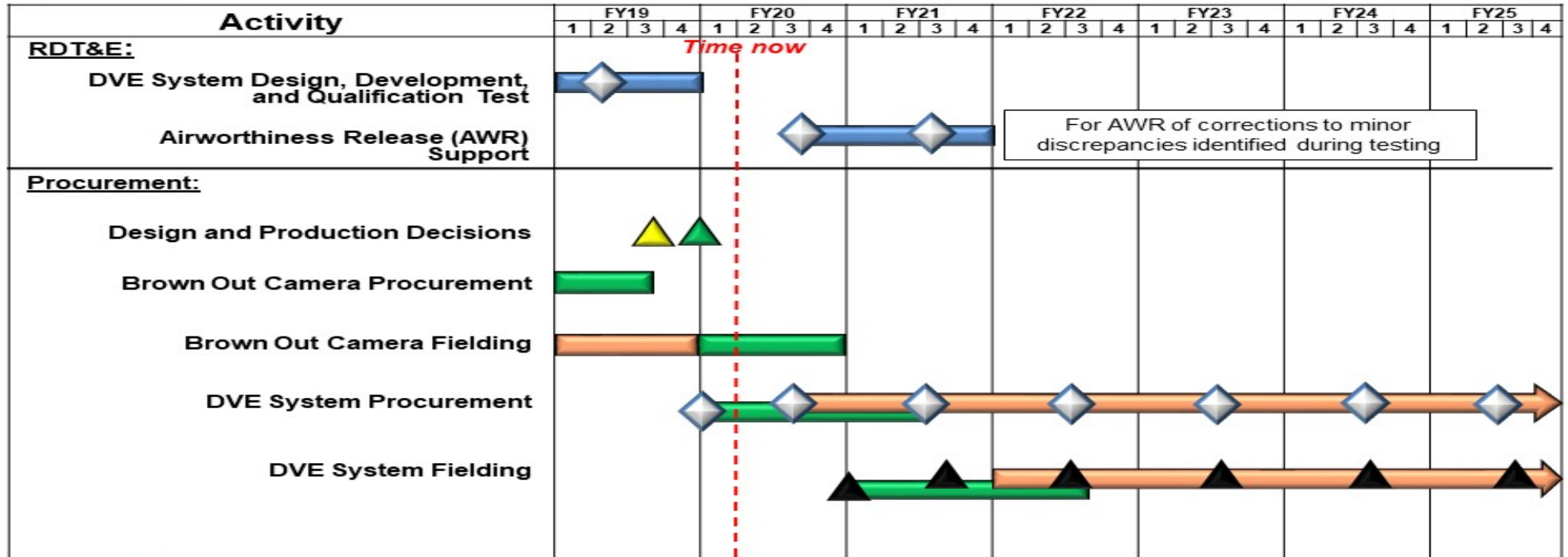


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
D615 / Rotary Wing Aviation

Degraded Visual Environment (DVE) PEO-Managed Schedule

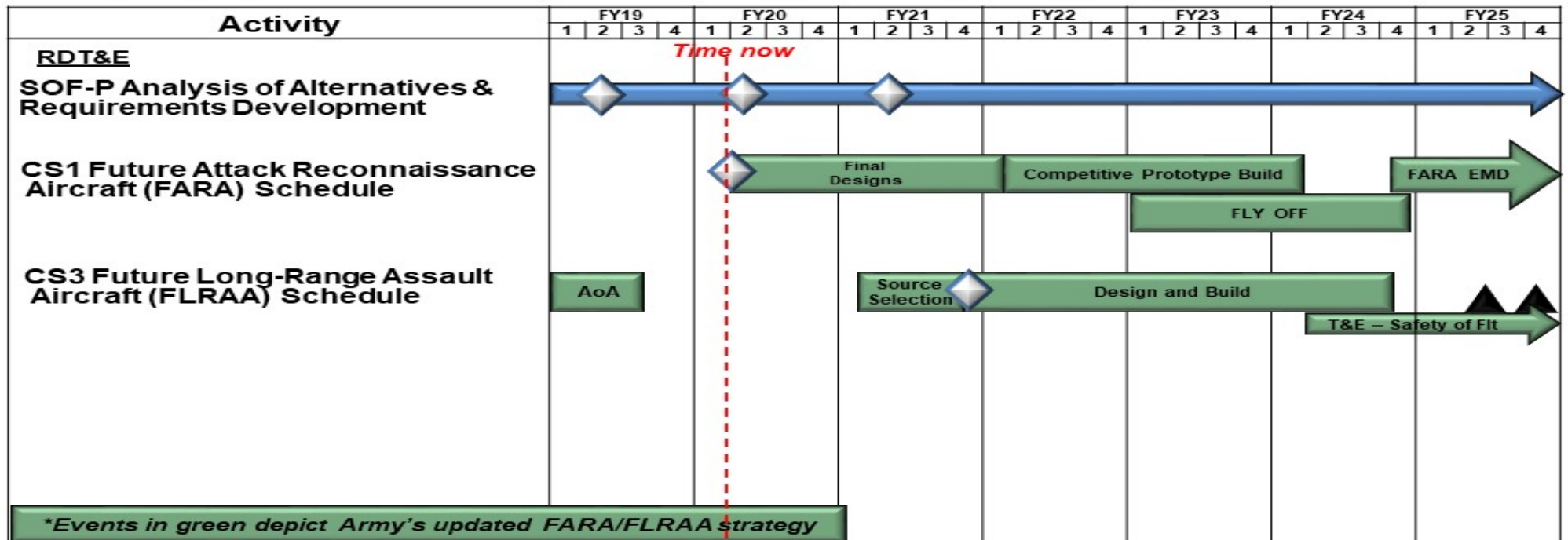


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
D615 / Rotary Wing Aviation

Future Vertical Lift (FVL) PEO-Managed Schedule

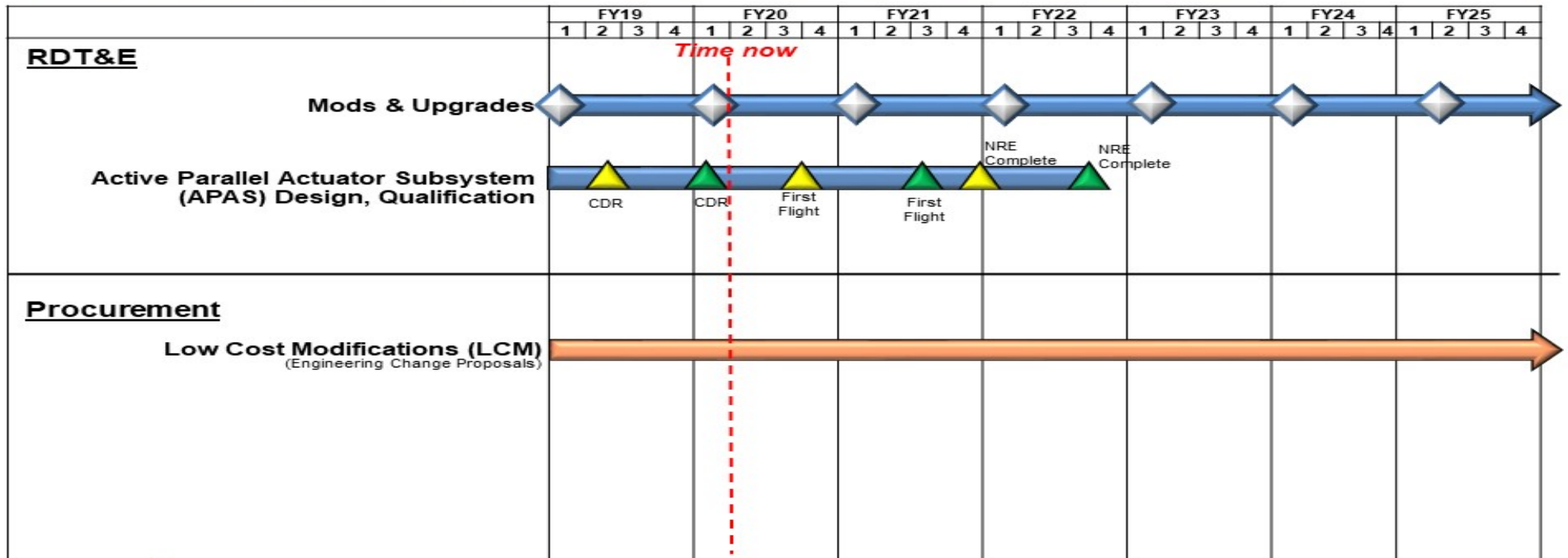


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
D615 / Rotary Wing Aviation

MH-47 Program PEO-Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

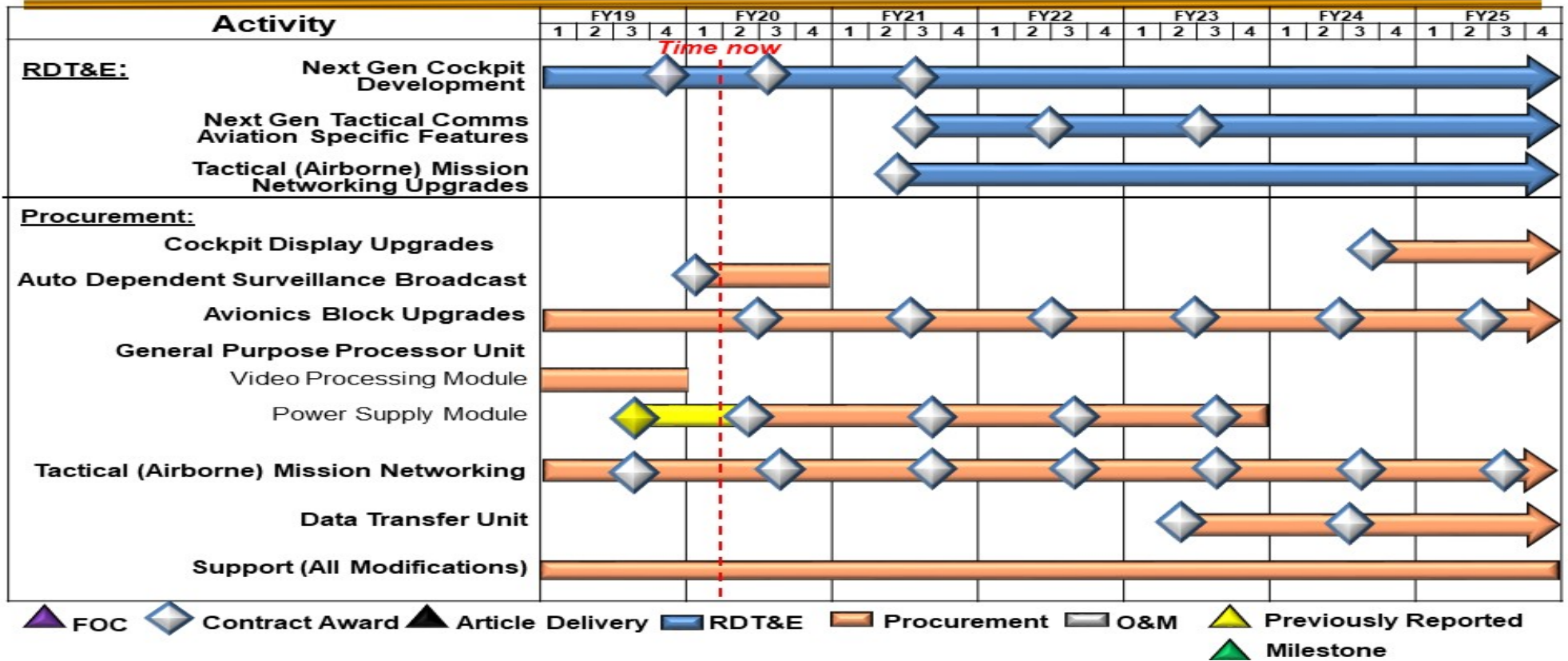
Date: February 2020

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 (MPU) PEO-Managed Schedule

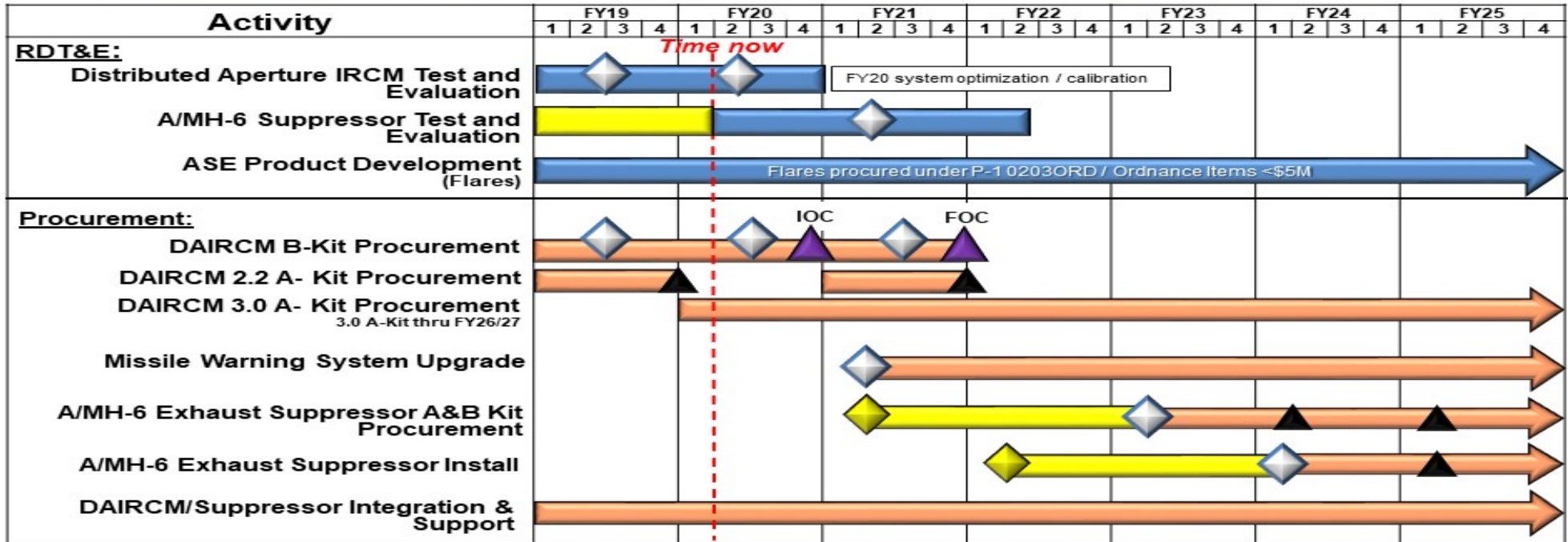


Appropriation/Budget Activity
0400 / 7

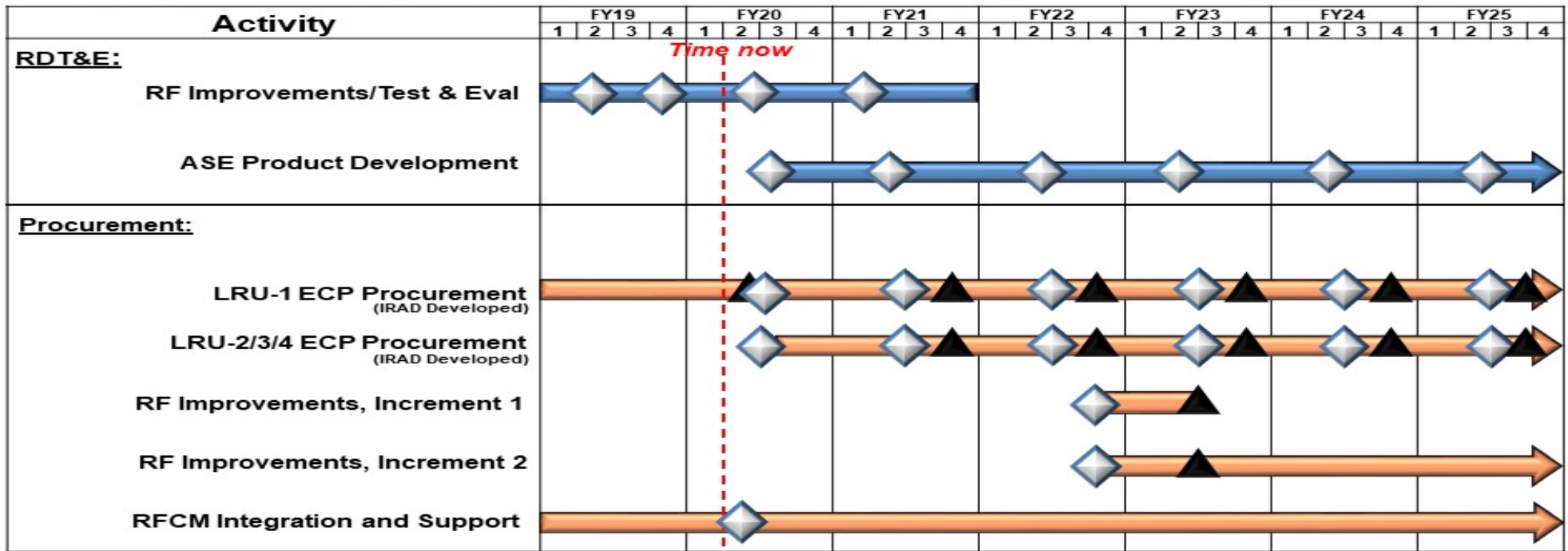
R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
D615 / Rotary Wing Aviation

Aircraft Survivability Equipment (ASE) Infrared Countermeasures (IRCM) PEO-Managed Schedule



ASE Radio Frequency Countermeasures (RFCM) PEO-Managed Schedule



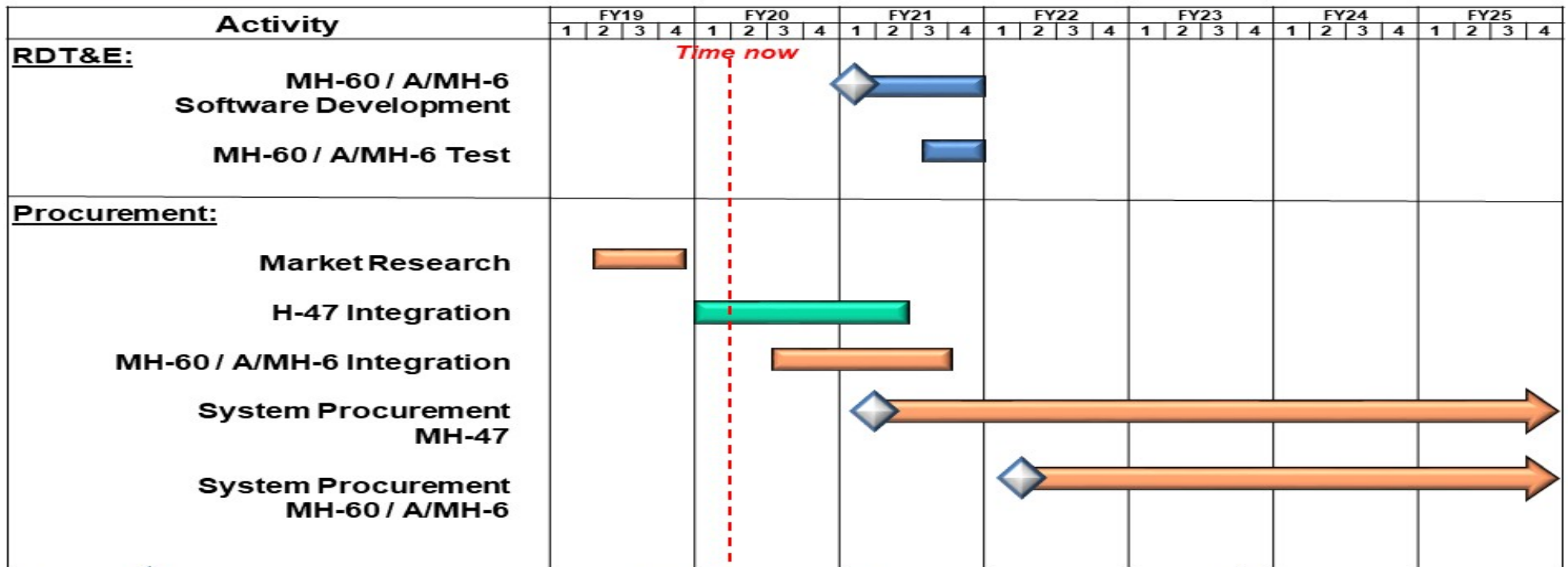
Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160403BB / Aviation Systems

Project (Number/Name)
D615 / Rotary Wing Aviation

Improved Rotary Wing Electro-Optical PEO-Managed Sensor (IRES) Schedule

(formerly NGFLR)



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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>				
Airworthiness and Flight Characteristics Testing	2	2019	4	2020
Modifications and Upgrades	1	2020	4	2025
<i>MH-60M Modifications and Block Upgrades</i>				
Modifications and Upgrades	1	2019	4	2025
Upturned Exhaust System (UES) II Development	1	2020	3	2020
<i>Degraded Visual Environment</i>				
Design, Development, and Qualification Test	1	2019	4	2019
Airworthiness Release (AWR) Support	3	2020	4	2021
<i>Future Vertical Lift (FVL)</i>				
SOF-P Analysis of Alternatives/Requirements Development	1	2019	4	2025
<i>MH-47 Modifications and Block Upgrades</i>				
Modifications and Upgrades	1	2019	4	2025
Active Parallel Actuator Subsystem (APAS) Design, Qualification	1	2019	3	2022
<i>Mission Processor Upgrades (MPU)</i>				
Next Gen Cockpit Development	1	2019	4	2025
Next Gen Tactical Comms Aviation Specific Features	3	2021	4	2025
Tactical (Airborne) Mission Networking Upgrades	2	2021	4	2025
<i>Aircraft Survivability Equipment (ASE) Infrared Countermeasures (IRCM)</i>				
Distributed Aperture Infrared Countermeasure System Test and Evaluation	1	2019	4	2020
Suppressor Test and Evaluation	2	2020	2	2022
ASE Product Development (Flare)	1	2019	4	2025
<i>ASE Radio Frequency Countermeasures (RFCM)</i>				

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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 Test and Evaluation	1	2019	4	2021
ASE Product Development (Adaptive ECM, Array, Signature Reduction)	3	2020	4	2025
<i>Improved Rotary Wing Electro-Optical Sensor (IRES), formerly known as Next Generation Forward Looking Infrared (NGFLR)</i>				
Software Development	1	2021	4	2021
Test	3	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>											
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	584.882	10.625	15.484	19.558	-	19.558	20.142	19.681	20.163	21.056	Continuing	Continuing
S400: <i>SO Intelligence Systems</i>	584.882	10.625	15.484	19.558	-	19.558	20.142	19.681	20.163	21.056	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, biometrics and 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. These technologies will be pursued via rapid prototyping efforts when appropriate.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	10.625	15.484	17.974	-	17.974
Current President's Budget	10.625	15.484	19.558	-	19.558
Total Adjustments	0.000	0.000	1.584	-	1.584
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	1.584	-	1.584

Change Summary Explanation

Funding:
 FY 2019: None.

 FY 2020: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2021: Net increase of \$1.584 million due to an increase in Hostile Force Tagging Tracking and Locating (HF-TTL) due to adjustments for rapid prototyping and additional product development focused on Maritime TTL capabilities development (\$0.350 million); an increase in Integrated Survey Program (ISP) for continued rapid integration and user testing of emerging standards and technology (\$0.380 million); an increase in Special Operations Tactical Video System/ Reconnaissance, Surveillance, and Target Acquisition (TVS/RSTA) to support rapid prototyping and product improvement (\$0.431 million); an increase in Sensitive Site Exploitation to support technical evaluation of new technologies (\$0.423 million).

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S400: <i>SO Intelligence Systems</i>	584.882	10.625	15.484	19.558	-	19.558	20.142	19.681	20.163	21.056	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.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: NSSS	0.849	0.862	0.879	-	0.879
Description: This program provides research and development, and rapid prototyping to support HQ SOCOM TENCAP program 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 Record. These developmental efforts support SOCOM's existing MIPs. NSSS will also improve SIGINT capabilities by pursuing Joint Interface Control Document 4.x and follow-on compliant SIGINT capabilities, extending SOCOM's cross-domain security infrastructure by adding unclassified sensors into					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>theater net-centric geo-location architecture, improving detection of Low-Probability of Intercept/Low Probability of Detection (LPI-LPD) 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 2020 Plans: Continue development of SOF-required prototype capabilities, primarily through leveraging current or developing technologies and assets in the Intelligent 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 2021 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 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.017 million to accelerate rapid prototyping of tactical capabilities for SOF through the TENCAP program.</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, enhanced target acquisition, and threat avoidance information directly to the SOF Commanders. Intelligence gathered is then transposed to National Databases. 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 2020 Plans: Continue interoperability and modularity efforts of technologies. Continue technical development and integration of evolving technologies for all variants, in order to enhance capabilities and prosecute emerging threats.</p>					
	4.782	11.945	14.400	-	14.400

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Continue development of an Electronic Intelligence (ELINT) prototype capability for the Maritime systems. Continue modular/scalable, open architecture, Development and Testing (D&T).</p> <p>FY 2021 Base Plans: Continues modular/scalable, open architecture, D&T, and software defined solutions. Continue modularity efforts of technologies. Begin software defined, cyber hardened development, and integration efforts. Begin technical evaluation of machine learning and human language technologies for all variants in order to reduce human burden. Begin improvement of technology for Near Peer signals of systems.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$2.455 million due to increased funding requirement to integrate and test space payload and for Maritime SIGINT Capability.</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 2020 Plans: Continue 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 2021 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 2020 to FY 2021 Increase/Decrease Statement:</p>	0.709	1.078	1.440	-	1.440

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Increase of \$0.362 million due to 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 2020 Plans: Continue specialized device modifications, integration and operational testing and evaluation.</p> <p>FY 2021 Base Plans: Continues specialized device modifications, integration and operational testing and evaluation.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.418 million for rapid prototyping and product improvement.</p>	0.564	0.716	1.134	-	1.134
<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 National Geospatial-Intelligence Agency (NGA) certified co-producer in support of time-sensitive SOF specific requirements.</p> <p>FY 2020 Plans:</p>	3.126	0.280	0.287	-	0.287

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Continue testing and evaluation of operational prototype systems to speed production of correlated high resolution 3D geospatial databases.</p> <p>FY 2021 Base Plans: Continues testing and evaluation of operational prototype systems to speed production of correlated high resolution 3D geospatial databases.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.007 million will support continued user test and evaluation.</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 2020 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 2021 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 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.389 million will continue rapid integration and user testing of emerging standards and technology.</p>	0.409	0.415	0.804	-	0.804
<p>Title: SSE</p> <p>Description: This program uses rapid test and evaluation of emerging Biometric and Forensic technology to provide state-of-the-art capabilities to the warfighter for the exploitation of documents, electronic data, materiel, and forensic evidence on sensitive sites/objectives. Biometric kits collect and transmit 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 on-objective linking of events to specific persons through chemical analysis, latent fingerprints, cell phones and computer data analysis, and</p>	0.186	0.188	0.614	-	0.614

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
deoxyribonucleic acid collection. Exploitation Analysis Centers provide theater-level mobile forensic capabilities for more in-depth exploitation of collected exploitable material.					
<i>FY 2020 Plans:</i> Continue technical evaluation of new technologies.					
<i>FY 2021 Base Plans:</i> Continues technical evaluation of new technologies with an increase of test events.					
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Increase of \$0.426 million to continue technical evaluation of new technologies and increase of test events.					
Accomplishments/Planned Programs Subtotals	10.625	15.484	19.558	-	19.558

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/020400INTL: <i>Intelligence Systems</i>	105.922	117.141	94.982	16.247	111.229	133.077	138.603	141.311	145.572	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 Off The Shelf (COTS)/Government Off The Shelf, as well as partnerships with other government agencies. The Program of Record (POR) will leverage 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, software database and cyber hardened solutions. JTWS will address the continuously evolving Great Power Competition environments on the Ground, Air, Maritime, Unmanned Aerial System variants, leverage existing partnerships with other government agencies in order to integrate and sustain next generation need, from the Joint Components and as emerging threats require technology modernizations. The contracting strategy is a mixture of full and open competition for prime integrators, broad area announcements, and existing Indefinite Delivery/Indefinite Quantity (IDIQ) contracts.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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>
<ul style="list-style-type: none">• HF-TTL utilizes an evolutionary 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 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.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
National Systems Support to SOF (NSSS)	MIPR	Various : Various	18.205	0.849	Feb 2019	0.862	Feb 2020	0.879	Feb 2021	-		0.879	Continuing	Continuing	-
Joint Threat Warning System (JTWS) - All Variants (Air, Ground, Maritime, and Unmanned)	MIPR	Various : Various	42.765	1.872	Dec 2018	7.485	Jan 2020	8.800	Feb 2021	-		8.800	Continuing	Continuing	-
Integrated Survey Program (ISP) - Development, Test and Evaluation	C/FFP	Various : Various	0.914	0.409	Jan 2019	0.415	Jan 2020	0.804	Jan 2021	-		0.804	Continuing	Continuing	-
Hostile Forces-Tagging Tracking, and Locating (HF-TTL)	C/CPFF	Various : Various	2.328	0.709	Feb 2019	0.854	Feb 2020	1.152	Feb 2021	-		1.152	Continuing	Continuing	-
Tactical Video System/ Reconnaissance, Surveillance, & Target Acquisition (TVS/RSTA)	MIPR	Various : Various	-	0.564	Feb 2019	0.491	Jan 2020	0.851	Jan 2021	-		0.851	Continuing	Continuing	-
Special Operations Forces Planning, Rehearsal & Execution Preparation (SOPREP) - Rapid Prototyping	C/Various	Various : Various	-	1.868	Feb 2019	-		-		-		-	0.000	1.868	-
Prior Year Funding - Completed Efforts	Various	Various : Various	461.047	-		-		-		-		-	0.000	461.047	-
Subtotal			525.259	6.271		10.107		12.486		-		12.486	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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/Space Payloads	C/CPFF	Various : Various	3.104	2.360	Jan 2019	4.160	Jun 2020	4.800	May 2021	-		4.800	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	8.296	-		-		-		-		-	0.000	8.296	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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			11.400	2.360		4.160		4.800		-		4.800	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Integration/Test/ Test Support	Various	Various : Various	7.842	0.550	Mar 2019	0.300	May 2020	0.800	Nov 2020	-		0.800	Continuing	Continuing	-
TVS/RSTA - User Assessments	MIPR	ATEC : FT Huachuca, AZ	1.708	-		0.225	Jan 2020	0.283	Jan 2021	-		0.283	Continuing	Continuing	-
HF-TTL	MIPR	ATEC : FT Huachuca, AZ	0.499	-		0.224	May 2020	0.288	May 2021	-		0.288	Continuing	Continuing	-
Sensitive Site Exploitation	MIPR	Various : Various	0.338	0.186	Dec 2018	0.188	Dec 2019	0.614	Dec 2020	-		0.614	Continuing	Continuing	-
SOFPREP - Prototype Systems	C/FFP	Various : Various	0.855	1.258	Jan 2019	0.280	Mar 2020	0.287	Mar 2021	-		0.287	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	0.549	-		-		-		-		-	0.000	0.549	-
Subtotal			11.791	1.994		1.217		2.272		-		2.272	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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

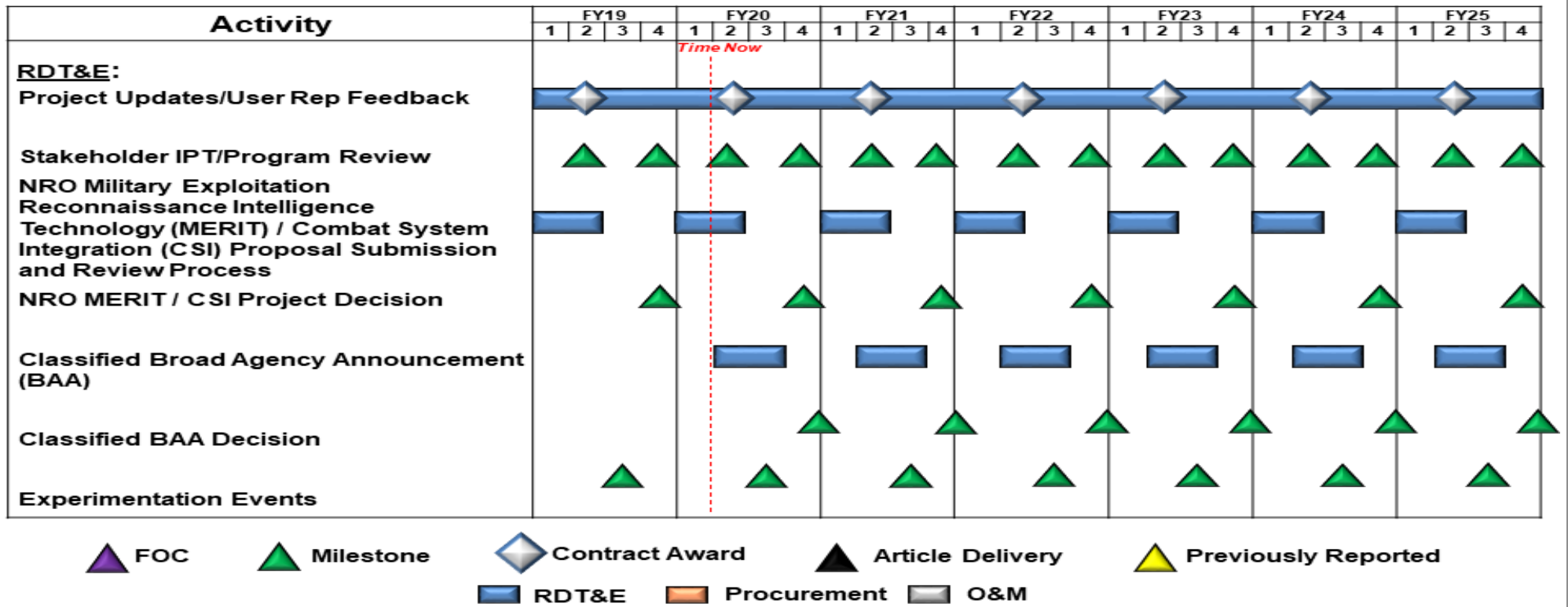
			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			584.882	10.625	15.484	19.558	-	19.558	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command Date: February 2020

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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National System Support To SOF (NSSS)/Tactical Exploitation of National System Capabilities(TENCAP) PEO-Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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>

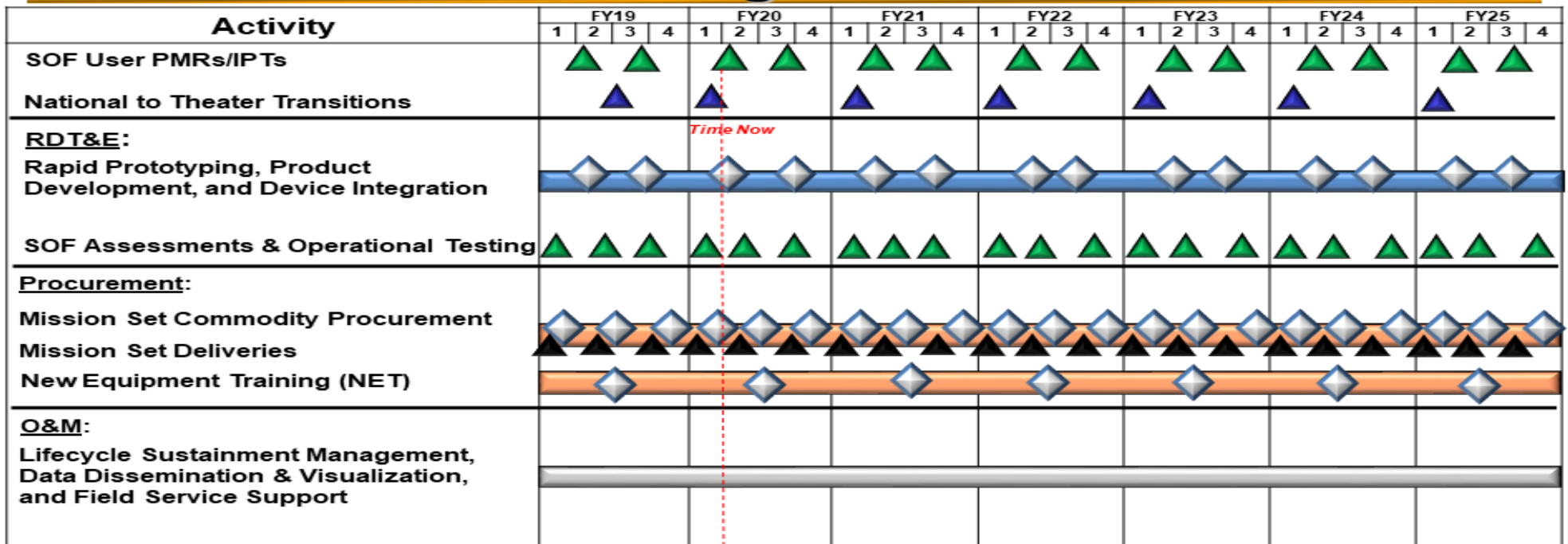
Joint Threat Warning System (JTWS) PEO-Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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>

Hostile Forces – Tagging, Tracking, and Locating (HF-TTL) PEO-Managed Schedule

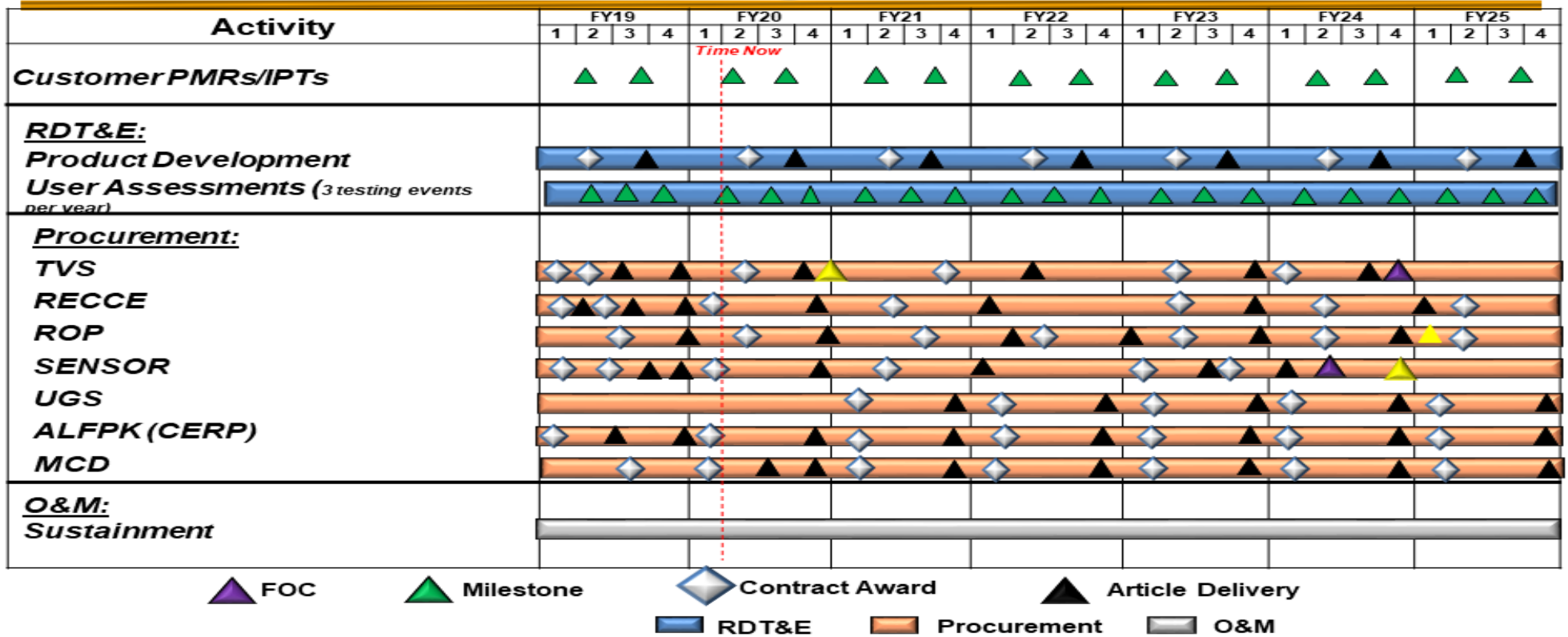


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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command Date: February 2020

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / Intelligence Systems Development	Project (Number/Name) S400 / SO Intelligence Systems
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Tactical Video System/Reconnaissance, Surveillance, and Target Acquisition (TVS/RSTA) PEO-Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

Date: February 2020

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160405BB / Intelligence Systems
Development

Project (Number/Name)
S400 / SO Intelligence Systems

SOF Planning, Rehearsal and Execution Preparation (SOFPREP) PEO-Managed Schedule

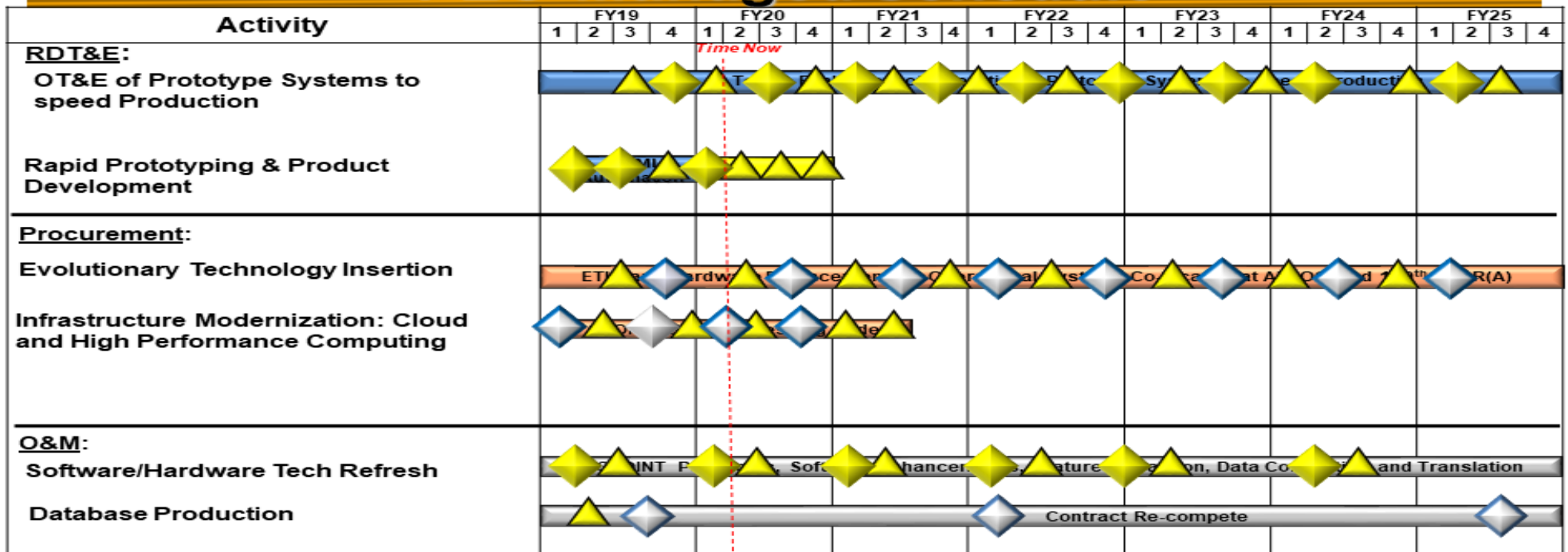
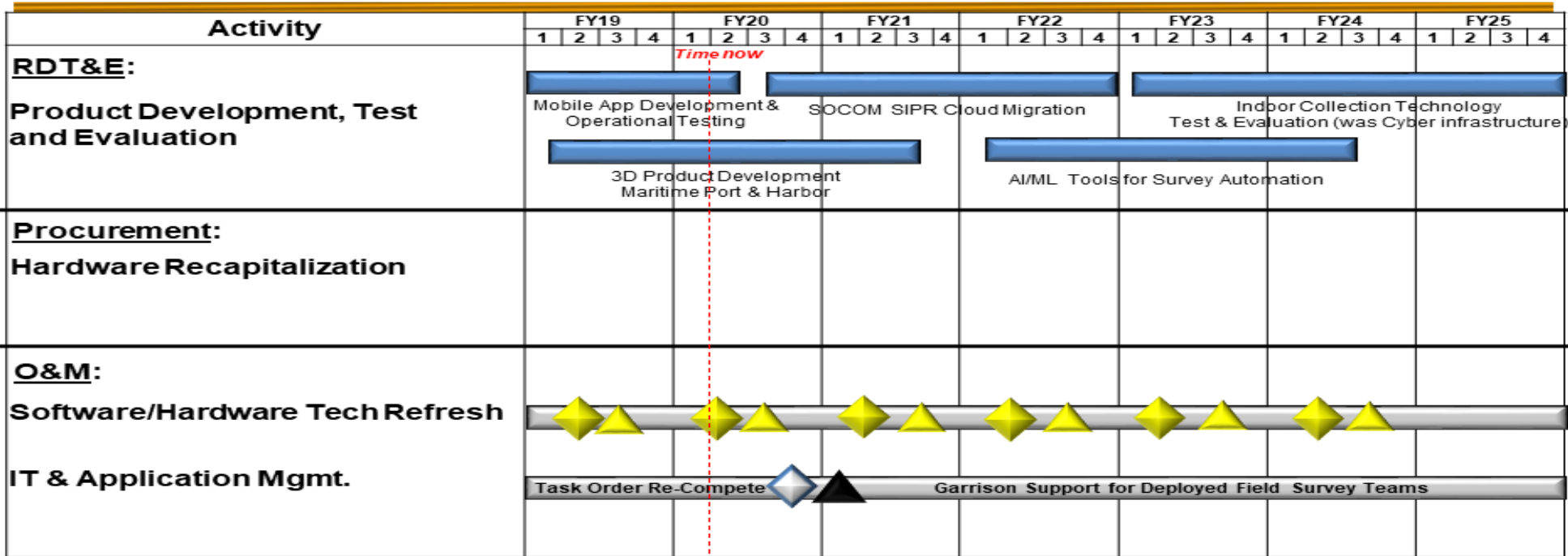


Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / <i>Intelligence Systems Development</i>	Project (Number/Name) S400 / <i>SO Intelligence Systems</i>

Integrated Survey Program (ISP) PEO-Managed Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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 (NSSS) Participation in Space Technology Development and Integration</i>				
Project Updates/User Rep Feedback	1	2019	4	2025
NRO MERIT/Combat System Integration (CSI) Proposal Submission and Review Process	1	2019	2	2025
Classified Broad Agency Announcement (BAA)	2	2020	3	2025
<i>Joint Threat Warning System (JTWS)</i>				
JTWS- All Variants (Air, Ground, Maritime, and Unmanned)	1	2019	4	2025
JTWS Modular/Space Payloads	1	2019	4	2025
JTWS Integration/Test/Test support	1	2019	4	2025
<i>Hostile Forces - Tagging, Tracking, and Locating (HF-TTL)</i>				
Rapid Prototyping, Product Development, and Device Integration	1	2019	4	2025
SOF Assessments and Operational Testing	1	2019	4	2025
<i>Special Operations Tactical Video System (SOTVS)</i>				
Product Development	1	2019	4	2025
User Assessments	1	2019	4	2025
<i>Special Operations Forces Planning, Rehearsal & Execution Preparation (SOFPREP)</i>				
Operational Test and Evaluation of Prototype Systems to speed production	1	2019	4	2025
Rapid Prototyping and Product Development	1	2019	4	2019
<i>Integrated Survey Program (ISP)</i>				
Product Development, Test and Evaluation	1	2019	4	2025
<i>Sensitive Site Exploitation (SSE)</i>				

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command			Date: February 2020	
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>		

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Technical evaluation of new technologies	1	2019	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 1160408BB / <i>Operational Enhancements</i>							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	1,442.375	98.395	160.648	136.041	1.186	137.227	137.609	121.206	118.222	120.615	Continuing	Continuing
S500A: <i>Operational Enhancements</i>	1,442.375	98.395	160.648	136.041	1.186	137.227	137.609	121.206	118.222	120.615	Continuing	Continuing

A. Mission Description and Budget Item Justification

Details are provided under separate cover.

B. Program Change Summary (\$ in Millions)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	102.939	167.648	157.271	-	157.271
Current President's Budget	98.395	160.648	136.041	1.186	137.227
Total Adjustments	-4.544	-7.000	-21.230	1.186	-20.044
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-7.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.990	-			
• SBIR/STTR Transfer	-3.554	-			
• Other Adjustments	-	-	-21.230	1.186	-20.044

Change Summary Explanation

Funding:

FY2019: Net decrease of \$4.544 million is due to transfer of funds to Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) programs (-\$3.554 million) and a decrease was made available to support critical emerging Command requirements during the year of execution (-\$0.990 million).

FY2020: Net decrease of -\$7.000 million details provided under separate cover.

FY2021: Net decrease of -\$20.044 million was due to an increase with details provided under separate cover (\$1.028 million) and transfer from base (-\$1.186 million) to Overseas Contingency Operations (OCO) (\$1.186 million) for Enduring Requirements.

For the Defense Wide Review (DWR), USSOCOM performed a comprehensive analysis of capabilities and is streamlining the Operational Enhancements program (details provided under separate cover) to better align with the Department's priorities as outlined in the National Defense Strategy (-\$21.072 million).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>

Schedule: None.

Technical: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	208.650	74.250	81.514	59.511	5.796	65.307	55.509	60.550	61.786	62.891	Continuing	Continuing
D476: <i>Military Information Support Operations</i>	42.130	10.693	5.750	5.459	-	5.459	3.204	3.282	3.363	3.473	Continuing	Continuing
S375: <i>Weapons Systems</i>	4.829	1.212	1.625	1.604	-	1.604	1.529	1.561	1.597	1.629	Continuing	Continuing
S385: <i>Soldier Protection and Survival Systems</i>	19.633	11.342	13.947	4.816	5.796	10.612	12.527	13.119	13.225	13.317	Continuing	Continuing
S385A: <i>Body Armor and Associated Equipment</i>	7.572	1.006	1.752	1.738	-	1.738	1.694	1.729	1.770	1.805	Continuing	Continuing
S395: <i>Visual Augmentation, Lasers and Sensor Systems</i>	12.323	1.054	3.212	2.171	-	2.171	2.097	2.132	2.174	2.218	Continuing	Continuing
S700: <i>Communications Equipment and Electronics Systems</i>	30.937	13.340	17.359	26.435	-	26.435	21.709	21.250	21.720	22.154	Continuing	Continuing
S710: <i>Tactical Systems Development</i>	3.700	4.073	2.813	3.344	-	3.344	3.103	3.169	3.242	3.305	Continuing	Continuing
S725: <i>Tactical Radio Systems</i>	26.008	4.479	11.315	7.940	-	7.940	2.570	2.631	2.699	2.753	Continuing	Continuing
S800: <i>Munitions Advanced Development</i>	61.518	27.051	23.741	6.004	-	6.004	7.076	11.677	11.996	12.237	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 Program Element (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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command Date: February 2020

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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protection and 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. Precision Strike Systems (PSS) will develop a SOF organic strike mission package to surgically strike an agile and mobile enemy, protect own forces, and minimize collateral damage. 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. These technologies will be pursued via rapid prototyping efforts when appropriate. This R-1 PE received Overseas Contingency Operations (OCO) funding in FY 2019 and FY 2020. FY 2021 funding includes OCO funding for Enduring Requirements (\$5.796 million).

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 funds development, testing, integration, rapid prototyping and evaluation of specialized equipment to meet the unique soldier protection and survival requirements of Special Operations Forces (SOF), to include, but not limited to, individual survival equipment, hearing protection, clothing systems, load bearing equipment, Counter Radio Controlled Improvised Explosive Device (RC-IED) systems, Counter Unmanned Systems (aerial, ground and maritime), 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.

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 2021 United States Special Operations Command Date: February 2020

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 Precision Strike Systems (PSS) and 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. When appropriate, these technologies will be pursued via rapid prototyping to develop, demonstrate and evaluate residual operational capabilities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	74.582	68.332	55.337	0.000	55.337
Current President's Budget	74.250	81.514	59.511	5.796	65.307
Total Adjustments	-0.332	13.182	4.174	5.796	9.970
• Congressional General Reductions	-	-3.818			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	17.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.942	-			
• SBIR/STTR Transfer	-2.274	-			
• Other Adjustments	-	-	4.174	5.796	9.970

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

	FY 2019	FY 2020
Project: D476: <i>Military Information Support Operations</i>		
Congressional Add: <i>Next Generation Loud Speakers (NGLS)</i>	5.760	4.000
Congressional Add Subtotals for Project: D476	5.760	4.000
Project: S385: <i>Soldier Protection and Survival Systems</i>		
Congressional Add: <i>Rotary Wing Aviation Helmet</i>	1.500	-
Congressional Add Subtotals for Project: S385	1.500	-
Project: S800: <i>Munitions Advanced Development</i>		
Congressional Add: <i>SOPGM</i>	13.928	13.000
Congressional Add Subtotals for Project: S800	13.928	13.000
Congressional Add Totals for all Projects	21.188	17.000

Change Summary Explanation

Funding:

FY 2019: Net decrease of \$0.332 million is due to a transfer to Small Business Innovative Research/Small Business Technology Transfer programs (-\$2.274 million); an increase in MMP to cover additional requirements related to Advanced Sniper Rifle development (\$1.137 million); an increase for continued RC-IED

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command Date: February 2020

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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systems engineering, test and evaluation (\$0.990 million); and funding was made available to support critical emerging Command requirements during the year of execution (-\$0.185 million).

FY 2020: Net increase of \$13.182 million is due to Congressional Add program increases for distribute audio media and next generation loudspeakers (\$4.000 million), Small Glide Munition (SGM) unmanned aerial system integration (\$3.000 million), SGM collaborative strike environment (\$10.000 million) and Congressional General Reduction for prior year carryover (-\$3.818 million).

FY 2021: Net increase of \$9.970 million due to an increase for the initiation of developmental, test and evaluation of new Media Production Center (MPC) (\$2.694 million), begin the engineering and integration for the munitions guidance and control upgrades for Stand-Off Precision Guided Munitions (SOPGM) (\$3.155 million), rapid development of a modular open systems architecture to provide Mission Command Common Operational Picture (MC/COP) (\$4.583 million), and funding was made available to support critical emerging command requirements (-\$0.180 million). Funding transfer from (-\$5.796 million) base to OCO for Enduring Requirements (\$5.796 million).

For the Defense Wide Review (DWR), USSOCOM performed a comprehensive analysis of future capabilities and is streamlining the RC-CIED, Counter Unmanned Aerial Systems (C-UAS), and Munitions Advanced Development project contract support efforts to better align with the Department's priorities as outlined in the National Defense Strategy (-\$0.282 million).

- \$0.058 million - RC-CIED - reduces system engineering and test and evaluation efforts.
- \$0.204 million - C-UAS - reduces development and test of various capabilities.
- \$0.020 million - Munitions Advanced Development - reduces IM testing on various munitions.

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
D476: <i>Military Information Support Operations</i>	42.130	10.693	5.750	5.459	-	5.459	3.204	3.282	3.363	3.473	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Title: Multi-Mission Payload (MMP) formerly known as Long Range Broadcast System (LRBS)</p> <p>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 Frequency Modulation (FM), Television (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.</p> <p>FY 2021 Base Plans: Completes MMP-Medium development, test, and evaluation and begins MMP-Light development..</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$1.178 million begins MMP-Light development.</p>	3.232	-	1.178	-	1.178
<p>Title: Fly-Away Broadcast System (FABS)</p> <p>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.</p> <p>FY 2020 Plans: Continue testing and evaluation of new systems and components to enhance MISO broadcasts, to include development of Next</p>	0.874	0.888	0.708	-	0.708

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command			Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Generation FABS (v4) for enhanced Next Generation Loud Speaker (NGLS) - Scatterable Media (SM) reprogram capability and Software Defined Radio (SDR) implementation to improve efficiencies and reduce Size, Weight and Power (SWAP).</p> <p>FY 2021 Base Plans: Continues testing and evaluation of new systems and components to enhance MISO broadcasts, to include development of Next Generation FABS (v4) to integrate key capabilities to enhance MISO Broadcasts for NGLS-SM and SDR implementation that improves efficiencies and reduces SWAP. Begins implementation of Tactical Assault Kit - Common Operating Picture enhancements.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.180 million due to re-baselining of funds to more accurately reflect acquisition strategy.</p>					
<p>Title: Next Generation Loud Speakers (NGLS)</p> <p>Description: 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. NGLS-SM is a hand-emplaced or air-delivered printed audio-visual device for disseminating delayed or on-cue messages to foreign target audiences.</p> <p>FY 2020 Plans: Continue testing, development, and evaluation of new systems and components to enhance MISO broadcasts. Focus on NGLS-SM, wireless end-user device, and configurable mission module to improve measures of effectiveness and measures of performance.</p> <p>FY 2021 Base Plans: Continues testing, development, and evaluation of new systems and components to enhance MISO broadcasts. Continues focus on NGLS-SM, wireless end-user device, and configurable mission module to improve measures of effectiveness and measures of performance. NGLS Tactical Assault Kit COP on schedule.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.017 million due to minor adjustments.</p>					
	0.827	0.862	0.879	-	0.879
<p>Title: Media Production Center (MPC)</p>					
	-	-	2.694	-	2.694

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Description: MPC is a set of independent but inter-related multi-media production, editing, and archiving capabilities providing MISO forces and other select organizations with options for imagery, audio, animation, and Audio/Video (AV) products of varying degrees of technical complexity and operational responsiveness.</p> <p>FY 2021 Base Plans: Initiates development, modifications, testing, and evaluation of existing and new systems. RDTE plans for the MPC Family of Systems (FoS) include three main efforts: Media Anti Forensics, Language Translation, and Deep Fakes.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$2.694 million due to start of development, modifications, testing, and evaluation of new MPC capabilities.</p>					
Accomplishments/Planned Programs Subtotals	4.933	1.750	5.459	-	5.459

	FY 2019	FY 2020
<p>Congressional Add: Next Generation Loud Speakers (NGLS)</p> <p>FY 2019 Accomplishments: Congressional add to continue development of distributable audio media and NGLS - Scatterable Media (SM).</p> <p>FY 2020 Plans: Congressional add continues development and begins test and evaluation of distributable audio media and NGLS - Scatterable Media (SM).</p>	5.760	4.000
Congressional Adds Subtotals	5.760	4.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PROC1/0204OTHER: OTHER ITEMS <\$5M	131.905	103.938	96.333	0.984	97.317	79.598	73.139	54.838	70.984	Continuing	Continuing

Remarks
None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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>

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-SM, NGLS-Sonic Projection). Commercial and government agencies will be leveraged for engineering, required certifications, functional and operating tests and acceptance support.
- The MPC program will pursue incremental development of advanced media and analytic software capabilities following commercial standards and best practices.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Multi-Mission Payload (MMP)	MIPR	Various : Various	8.310	3.089	Jan 2019	-		1.178	Jan 2021	-		1.178	Continuing	Continuing	-
Fly Away Broadcast Systems (FABS)	Reqn	Various : Various	4.330	0.874	Apr 2019	0.888	Oct 2019	0.608	Dec 2020	-		0.608	Continuing	Continuing	-
Next Generation Loud Speakers (NGLS)	Allot	Various : Various	0.437	0.727	Apr 2019	0.762	Jun 2020	0.779	Nov 2020	-		0.779	Continuing	Continuing	-
NGLS Congressional Add	Allot	Various : Various	5.781	5.760	Apr 2020	4.000	Apr 2021	-		-		-	0.000	15.541	-
Media Production Center (MPC)	C/Various	Various : Various	-	-		-		2.694	Jan 2021	-		2.694	Continuing	Continuing	-
Prior Year	C/Various	Various : Various	22.706	-		-		-		-		-	0.000	22.706	-
Subtotal			41.564	10.450		5.650		5.259		-		5.259	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MMP	MIPR	Various : Various	0.441	0.143	Jan 2019	-		-		-		-	0.000	0.584	-
NGLS	Allot	Various : Various	-	0.100	Apr 2019	0.100	Aug 2020	0.100	Aug 2020	-		0.100	Continuing	Continuing	-
FABS	MIPR	Various : Various	-	-		-		0.100	Jan 2021	-		0.100	Continuing	Continuing	-
Prior Year	MIPR	Various : Various	0.125	-		-		-		-		-	0.000	0.125	-
Subtotal			0.566	0.243		0.100		0.200		-		0.200	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		42.130	10.693	5.750	5.459	-	5.459	Continuing	Continuing	N/A

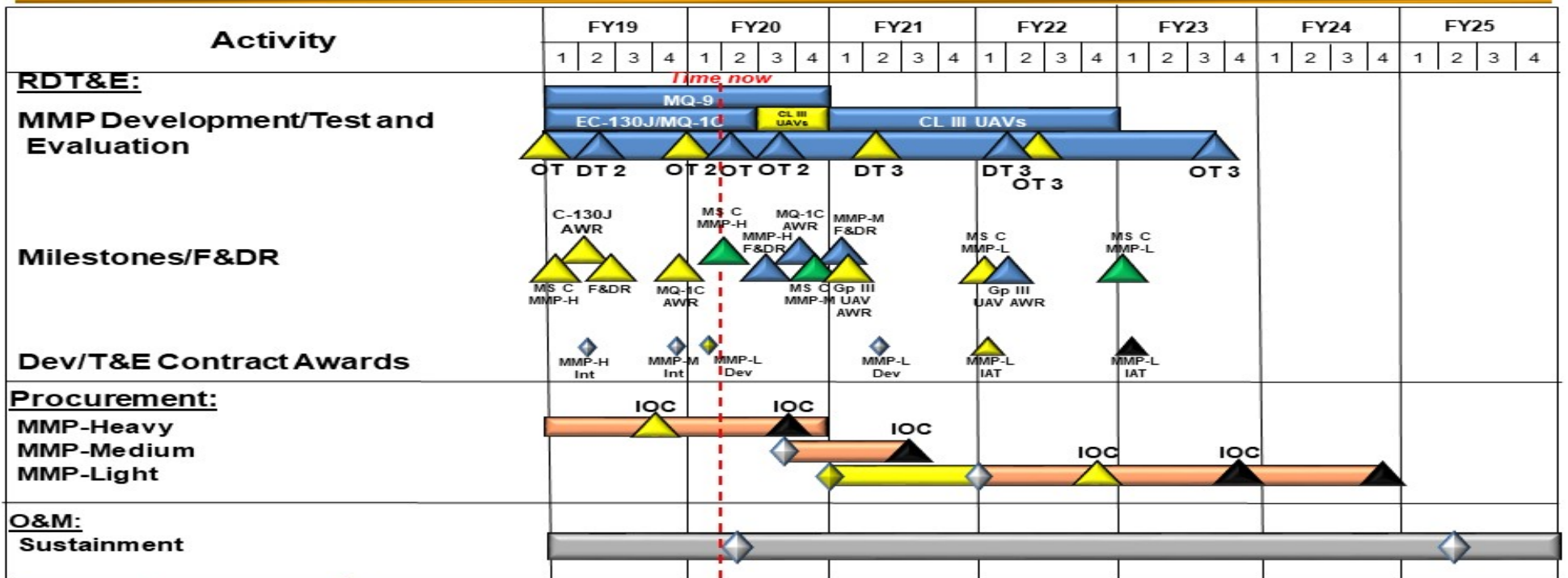
Remarks

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
D476 / Military Information Support Operations

Multi-Mission Payload (MMP) PEO-Managed Schedule

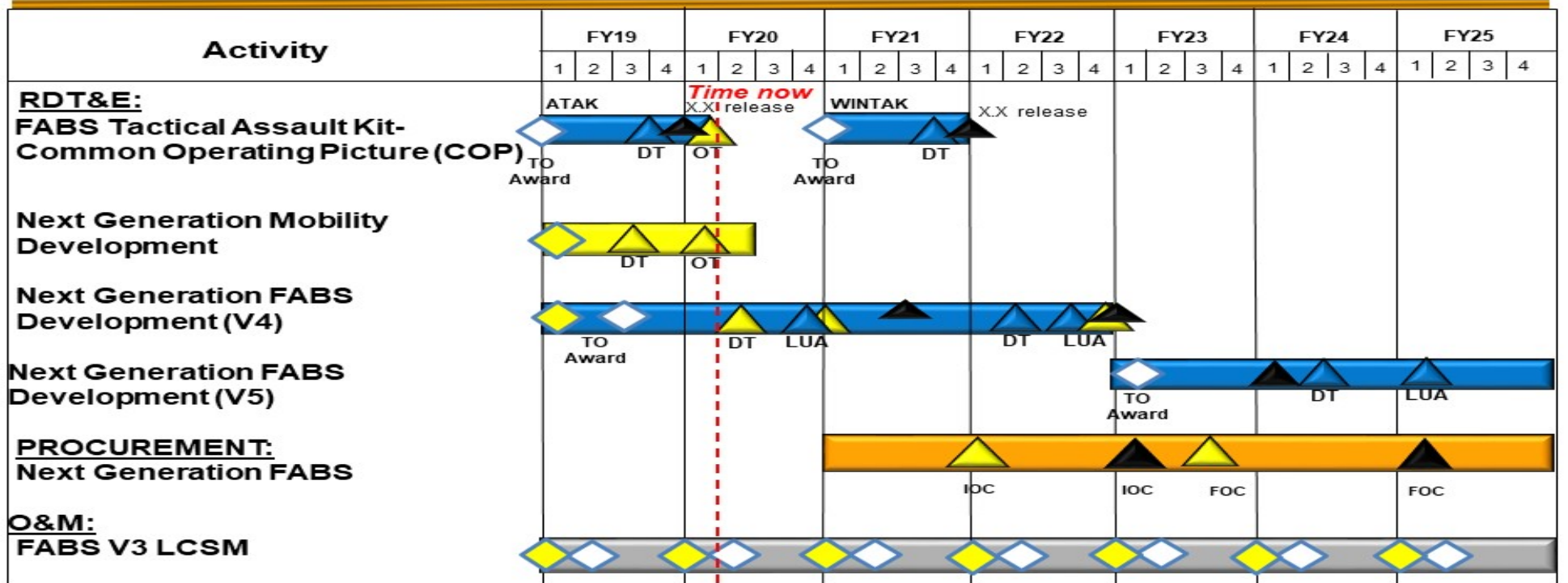


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
D476 / Military Information Support Operations

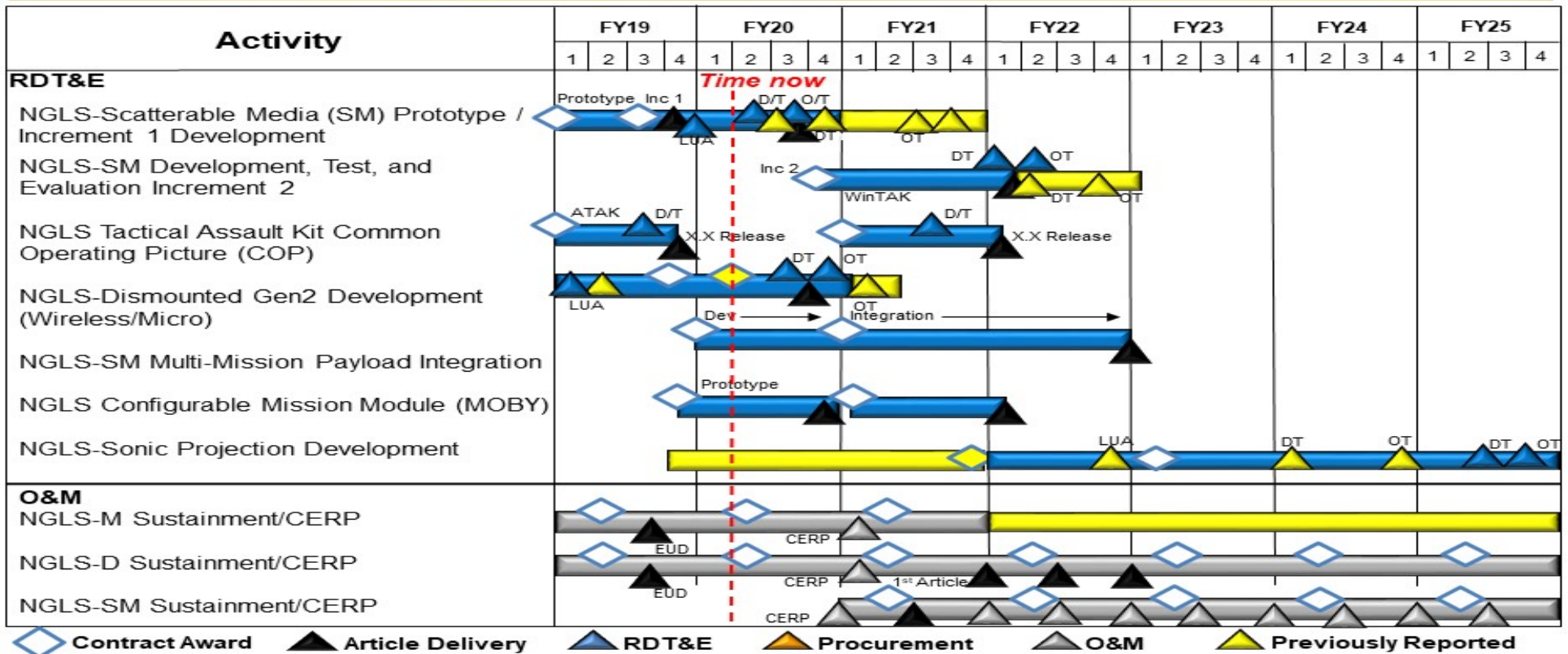
Fly Away Broadcast System PEO Managed Schedule



◇ Article Award
 ▲ Article Delivery
 ▲ RDT&E
 ▲ Procurement
 ▲ O&M
 ▲ Previously Reported

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / Warrior Systems	Project (Number/Name) D476 / Military Information Support Operations

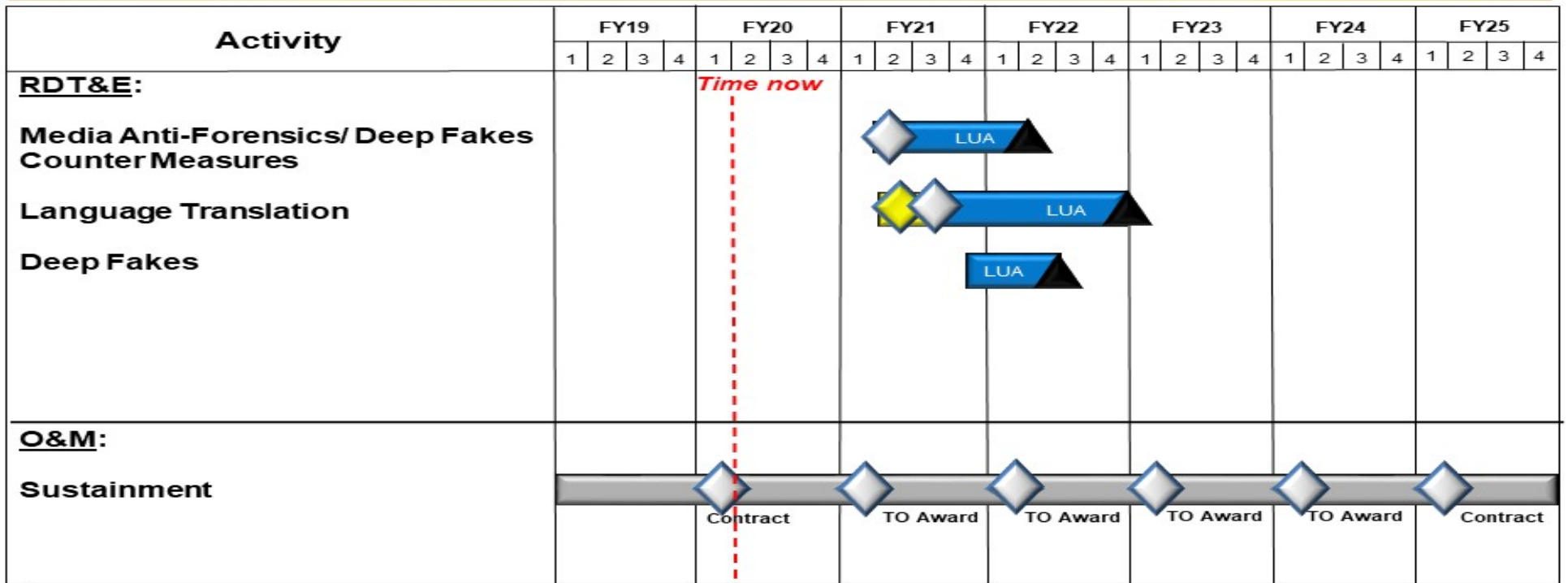
Next Generation Loudspeaker System (NGLS) PEO Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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>

Media Production Center (MPC) PEO Managed Schedule



◆ Contract Award
 ▲ Article Delivery
 ▲ RDT&E
 ▲ Procurement
 ▲ O&M
 ▲ Previously Reported

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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
Multi-Mission Payload (MMP)				
Development	1	2019	4	2022
Test and Evaluation	1	2019	3	2023
Fly Away Broadcast Systems (FABS)				
Tactical Assault Kit - Common Operating Picture (COP)	1	2019	4	2021
FABS (V4) Development	3	2019	4	2022
FABS (V5) Development	1	2023	4	2025
Next Generation Loudspeakers (NGLS)				
Scatterable Media (SM) Development, Test, and Evaluation	1	2019	2	2022
NGLS Tactical Assault Kit Common Operating Picture	1	2019	1	2022
Dismounted GEN 2 Development, Test, and Evaluation	1	2019	1	2021
NGLS-SM Multi-Mission Payload Integration	1	2021	4	2022
NGLS Configurable Mission Module	4	2019	1	2022
Sonic Projection Development	1	2022	4	2025
Media Production Center (MPC)				
Media Anti Forensics	2	2021	2	2022
Language Translation	3	2021	4	2022
Deep Fakes	4	2021	3	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S375: <i>Weapons Systems</i>	4.829	1.212	1.625	1.604	-	1.604	1.529	1.561	1.597	1.629	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the next generation systems Pre-Planned Product Improvements (P3I), testing, and integration of specialized weapon systems and weapon accessories to meet the unique requirements of Special Operations Forces (SOF). The efforts include the product improvements and testing of the Suppressed Upper Receiver Group (SURG), Advanced Sniper Rifle (ASR), Machine Gun (MG) Barrel, Mid-Range Gas Gun (MRGG), Personal Defense Weapon (PDW), Hand Gun (HG) suppressor, Lightweight Machine Gun-Medium (LMG-M), and Advance Machine Gun (AMG). The product improvements will leverage the latest technological advances to achieve overmatch capability against current and emerging threats. These technologies will be pursued via rapid prototyping efforts when appropriate.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Weapons	1.212	1.625	1.604	-	1.604
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. Weapons is designated a Middle Tier of Acquisitions (MTA) program which uses the rapid prototyping pathway and is executed using existing contracts, government agencies, and new contract competitively selected as appropriate.					
FY 2020 Plans: Continue development of enhanced capabilities to improve performance of individual sniper, rifle, and machine gun weapons.					
FY 2021 Base Plans: Continues development of enhanced capabilities to improve performance of individual sniper, rifle, and machine gun weapons.					
FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.021 million due to minor adjustments.					
Accomplishments/Planned Programs Subtotals	1.212	1.625	1.604	-	1.604

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PROC/0204WARRIOR: <i>Warrior Systems <\$5M</i>	470.285	335.992	260.733	32.573	293.306	276.972	282.592	285.664	286.725	Continuing	Continuing

Remarks

D. Acquisition Strategy

Evolutionary acquisition, leveraging emerging technology and rapid prototyping efforts when appropriate. 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).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	4.829	1.212	Jan 2019	1.625	Jan 2020	1.604	Jan 2021	-		1.604	Continuing	Continuing	-
Subtotal			4.829	1.212		1.625		1.604		-		1.604	Continuing	Continuing	N/A
Project Cost Totals			4.829	1.212		1.625		1.604		-		1.604	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

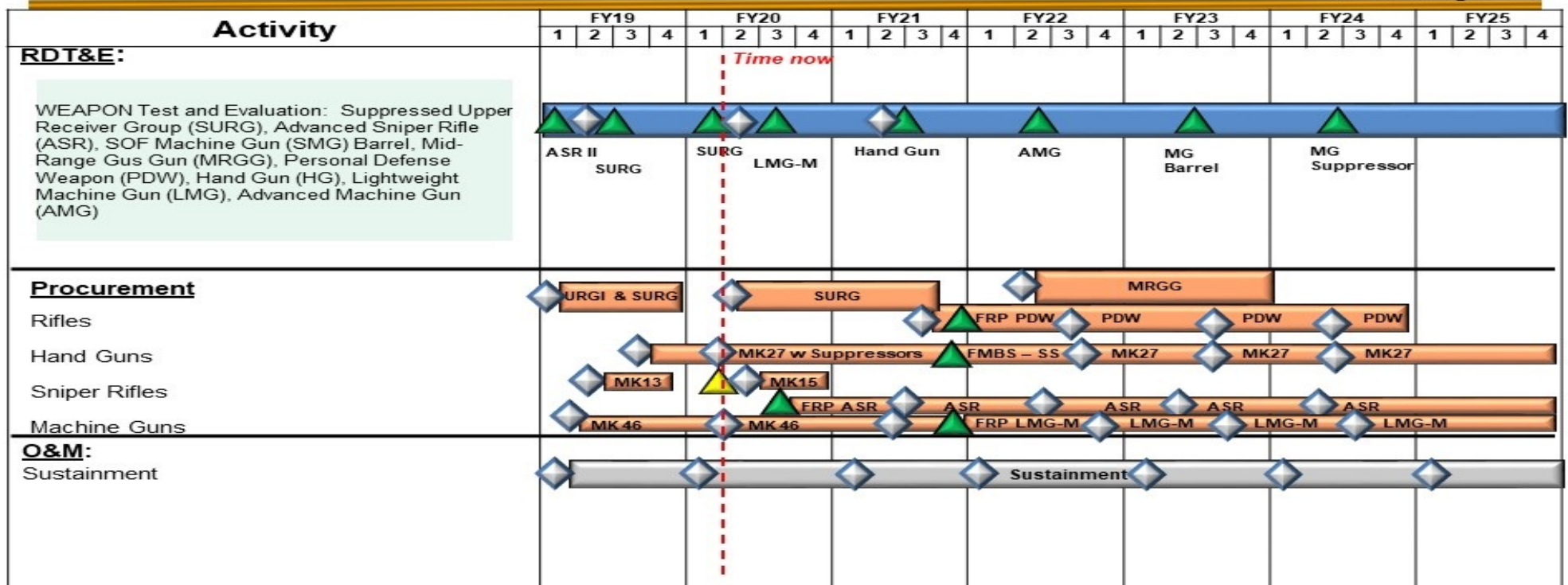
Date: February 2020

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S375 / Weapons Systems

Weapon Systems PEO-Managed Schedule



▲ 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 2021 United States Special Operations Command **Date:** February 2020

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>				
Test & Evaluation: Suppressed Upper Receiver Group, Advanced Sniper Rifle, SOF Machine Gun Barrel, Mid-Range Gas Gun, Personal Defense Weapon, Hand Gun, Lightweight Machine Gun, Advanced Machine Gun	1	2019	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S385: <i>Soldier Protection and Survival Systems</i>	19.633	11.342	13.947	4.816	5.796	10.612	12.527	13.119	13.225	13.317	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds development, testing, integration, rapid prototyping and evaluation of specialized equipment to meet the unique soldier protection and survival requirements of Special Operations Forces (SOF), to include, but not limited to, individual survival equipment, hearing protection, clothing systems, load bearing equipment, Counter Radio Controlled Improvised Explosive Device (RC-IED) systems, Counter Unmanned Systems (aerial, ground and maritime), 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. These technologies will be pursued via rapid prototyping efforts when appropriate.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: SOF Personal Equipment Advanced Requirements (SPEAR)	0.845	0.288	1.232	-	1.232
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 2020 Plans: Continue research and development of land communications materiel solutions and environmental protective combat uniforms. Continue materials testing and incorporation into commodity lines. Continue wireless headset evaluations. Continue interoperability of headsets with radios and integrated communication systems.					
FY 2021 Base Plans: Continues research and development of land communications materiel 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 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.944 million continues development supporting extreme weather clothing and equipment efforts, load carriage and body armor vest development and evaluations.					
Title: Tactical Combat Casualty Care (TCCC)	0.171	0.240	0.229	-	0.229

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 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 (FDA) 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. The TCCC program fields essential lifesaving CASEVAC equipment and capabilities and is a platform 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 2020 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 capable of enabling telemedicine/telementoring for incorporation into the CASEVAC program.</p> <p>FY 2021 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 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.011 million due to the completion of the CASEVAC Prime vendor contract re-compete effort.</p>					
<p>Title: Counter Radio Controlled-Improvised Explosive Device (RC-IED)</p> <p>Description: Counter Radio Controlled-Improvised Explosive Device (RC-IED): United States Special Operations Command (USSOCOM) uses ground (mounted/dismounted) based jammers to counter Radio Controlled Improved Explosive devices. This program provides scalable RC-IED systems whose configuration and modularity address a mission critical capability to counter this threat globally. To stay ahead of emerging threats, USSOCOM has historically developed advanced techniques on annually recurring basis. Through strategic partnerships with the Services, and other government agencies, USSOCOM vastly improved program affordability while maintaining Joint Force compatibility. USSOCOM's special mission remains the priority, while the development of a third-party module, advanced techniques, and other hardware enhancements</p>	2.567	1.731	1.632	-	1.632

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
are coordinated with other government agencies and services to tackle emerging threats. All next generation Electronic Countermeasures (ECM) development designed as National to Theatre (“N-to-T”) transition programs.					
<p>FY 2020 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 and testing of 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 2021 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 from state and non-state actors. 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.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Net decrease of \$0.099 million is due to minor adjustments.</p>					
<p>Title: Counter Unmanned Aerial System (C-UAS)</p> <p>Description: SOF C-UAS enhances the SOF operator’s ability to detect, identify, classify, locate, track, deter, defeat and exploit unmanned system threats. The funding in this program supports a Family of Systems (FoS) design, development, integration, rapid prototyping and test of cutting edge C-UAS sensor integration technologies that delivers and integrates various detection sensor modalities including, but not limited to, passive sensors, Radio frequency (RF) detection, acoustic, Light Detection and Ranging (LiDAR), radar, and Electro-Optical and Infrared (EO/IR). This program received Overseas Contingency Operations (OCO) funding in FY 2019 and FY 2020. C-UAS is designated a MTA program which uses the rapid prototyping pathway and is executed using existing contracts, government agencies, and new contract competitively selected as appropriate.</p> <p>FY 2020 Plans:</p>	4.662	10.000	0.000	5.796	5.796

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Continue and complete C-UAS System Integration Module (SIM) FoS Middle Tier Acquisition (MTA) rapid prototype phase 2 development and begin phase 3 test and operational assessment of layered multi-sensor interface technologies. Begin development and test of kinetic and non-kinetic capabilities of mounted, dismounted and fixed-site expeditionary form factors to address emerging threats. Conduct kinetic feasibility assessment.</p> <p>FY 2021 Base Plans: N/A</p> <p>FY 2021 OCO Plans: Continues C-UAS SIM FoS MTA rapid prototype phase 3 of layered multi-sensor interface technologies. Continues development and test of kinetic and non-kinetic capabilities of mounted, dismounted and fixed-site expeditionary form factors to address emerging threats. Continues kinetic feasibility assessment.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Net decrease of \$4.204 million is due to completion of SIM Phase 2: Prototype Development in FY20 (-\$4.000 million) and funding made available due to streamlining contract support efforts (-\$0.204 million).</p>					
<p>Title: Personal Signature Management (PSM)</p> <p>Description: PSM 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 2020 Plans: Continue 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 2021 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 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.035 million is due to anticipated cost increase of threat sensor exploitation efforts.</p>	1.597	1.688	1.723	-	1.723
Accomplishments/Planned Programs Subtotals	9.842	13.947	4.816	5.796	10.612

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020
Congressional Add: Rotary Wing Aviation Helmet	1.500	-
FY 2019 Accomplishments: Research and development of rotary wing aviation helmet.		
Congressional Adds Subtotals	1.500	-

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

Line Item	FY 2019	FY 2020	FY 2021	FY 2021	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PROC/0204WARRIOR: <i>Warrior Systems<\$5M</i>	470.285	335.992	260.733	32.573	293.306	276.972	282.592	285.664	286.725	Continuing	Continuing

Remarks

D. Acquisition Strategy

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.

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 Special Operations Forces Support Activity for warehousing and sustainment. CASEVAC Set - Program managed by PM-SOF SSES and utilizes and Indefinite Delivery Indefinite Quantity Commercial-Off-The-Shelf (COTS) prime integrator contract.

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 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). SOF RC-IED collaborates with the Joint Services, Academia and other government agencies to maintain interoperability and cost effectiveness. SOF RC-IED will continue to leverage the SOF-to-Service transition of proven capabilities.

Counter Unmanned Aerial System (C-UAS): SOF C-UAS acquisition strategy utilizes middle tier acquisition (MTA) rapid prototyping to develop and integrate various advancing sensors with kinetic and non-kinetic capabilities in mounted, dismounted and expeditionary fixed-site form factors, while the services focus primarily on providing capability to address fixed site defense of homeland and Forward Operating Bases (FOBs). Upon completion of various Combat Evaluations in FY20, C-UAS will transition into a Program of Record with an approved Capabilities Development Document (CDD). C-UAS will implement an incremental acquisition strategy as an enabling technology for future application to include additional capabilities given program/acquisition constraints and SOF operator requirements/priorities. Contracts are expected to be a combination of Firm Fixed Price (FFP) and Cost type through full and open competition across the SOCOM focus areas.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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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SOF C-UAS collaborates with the Joint Services, Academia and other government agencies to maintain interoperability and cost effectiveness. SOF C-UAS will continue to leverage the SOF-to-Service transition of proven capabilities where possible.

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	0.447	0.200	Jan 2019	0.067	Jan 2020	0.400	Jan 2021	-		0.400	Continuing	Continuing	-
SPEAR - Hearing Protection and Communications Headsets	Various	PM-SSES : Natick, MA	1.195	0.150	Feb 2019	0.047	Jan 2020	0.300	Jan 2021	-		0.300	Continuing	Continuing	-
SPEAR Modular Glove System (MGS)	Various	PM-SSES : Natick, MA	0.040	0.010	Jan 2019	0.006	Jan 2020	0.030	Jan 2021	-		0.030	Continuing	Continuing	-
SPEAR - Load Carriage System (LCS) and Backpacks	Various	PM-SSES : Natick, MA	0.055	0.035	Mar 2019	0.019	Mar 2020	0.100	Mar 2021	-		0.100	Continuing	Continuing	-
Counter Unmanned Aerial System (C-UAS) Emerging Threat Development (Dismount/Mount/EXP) (OCO)	C/Various	Various : Various	-	-		4.440	Jan 2020	-		-		-	0.000	4.440	-
C-UAS Emerging Threat Development (Dismount/Mount/EXP) (OCO)	C/Various	Various : Various	-	-		-		0.000		3.000	Jan 2021	3.000	Continuing	Continuing	-
C-UAS SIM Phase I: Concept Development (OCO)	C/Various	Night Vision Labs : Ft. Belvoir, VA	-	3.000	Feb 2019	-		-		-		-	0.000	3.000	-
C-UAS SIM Phase II: Prototype Development	C/Various	Night Vision Labs : Ft. Belvoir, VA	-	-		4.000	Jan 2020	-		-		-	0.000	4.000	-
C-UAS SIM Phase III: Operational Assessment and Test (OCO)	C/Various	Various : Various	-	-		-		0.000		1.133	Mar 2021	1.133	Continuing	Continuing	-
Rotary Wing Aviation Helmet Congressional Add	C/Various	PM-SSES : Natick, MA	-	1.500	Sep 2019	-		-		-		-	0.000	1.500	-
Personal Signature Management (PSM) Development (Inc II and III)	Various	Various : Various	-	0.799	Sep 2019	-		0.861	Jan 2021	-		0.861	Continuing	Continuing	-
Subtotal			1.737	5.694		8.579		1.691		4.133		5.824	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	0.356	0.200	Feb 2019	0.056	Mar 2020	0.100	Mar 2021	-		0.100	Continuing	Continuing	-
SPEAR-MGS Test and Evaluation	Various	PM-SSES : Natick, MA	0.091	0.010	Jan 2019	0.010	Jan 2020	0.045	Jan 2021	-		0.045	Continuing	Continuing	-
SPEAR - Hearing Protection and Comms Headset T&E	Various	PM-SSES : Natick, MA	1.668	0.210	Jan 2019	0.061	Jan 2020	0.162	Jan 2021	-		0.162	Continuing	Continuing	-
SPEAR - LCS/Body Armor Vest/Backpack Material and Prototype Test and Evaluation	Various	PM-SSES : Natick, MA	0.116	0.030	Jan 2019	0.022	Feb 2020	0.095	Feb 2021	-		0.095	Continuing	Continuing	-
Tactical Combat Casualty Care CASEVAC Sets Development, Test and Evaluation	Various	PM-SSES : Natick, MA	1.567	0.171	Feb 2019	0.240	Feb 2020	0.229	Jan 2021	-		0.229	Continuing	Continuing	-
Counter Radio Controlled - Improvised Explosive Device Technology Insertion/SW/Techniques	C/Various	Various : Various	13.127	2.567	Mar 2019	1.731	Mar 2020	1.632	Mar 2021	-		1.632	Continuing	Continuing	-
C-UAS Tech. and Concept Evaluation	C/Various	Various : Various	0.411	0.162	Feb 2019	-		-		-		-	0.000	0.573	-
C-UAS Test and Evaluation Support	C/Various	Various : Various	-	1.500	Nov 2018	-		-		-		-	0.000	1.500	-
C-UAS Test and Evaluation Support (OCO)	C/Various	Various : Various	-	-		1.560	Nov 2019	0.000		1.663	Nov 2020	1.663	Continuing	Continuing	-
Personal Signature Management (PSM) Test and Evaluation	Various	Various : Various	-	0.798	Jan 2019	1.688	Jan 2020	0.862	Jan 2021	-		0.862	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			17.896	5.648		5.368		3.125		1.663		4.788	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command								Date: February 2020			
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 2019		FY 2020		FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	19.633	11.342		13.947		4.816	5.796	10.612	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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>

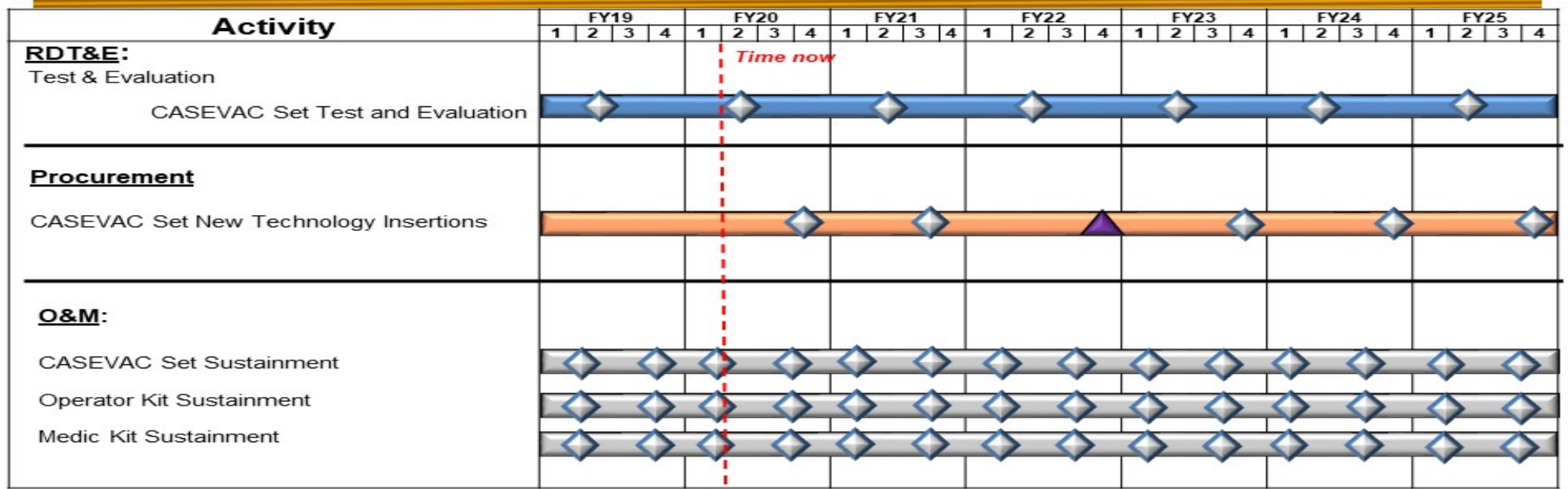
SOF Personal Equipment Advanced Requirements (SPEAR) PEO-Managed Schedule



▲ FOC
 ▲ Milestone
 ◆ Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / Warrior Systems	Project (Number/Name) S385 / Soldier Protection and Survival Systems

Tactical Combat Casualty Care (TCCC) PEO-Managed Schedule

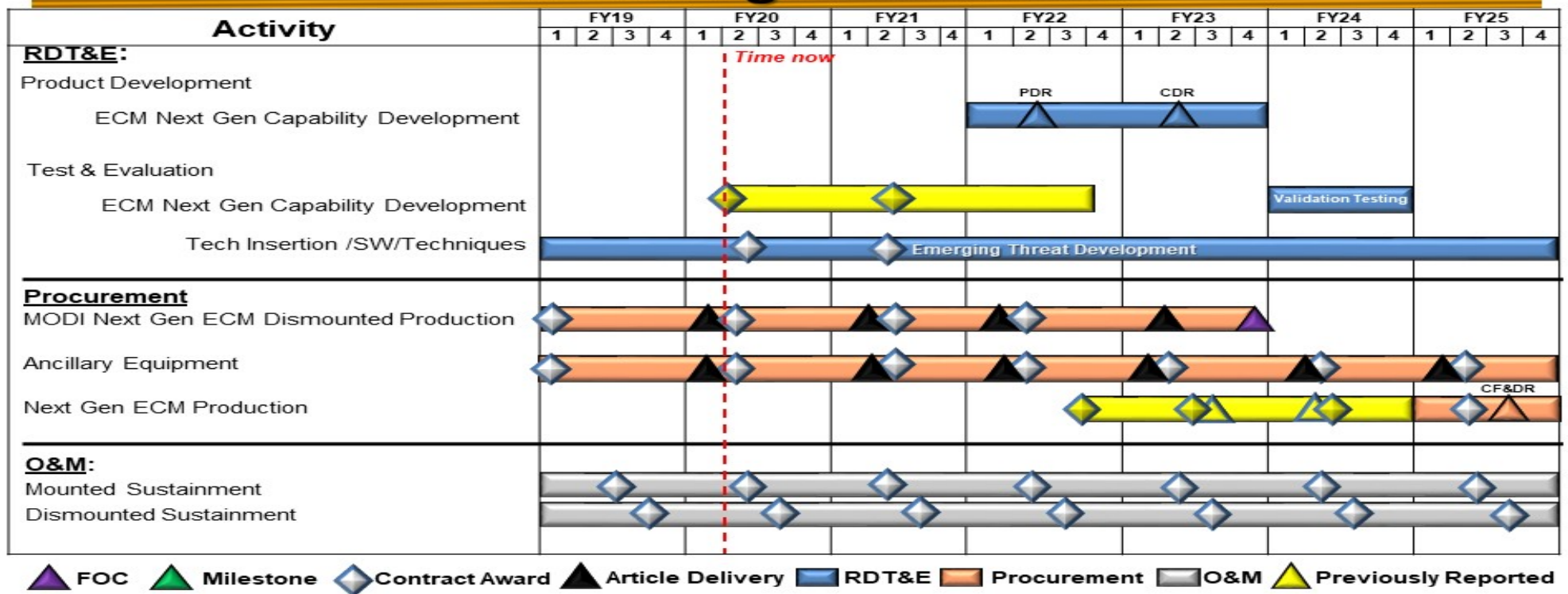


▲ FOC
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 ◆ Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / Warrior Systems	Project (Number/Name) S385 / Soldier Protection and Survival Systems

Counter Radio Controlled - Improvised Explosive Device (RC-IED) PEO Managed Schedule

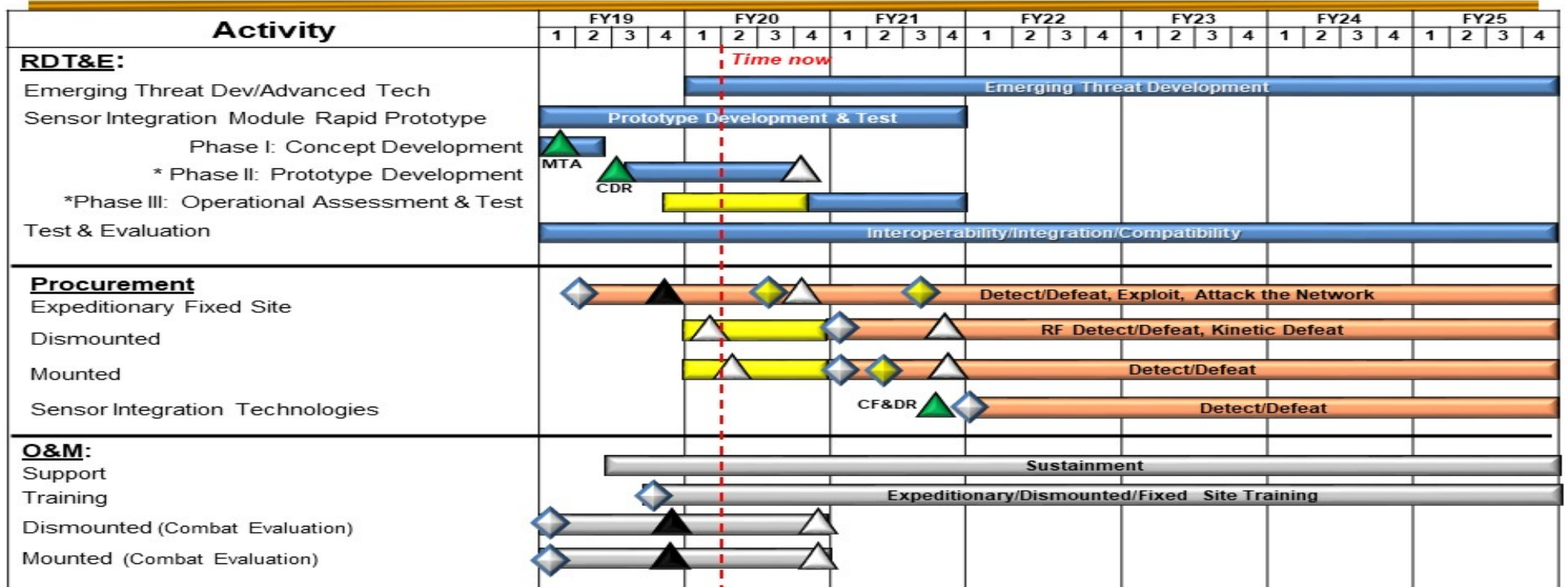


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S385 / Soldier Protection and Survival Systems

Counter Unmanned Aerial Systems PEO-Managed Schedule

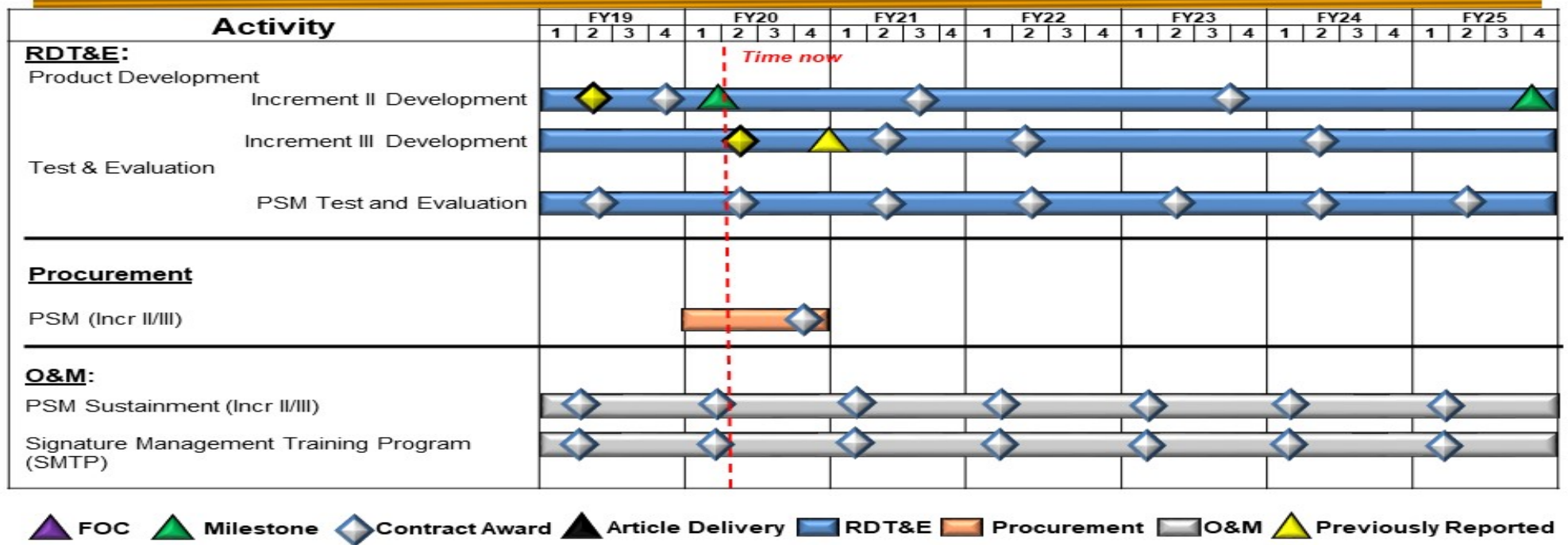


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 ▲ Milestone
 ◆ Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / Warrior Systems	Project (Number/Name) S385 / Soldier Protection and Survival Systems

Personal Signature Management (PSM) PEO-Managed Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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 (SPEAR)</i>				
Protective Combat Uniform (PCU) Product Development	1	2019	4	2025
Modular Integrated Communications Helmet (MICH) Comms/Land Maritime Communication System Product Development	1	2019	4	2025
Modular Glove System (MGS) Product Development	1	2019	4	2025
Load Carriage System (LCS) and Backpacks Product Development	1	2019	4	2025
PCU Test & Evaluation	1	2019	4	2025
MGS Test & Evaluation	1	2019	4	2025
Comms Test & Evaluation	1	2019	4	2025
LCS/Backpack/Body Armor Vest Test & Evaluation	1	2019	4	2025
<i>Tactical Combat Casualty Care (TCCC)</i>				
TCCC CASEVAC Sets Development, Test & Evaluation	1	2019	4	2025
<i>Counter Radio Controlled-Improvised Explosive Device (R-CIED)</i>				
Next Generation ECM Capability Development (Product Development)	1	2022	4	2023
Next Generation ECM Capability Development (Test & Evaluation Support)	1	2024	4	2024
Technology Insertion/SW/Techniques (Test & Evaluation Support)	1	2019	4	2025
<i>Counter Unmanned Aerial System (C-UAS)</i>				
Emerging Threat Development / Advanced Technology	1	2020	4	2025
C-UAS Family of Systems (FoS) SIM - Phase 1 (Technology and Concept Evaluation)	1	2019	2	2019
C-UAS FoS-SIM - Phase 2 (Prototype Development)	3	2019	4	2020
C-UAS FoS-SIM - Phase 3 (Prototype Operational Assessment and Test)	4	2020	4	2021
Interoperability, Integration and Compatibility Test	1	2019	4	2025

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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
<i>Personnel Signature Management (PSM)</i>				
PSM Development (Incr II)	1	2019	4	2025
PSM Development (Incr III)	1	2019	4	2025
PSM Test & Evaluation	1	2019	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S385A: <i>Body Armor and Associated Equipment</i>	7.572	1.006	1.752	1.738	-	1.738	1.694	1.729	1.770	1.805	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: SOF Personal Equipment Advanced Requirement (SPEAR)-Ballistic Protection	1.006	1.752	1.738	-	1.738
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 2020 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 2021 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 2020 to FY 2021 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Decrease of \$0.014 million is due to minor adjustments.					
Accomplishments/Planned Programs Subtotals	1.006	1.752	1.738	-	1.738

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

N/A

Remarks

D. Acquisition Strategy

SPEAR ballistic protection equipment takes advantage of modified Commercial-Off-The-Shelf (COTS) 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 (SOFSFA) 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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	2.505	0.338	Apr 2019	0.395	Feb 2020	0.387	Feb 2021	-		0.387	Continuing	Continuing	-
SPEAR - Lightweight Ballistic Helmets	Various	PM-SSES : Natick, MA	1.717	0.126	May 2019	0.385	Jan 2020	0.378	Jan 2021	-		0.378	Continuing	Continuing	-
SPEAR - Eye Protection	Various	PM-SSES : Natick, MA	0.236	0.050	Apr 2019	0.107	Mar 2020	0.116	Mar 2021	-		0.116	Continuing	Continuing	-
Subtotal			4.458	0.514		0.887		0.881		-		0.881	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	1.726	0.301	Apr 2019	0.385	Apr 2020	0.381	Apr 2021	-		0.381	Continuing	Continuing	-
SPEAR - Lightweight Ballistic Helmet	Various	PM-SSES : Natick, MA	1.231	0.153	Jun 2019	0.385	Apr 2020	0.381	Apr 2021	-		0.381	Continuing	Continuing	-
SPEAR - Transparent Armor	Various	PM-SSES : Natick, MA	0.157	0.038	Apr 2019	0.095	Mar 2020	0.095	Mar 2021	-		0.095	Continuing	Continuing	-
Subtotal			3.114	0.492		0.865		0.857		-		0.857	Continuing	Continuing	N/A

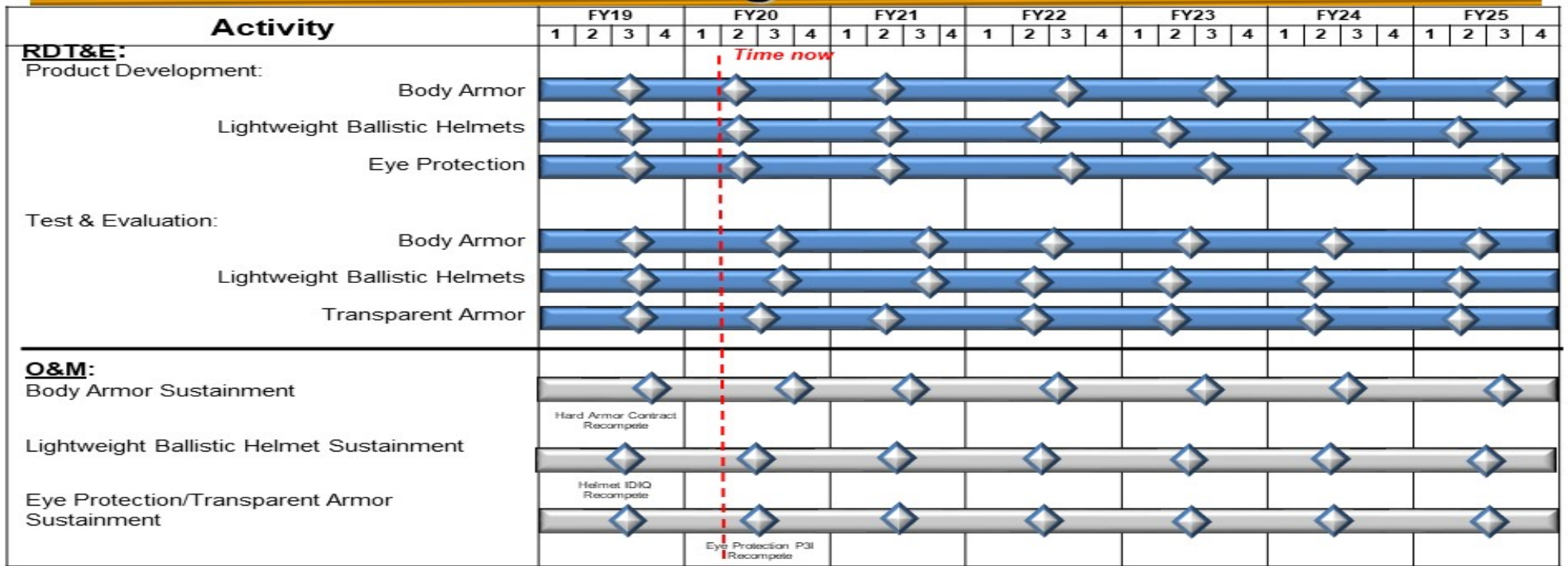
	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		7.572	1.006	1.752	1.738	1.738	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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>

SOF Personal Equipment Advanced Requirements (SPEAR) - Body Armor PEO-Managed Schedule



▲ 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 2021 United States Special Operations Command		Date: February 2020
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	1	2019	4	2025
Lightweight Ballistic Helmets Product Development	1	2019	4	2025
Eye Protection Product Development	1	2019	4	2025
Body Armor Test & Evaluation	1	2019	4	2025
Lightweight Ballistic Helmets Test & Evaluation	1	2019	4	2025
Transparent Armor Test & Evaluation	1	2019	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S395: <i>Visual Augmentation, Lasers and Sensor Systems</i>	12.323	1.054	3.212	2.171	-	2.171	2.097	2.132	2.174	2.218	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Visual Augmentation Systems (VAS)	1.054	3.212	2.171	-	2.171
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 2020 Plans: Continue 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 2021 Base Plans: Continues development and testing of visual augmentation, laser devices, and continues development and testing of simulators to improve situational awareness, sharing of data/images, target acquisition, and training.					
FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$1.041 million is due to efficiencies gained in simulator development by combining new standards and protocols that will provide the architecture to integrate service common simulators into current SOCOM simulators.					
Accomplishments/Planned Programs Subtotals	1.054	3.212	2.171	-	2.171

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command			Date: February 2020
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)

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• PROC/0204WARRIOR: <i>Warrior Systems<\$5M</i>	470.285	335.992	260.733	32.573	293.306	276.972	282.592	285.664	286.725	Continuing	Continuing

Remarks

D. Acquisition Strategy

Evolutionary acquisition and leveraging emerging technologies. 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 (IDIQ) and small business set asides at several location; primarily via Naval Surface Warfare Center, Crane Contracting office, USSOCOM Contracting Office and other contracting offices.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	9.161	1.054	Jan 2019	1.507	Apr 2020	1.000	Apr 2021	-		1.000	Continuing	Continuing	-
Visual Augmentation Systems (VAS) Product Development (Simulator)	C/CPFF	USSOCOM : Tampa, FL	-	-		1.493	Apr 2020	0.481	Apr 2021	-		0.481	Continuing	Continuing	-
Prior Year Overseas Contingency Operations (OCO)	C/CPFF	USSOCOM : Tampa, FL	2.667	-		-		-		-		-	0.000	2.667	-
Subtotal			11.828	1.054		3.000		1.481		-		1.481	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	0.495	-		-		-		-		-	Continuing	Continuing	-
VAS Optic Test and Evaluation	C/CPFF	USSOCOM : Tampa FL	-	-		0.106	Apr 2020	0.345	Apr 2021	-		0.345	Continuing	Continuing	-
VAS Laser Test and Evaluation	C/CPFF	USSOCOM : Tampa FL	-	-		0.106	Apr 2020	0.345	Apr 2021	-		0.345	Continuing	Continuing	-
Subtotal			0.495	-		0.212		0.690		-		0.690	Continuing	Continuing	N/A

Project Cost Totals	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
	12.323	1.054	3.212	2.171	-	2.171	Continuing	Continuing	N/A

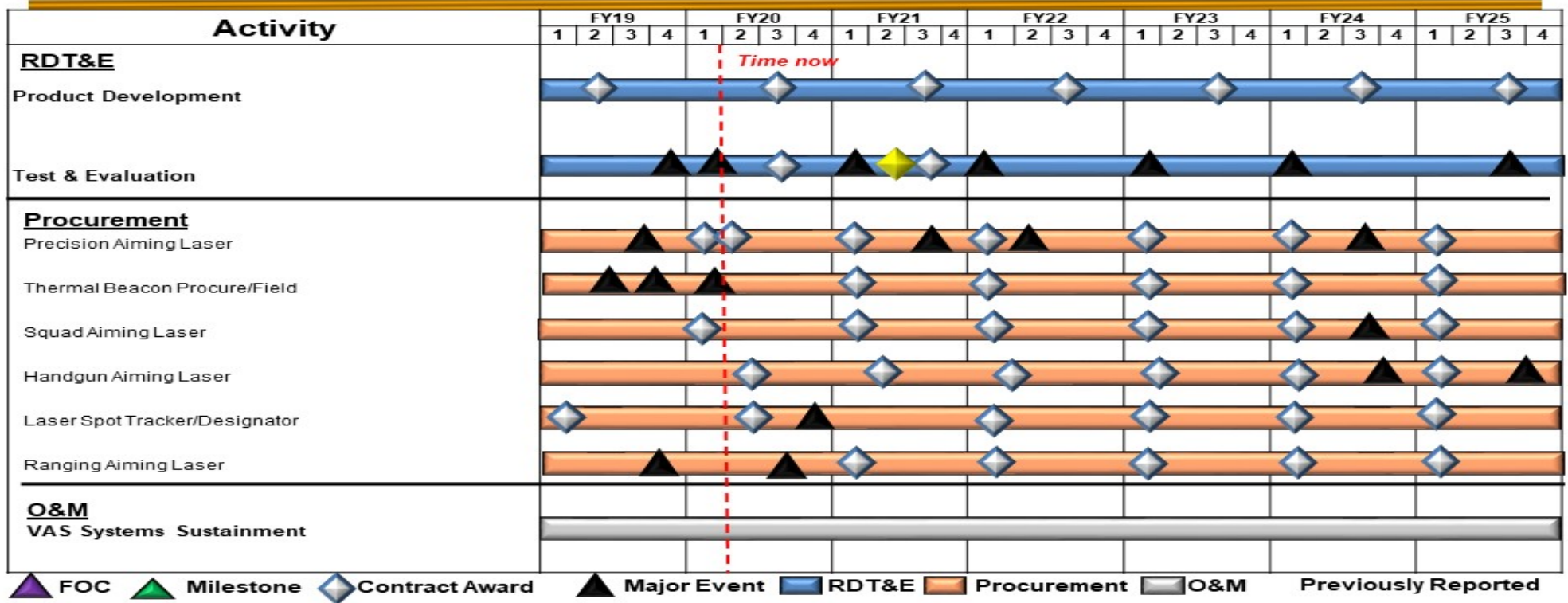
Remarks

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 PEO-Managed Schedule

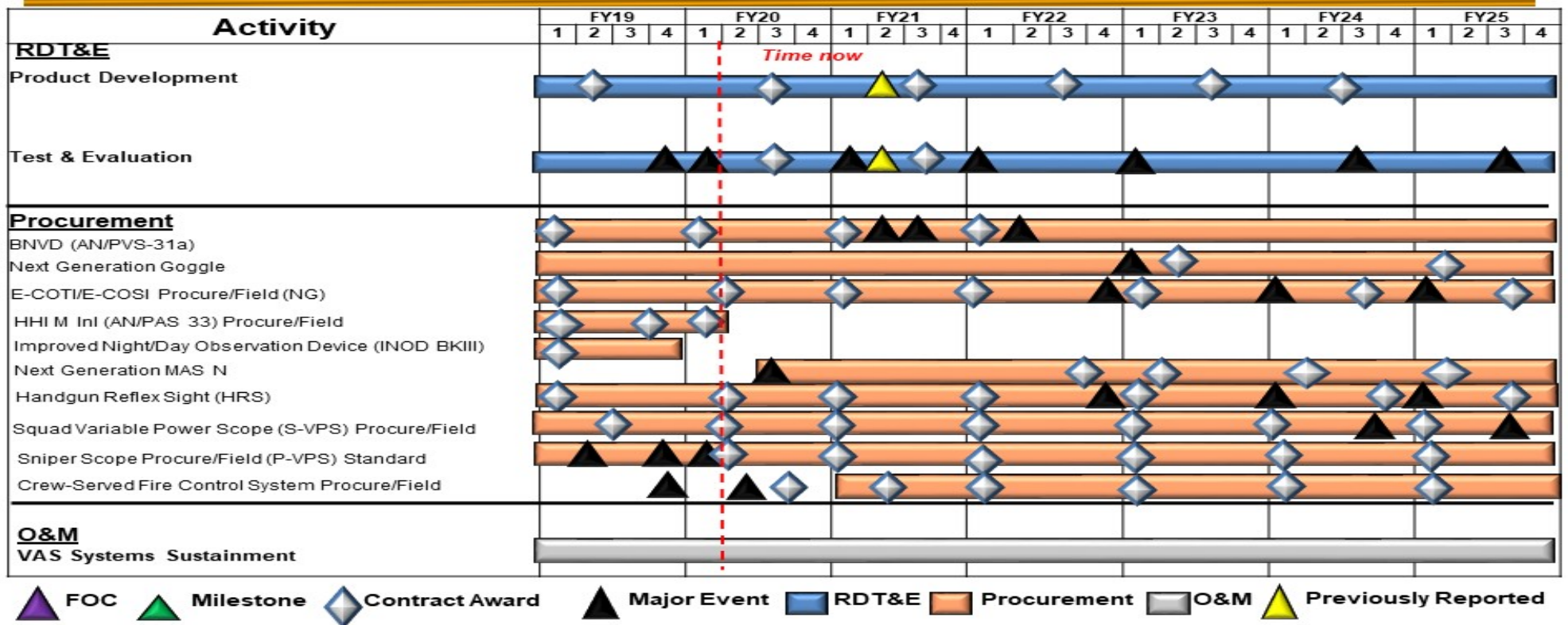


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S395 / Visual Augmentation, Lasers and Sensor Systems

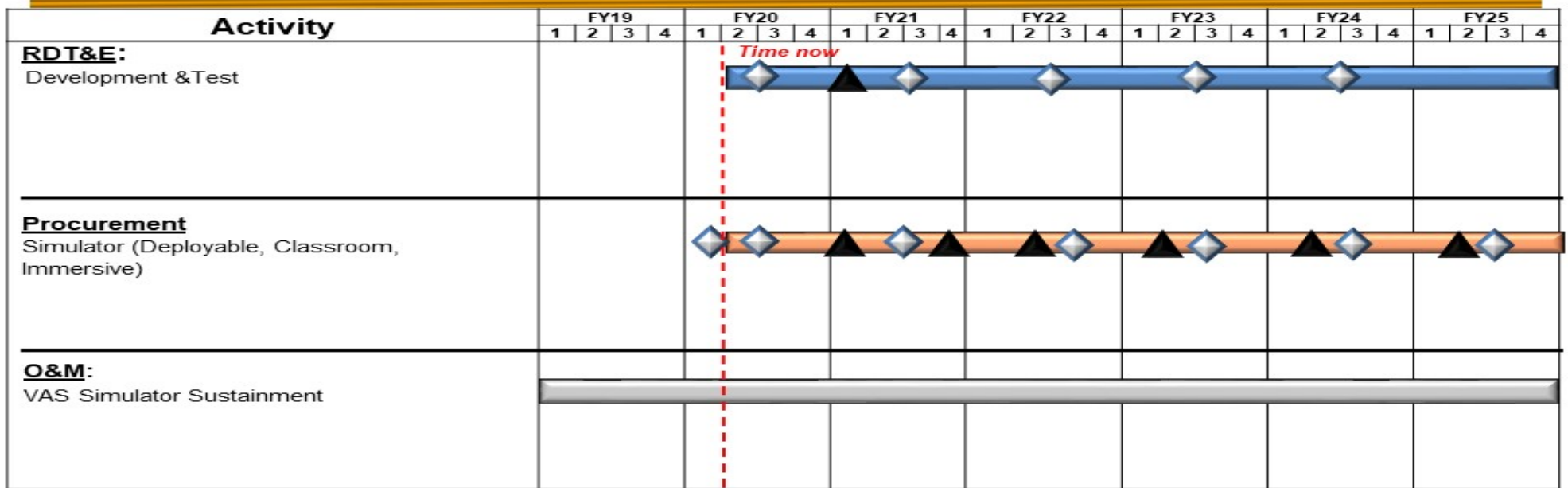
Visual Augmentation Systems Optic PEO-Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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 PEO-Managed Schedule



▲ 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 2021 United States Special Operations Command		Date: February 2020
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	1	2019	4	2025
VAS Laser Development and Test	1	2019	4	2025
VAS Simulator Development and Test	1	2019	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>S700: Communications Equipment and Electronics Systems</i>	30.937	13.340	17.359	26.435	-	26.435	21.709	21.250	21.720	22.154	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Satellite Deployable Node (SDN)	9.241	9.327	10.641	-	10.641
<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 (FMV) at all levels of classification. It consists of SDN subprograms, transport for intelligence variants, technology insertions and Capital Equipment replacement.</p> <p>FY 2020 Plans: Continue assessments, tests and evaluations for wide-band Communications-On-The-Move (COTM) maritime, ground mobile and airborne technologies. Complete assessments of reduction of Size, Weight and Power (SWAP) and SDN wireless network capabilities. Continue Evolutionary Technology Insertion (ETI) integration. Continue evaluation of High Throughput Satellite (HTS) constellations and terminals. Continue evaluation of resiliency of systems in a degraded communication environment. Continue the integration and testing of mobile technologies.</p> <p>FY 2021 Base Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Continues assessments, tests and evaluations for wide-band COTM maritime, ground mobile and airborne technologies. Continues ETI integration. Continues evaluation of HTS constellations and terminals. Continues evaluation of resiliency of systems in a degraded communication environment. Completes the integration and testing of mobile technologies. FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$1.314 million supports COTM and new SATCOM constellation terminal certifications.					
Title: Civil Information Management (CIM) Description: The CIM 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. FY 2020 Plans: Continue follow-on development and integration of the Next Generation CIMDPS Hardware platform in support of CA communities. FY 2021 Base Plans: Continues follow-on development and integration of the Next Generation CIMDPS Hardware platform in support of CA communities. FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.006 million is due to minor adjustments.	-	0.016	0.010	-	0.010
Title: Special Communications (SPCOM) Enterprise program 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. FY 2020 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	4.099	8.016	11.201	-	11.201

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 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 2021 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 2020 to FY 2021 Increase/Decrease Statement: Increase of \$3.185 million will fulfill additional Theater Special Operations Commands (TSOC) area and mission-specific tailored requirements for low-signature, threat-mitigated, and sensitive missions.					
Title: Mission Command System Common Operational Picture (MCS/COP) Description: MCS/COP provides shared situational awareness for Special Operations Forces Commanders across all domains at the tactical, operational, and strategic levels. The MCS/COP delivers a near-real time operational understanding of the intelligence and operational environment to support decision making. FY 2021 Base Plans: Begins rapid prototyping, product development, and operational testing and evaluation based upon dynamic and emergent operational requirements. FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$4.583 million is due to rapid development of a modular open systems architecture, which can fully integrate with Global Command and Control System (GCCS) - Joint, Distributed Common Ground Surface System (DCGS) - SOF Advanced Analytics, and the Tactical Assault Kit system.	-	-	4.583	-	4.583
Accomplishments/Planned Programs Subtotals	13.340	17.359	26.435	-	26.435

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PROC/0204WARRIOR: <i>Warrior Systems <\$5M</i>	470.285	335.992	260.733	32.573	293.306	276.972	282.592	285.664	286.725	Continuing	Continuing
• PROC/0204OTHER: <i>OTHER ITEMS <\$5M</i>	131.905	103.938	96.333	0.984	97.317	79.598	73.139	54.838	70.984	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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>

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

SDN is a fielded program with Evolutionary Technology Insertions (ETI) into all variants: Heavy, Medium, and Light, wide-band COTM, 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 community's emerging requirements.

SPCOM is an evolutionary technology insertions effort to provide and support multiple field mission sets fully integrated with secure transports for complete end-to-end capabilities. In particular, rapid, phased prototyping is prioritized to both develop operationally-relevant prototypes but also to be flexible and agile in ensuring countermeasures against dynamically adapting special communication threats in all theaters. Commercial and government agency sources will be leveraged for required certifications, functional and operational tests, and acceptance support.

MCS/COP employs an evolutionary strategy to incorporate the latest standards and technology in a next generation enterprise information system. Commercial and government agency sources will be leveraged for required certifications, system level integration, functional, and operational testing and evaluations.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	6.962	4.520	Dec 2018	7.040	Mar 2020	5.321	Dec 2020	-		5.321	Continuing	Continuing	-
Civil Information Management Data Processing System (CIMDPS) Development	PO	SOF AT&L -KS : MACDILL AFB	1.795	-		0.016	Mar 2020	0.010	Mar 2021	-		0.010	Continuing	Continuing	-
Special Communications (SPCOM) Enterprise Capability Development	TBD	Various : Various	12.145	2.954	Mar 2019	6.650	Mar 2020	9.330	Mar 2021	-		9.330	Continuing	Continuing	-
SPCOM Technology Vulnerability Assessments	MIPR	MITRE : Bedford, MA	2.210	0.889	Dec 2018	1.026	Dec 2019	1.423	Dec 2020	-		1.423	Continuing	Continuing	-
Mission Command System Common Operational Picture (MCS/COP)	C/Various	Various : Various	-	-		-		2.292	Jan 2021	-		2.292	Continuing	Continuing	-
Subtotal			23.112	8.363		14.732		18.376		-		18.376	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	6.440	4.721	Feb 2019	2.287	Apr 2020	5.320	Feb 2021	-		5.320	Continuing	Continuing	-
SPCOM Independent Verification and Validation	MIPR	MITRE : Bedford, MA	1.385	0.256	Dec 2018	0.340	Dec 2019	0.448	Dec 2020	-		0.448	Continuing	Continuing	-
Mission Command System Common Operational Picture (MCS/COP)	C/Various	Various : Various	-	-		-		2.291	Jan 2021	-		2.291	Continuing	Continuing	-
Subtotal			7.825	4.977		2.627		8.059		-		8.059	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	30.937	13.340	17.359	26.435	-	26.435	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command							Date: February 2020			
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>				
	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	

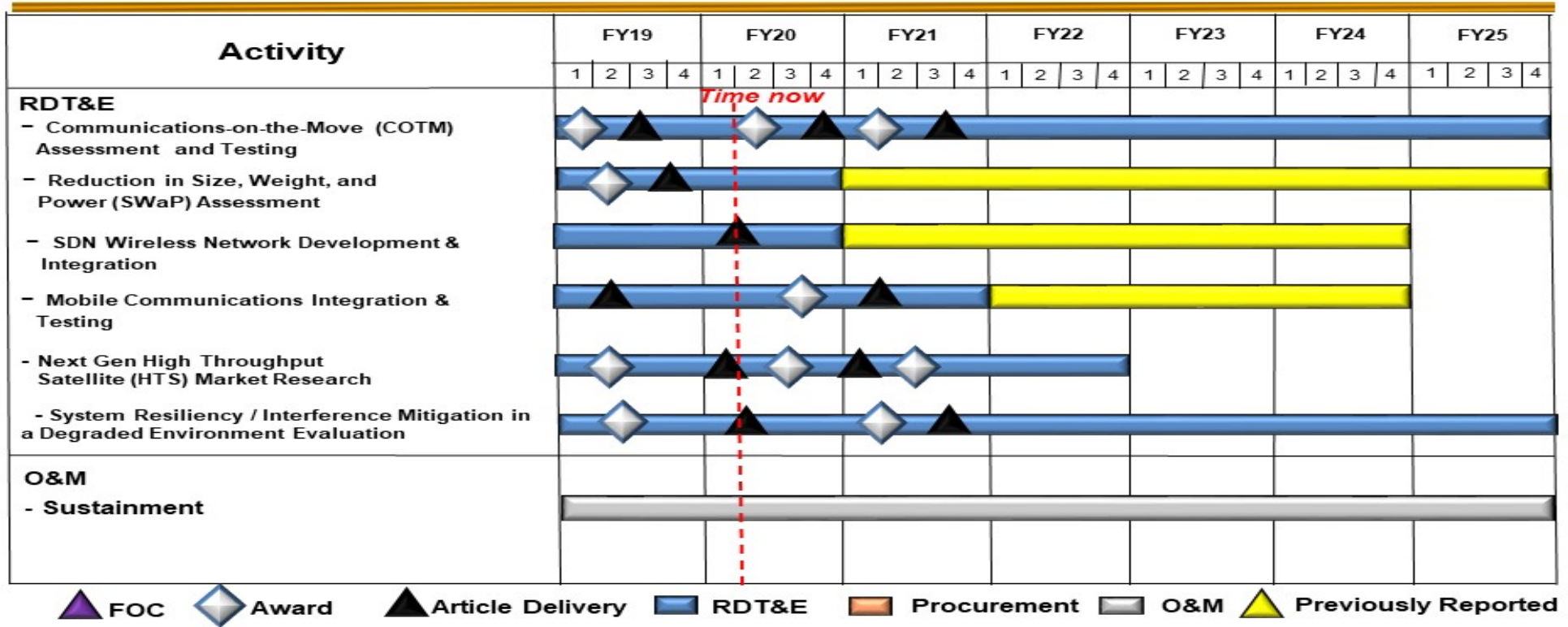
Remarks

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S700 / Communications Equipment and Electronics Systems

Satellite Deployable Node (SDN) PEO Managed Schedule



Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S700 / Communications Equipment and Electronics Systems

Satellite Deployable Node (SDN) PEO Managed Schedule (con't)

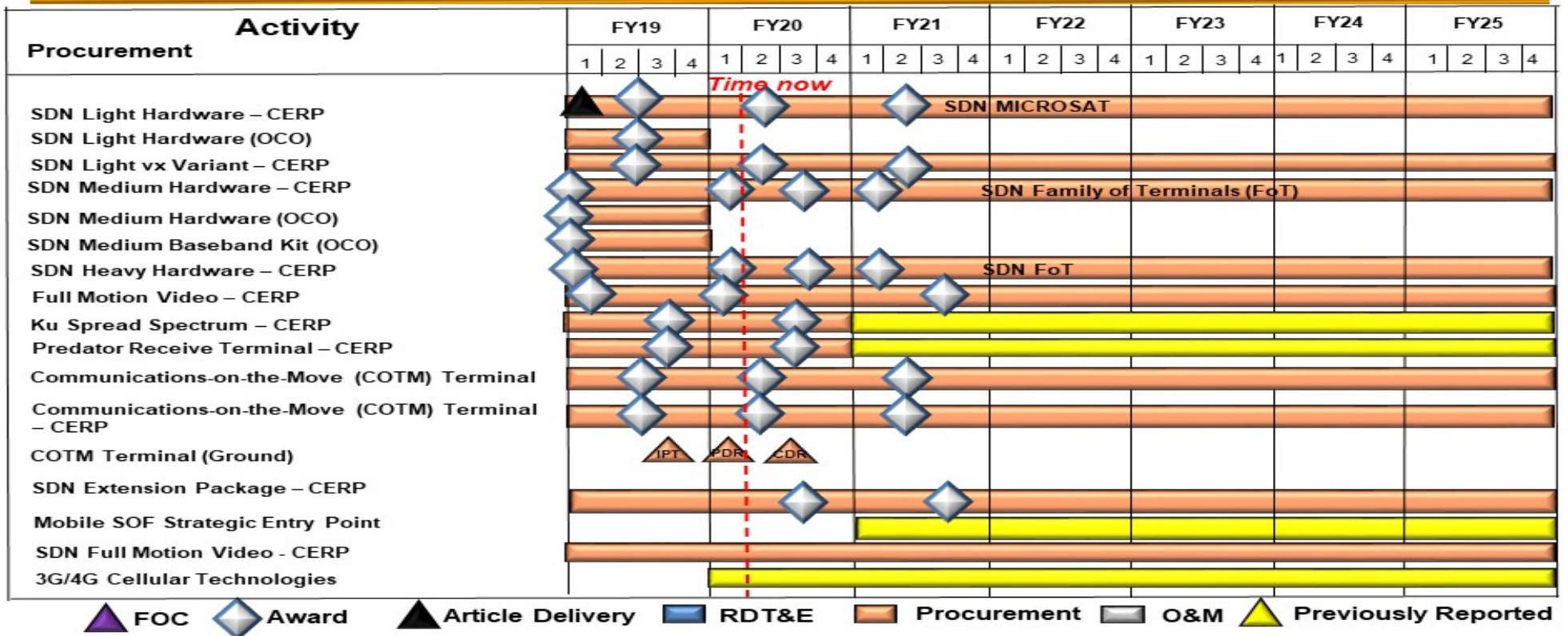
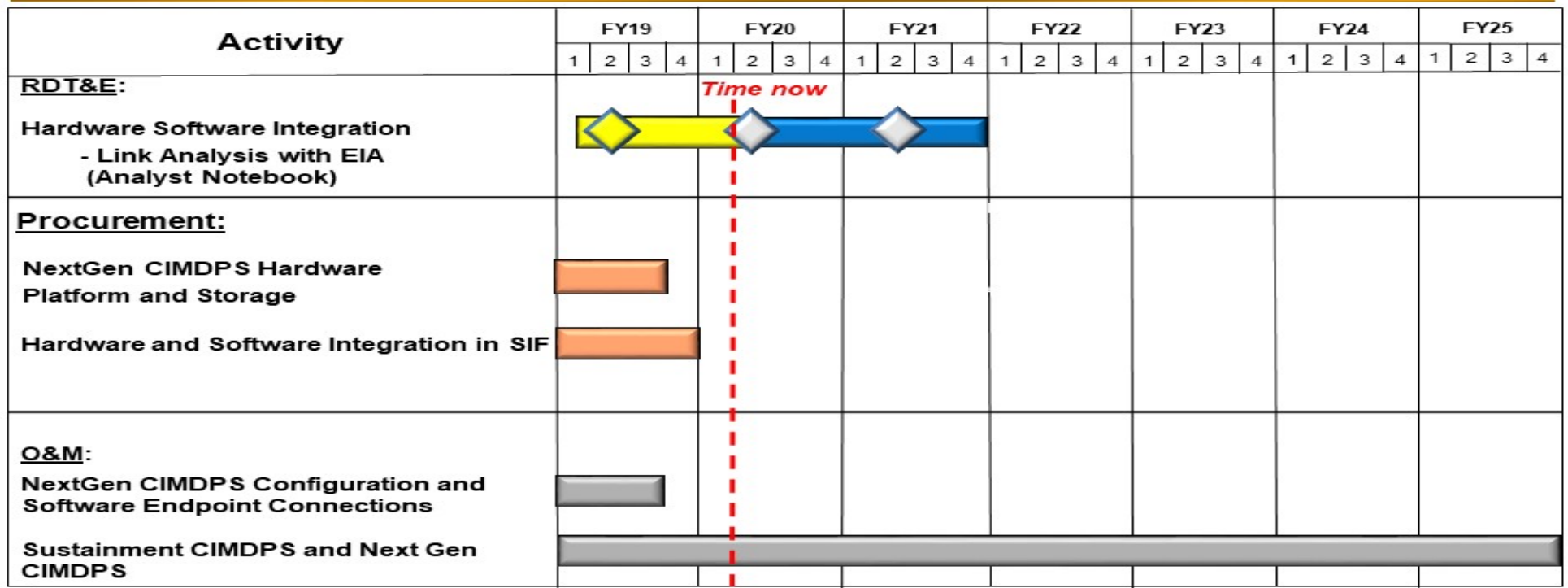


Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / Warrior Systems	Project (Number/Name) S700 / Communications Equipment and Electronics Systems

Civil Information Management Data Processing System (CIMDPS) PEO Managed Schedule

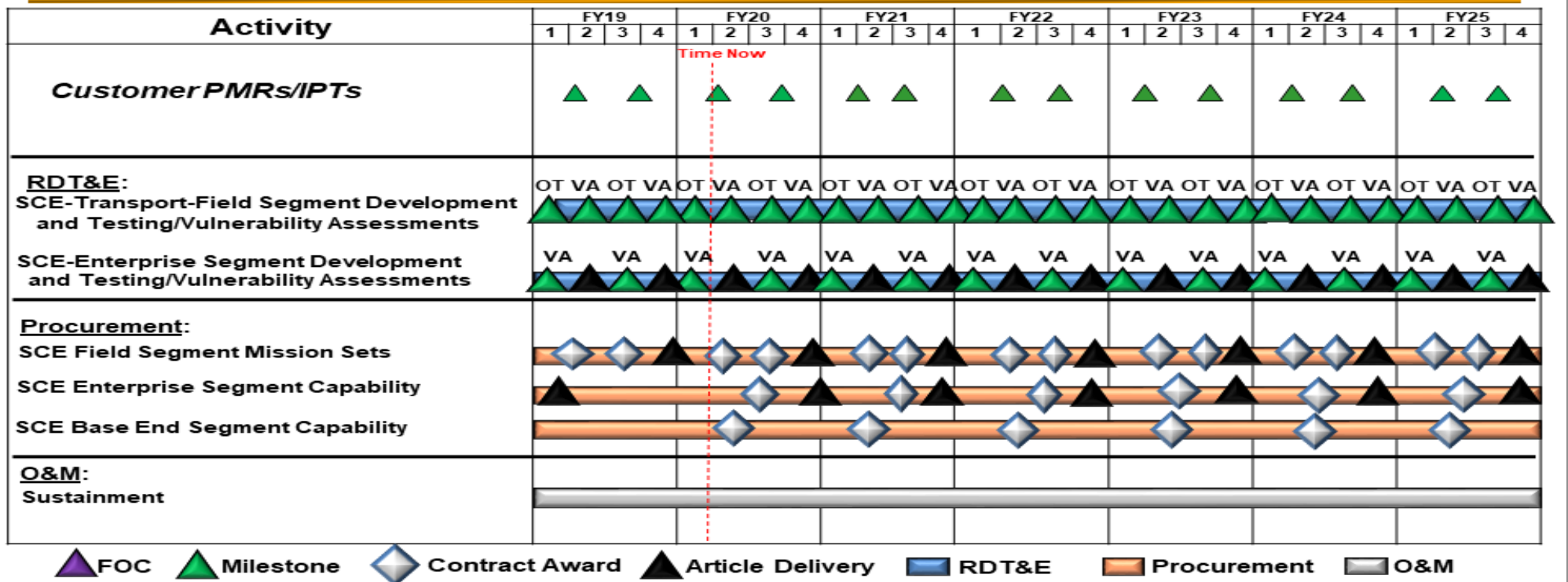


◆ Contract Award
 ▲ Article Delivery
 ▲ RDT&E
 ▲ Procurement
 ▲ O&M
 ▲ Previously Reported

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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>

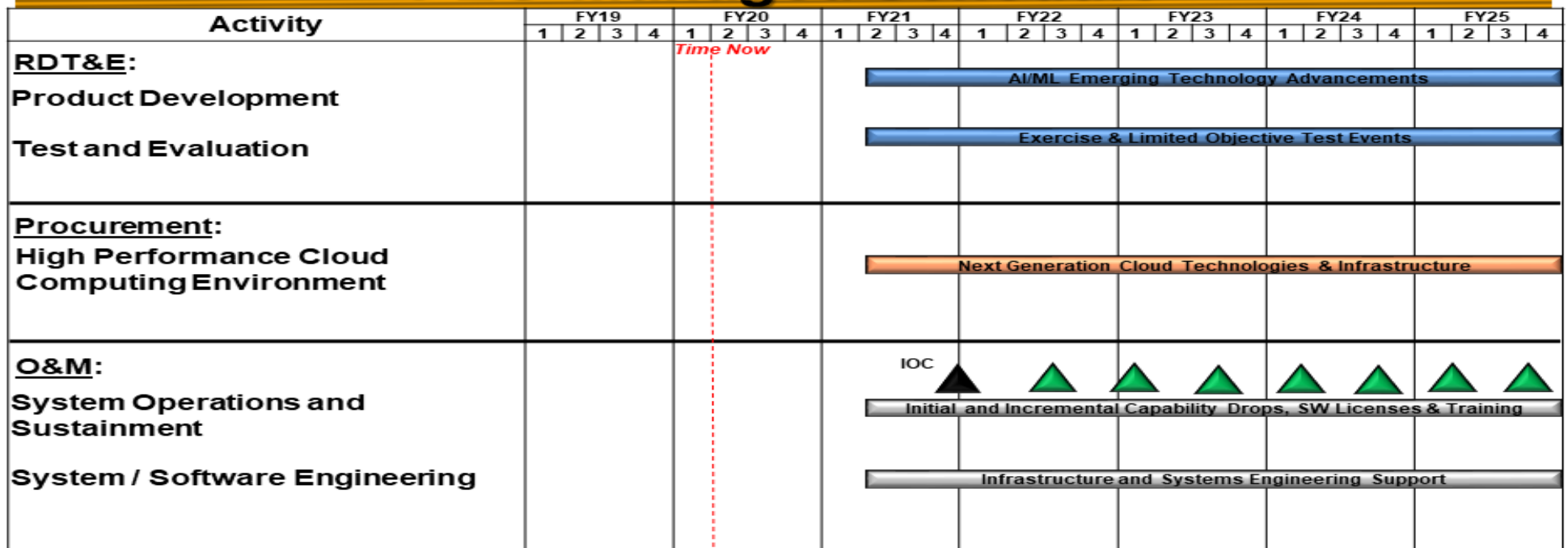
Special Communications Enterprise (SCE) PEO-Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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>

Mission Command System/ Common Operational Picture (MCS/COP) PEO-Managed Schedule



▲ FOC
 ▲ Milestone
 ◆ Contract Award
 ▲ Article Delivery
 ▲ Previously Reported
■ RDT&E
 ■ Procurement
 ■ O&M

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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	2019	4	2025
Assess Reduction in Size, Weight, and Power (SWaP)	1	2019	4	2020
SDN Wireless Network Development & Integration	1	2019	4	2020
Mobile Communication Integration & Testing	1	2019	4	2021
Next Generation High Throughput Satellite Market Research	1	2019	4	2022
Evaluate System Resiliency / Interference Mitigation in Degraded Communications Environment Evaluation	1	2019	4	2025
<i>Civil Information Mmagement (CIM)</i>				
Hardware Software Integration	2	2020	4	2021
<i>Special Communications (SPCOM) Enterprise Program</i>				
Transport - Field Segment Kit Development and Testing / Vulnerability Assessments	1	2019	4	2025
Enterprise Segment Development and Testing / Vulnerability Assessments	1	2019	4	2025
<i>Mission Command System Common Operational (MCS/COP)</i>				
Product Development	2	2021	4	2025
Test and Evaluation	2	2021	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>S710: Tactical Systems Development</i>	3.700	4.073	2.813	3.344	-	3.344	3.103	3.169	3.242	3.305	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Tactical Local Area Network (TACLAN) Suites	4.073	2.813	3.344	-	3.344
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 (FCD), and tactical work stations.					
FY 2020 Plans: Continue integration and testing of Evolutionary Technology Insertions (ETI) for TACLAN FCD and Network Management Suite upgrades. Continue Mobile Edge Computing capabilities for integration and assessment in the TACLAN Family of Systems. Completes the development of Tactical Secret Networking capabilities for integration and assessment.					
FY 2021 Base Plans: Continues integration and testing of ETIs for TACLAN FCD and Network Management Suite upgrades. Continues the development of Mobile Edge Computing capabilities for integration and assessment in the TACLAN Family of Systems.					
FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.531 million supports integration and testing for increased modularity in TACLAN FCD upgrades.					
Accomplishments/Planned Programs Subtotals	4.073	2.813	3.344	-	3.344

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PROC/0204OTHER: <i>OTHER ITEMS <\$5M</i>	131.905	103.938	96.333	0.984	97.317	79.598	73.139	54.838	70.984	Continuing	Continuing

Remarks

D. Acquisition Strategy

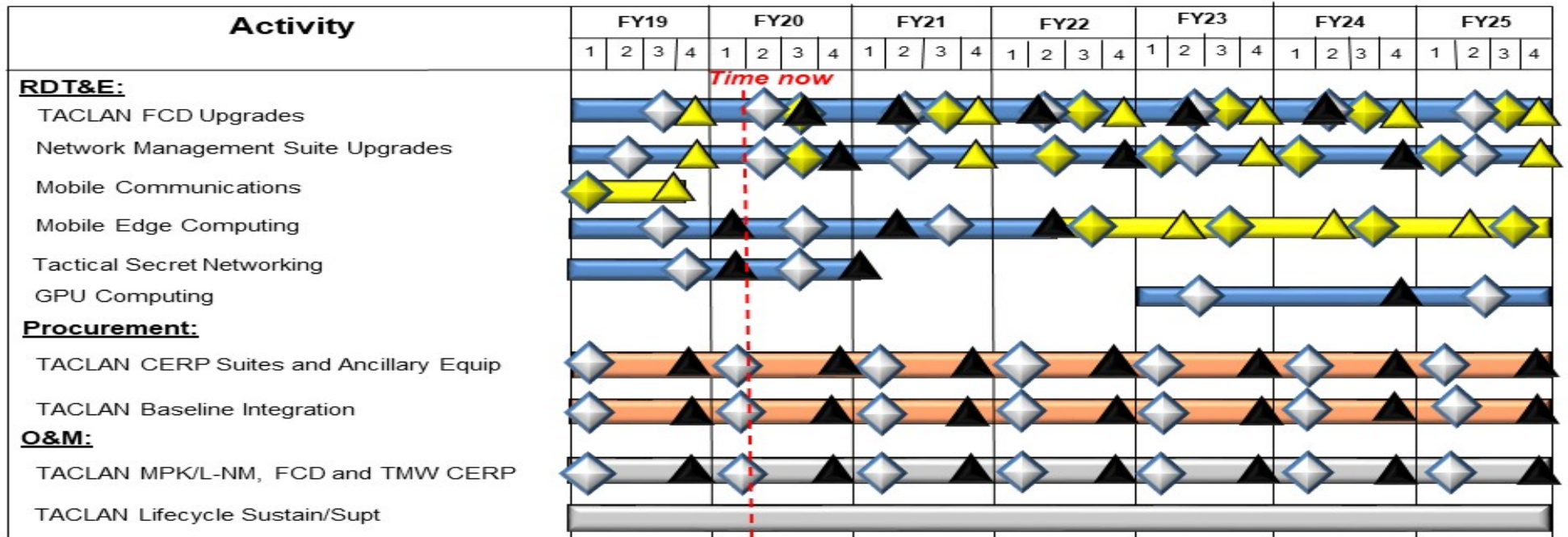
The TACLAN evolutionary acquisition strategy includes the use of commercial and government agency sources, that will be leveraged for required certifications, functional and operational test, and acceptance support.

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S710 / Tactical Systems Development

Tactical Local Area Network (TACLAN) PEO Managed Schedule



▲ FOC
 ◆ Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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	1	2019	4	2025
Network Management Suite Upgrades	1	2019	4	2025
Mobile Edge Computing	1	2019	2	2022
Tactical Secret Networking	1	2019	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
<i>S725: Tactical Radio Systems</i>	26.008	4.479	11.315	7.940	-	7.940	2.570	2.631	2.699	2.753	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, and Communications (C3) link between SOF Commanders and SOF Teams conducting 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 operational elements and higher echelon headquarters, allowing SOF to operate with any force combination in multiple environments.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: SOF Tactical Communications (STC)	4.408	10.642	7.253	-	7.253
Description: STC consists of Next-Generation SOF Communication Systems which replace most of the currently fielded SOF 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 2020 Plans: Continue A-Tactical Assault Kit (ATAK) development and integration. Continue Software Development Kit (SDK) and complete Wizard and Intelligence, Surveillance, and Reconnaissance (ISR) Mission Module (MM) development. Begin Engineering Change Proposal (ECP) for Next Generation Handheld (NGHH). Complete Next Generation Manpack (NGMP) test and evaluation. Continue High Frequency (HF) platform modernization incorporating two systems into a single Government-owned form factor that provides standard, and Low Probability Intercept/Detection (LPI/D) capabilities.					
FY 2021 Base Plans: Completes ATAK development and integration. Continues SDK Mission Module (MM) development. Continues ECP for NGHH. Continues High Frequency (HF) platform modernization incorporating two systems into a single Government-owned form factor that provides standard, anti-jam, and Low Probability Intercept/Detection (LPI/D) capabilities.					
FY 2020 to FY 2021 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Decrease of \$3.389 million due to completion of ISR MM development and associated software development kit.					
Title: Blue Force Tracking (BFT)	0.071	0.673	0.687	-	0.687
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 with a Low Probability of Intercept/Low Probability of Detection.					
FY 2020 Plans: Continue development and test of new capabilities in BFT equipment.					
FY 2021 Base Plans: Continues development and test of new capabilities in BFT equipment.					
FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.014 million to allow for rapid prototyping and additional product development focused on denied environments.					
Accomplishments/Planned Programs Subtotals	4.479	11.315	7.940	-	7.940

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/0204WARRIOR: <i>Warrior Systems<\$5M</i>	470.285	335.992	260.733	32.573	293.306	276.972	282.592	285.664	286.725	Continuing	Continuing

Remarks

D. Acquisition Strategy

- STC is a Commercial-Off-The-Shelf (COTS)/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 evolutionary technology insertions leveraging commercial and other government agency sources for required certifications, functional and operational tests, and technology updates.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

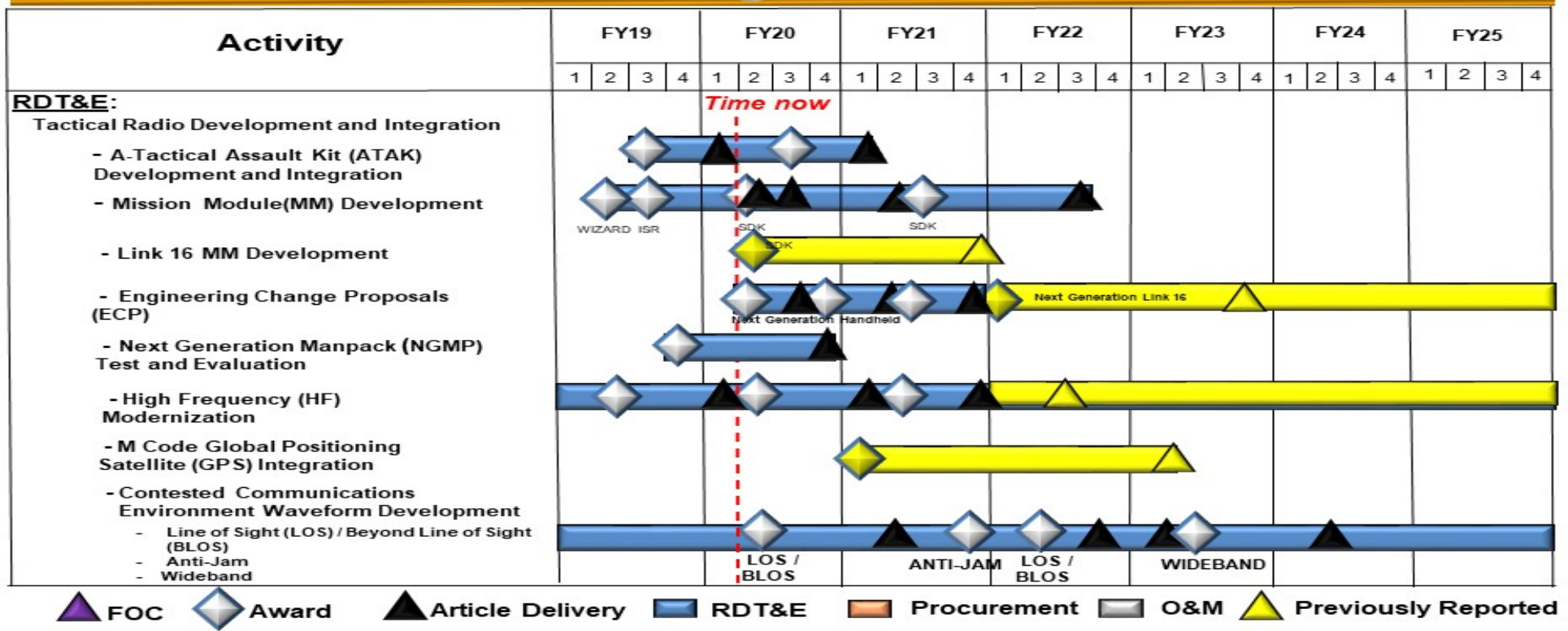
Date: February 2020

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S725 / Tactical Radio Systems

SOF Tactical Communications (STC)/ Next Generation Tactical Communications (NGTC) PEO Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

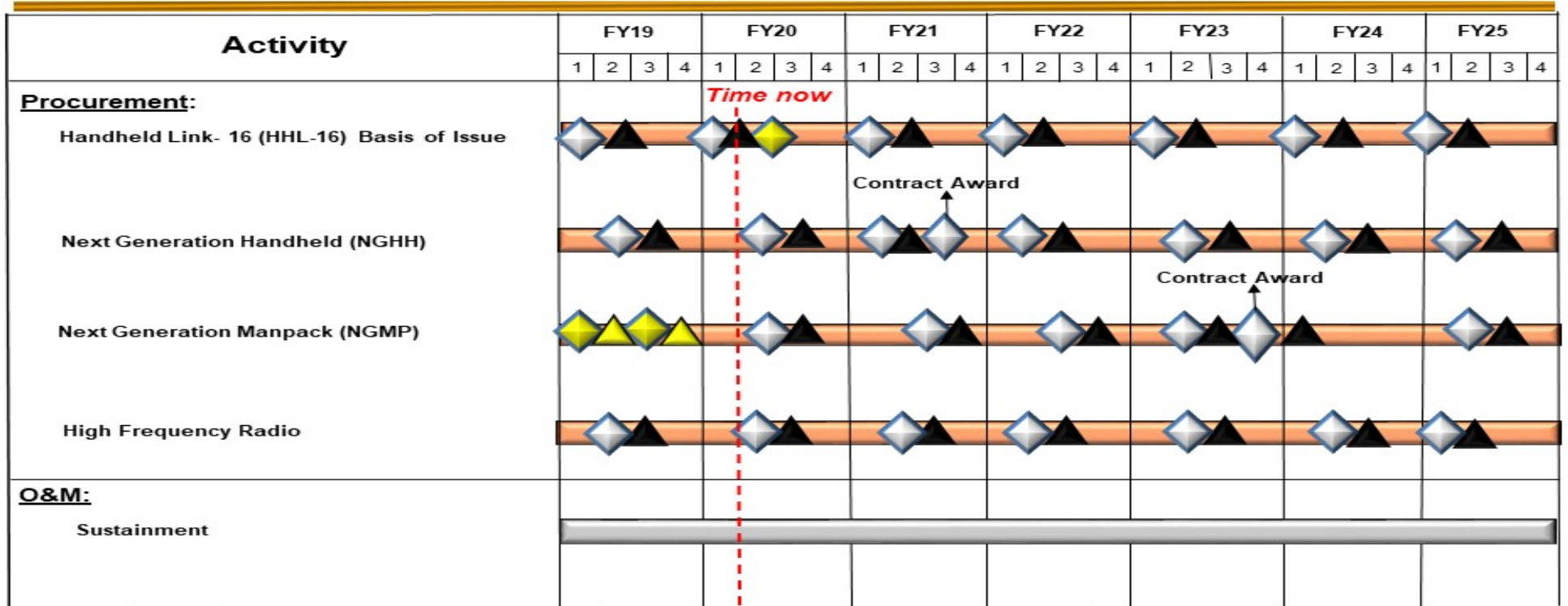
Date: February 2020

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S725 / Tactical Radio Systems

STC/NGTC PEO Managed Schedule



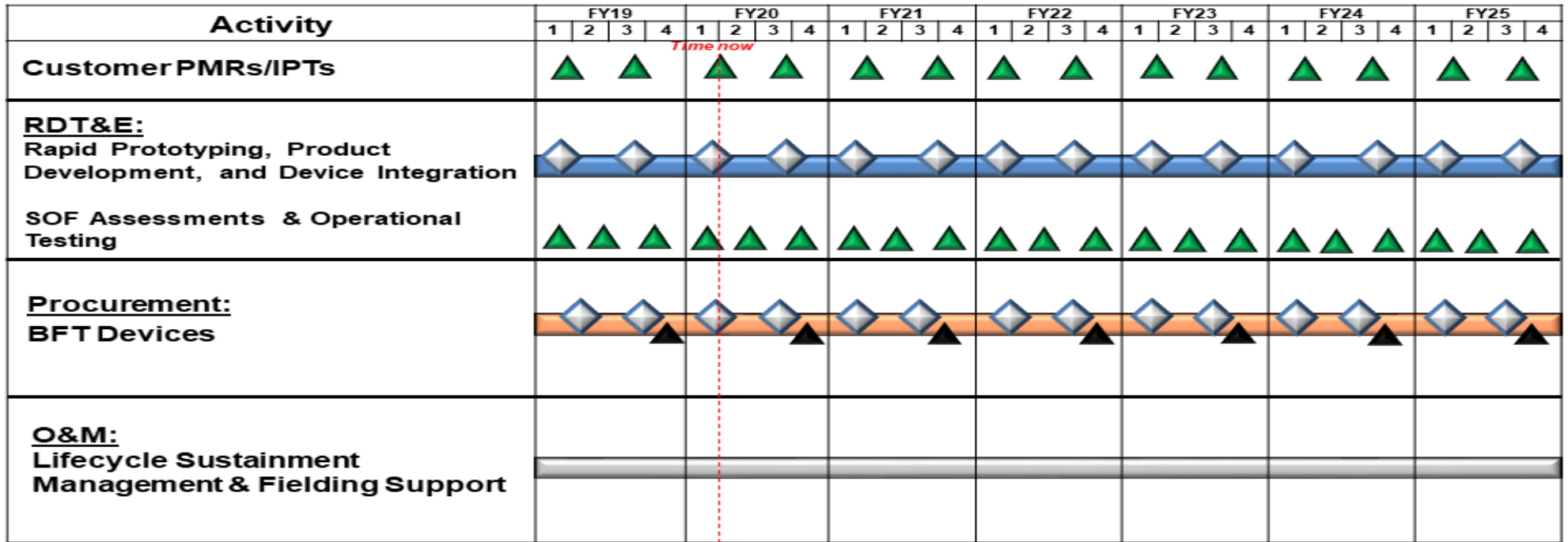
▲ FOC
 ◆ Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S725 / Tactical Radio Systems

Blue Force Tracking (BFT) PEO-Managed Schedule



Time now



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>SOF Tactical Communications Radio</i>				
A-Tactical Assault Kit (ATAK) Development and Integration	3	2019	1	2021
Mission Module (MM) Development	2	2019	3	2022
Engineering Change Proposals (ECPs)	2	2020	4	2021
Next Generation (NGEN) Manpack (MP) Test and Evaluation	3	2019	4	2020
High Frequency (HF) Modernization	1	2019	4	2021
Contested Communications	1	2019	4	2025
<i>Blue Force Tracking</i>				
Rapid Prototyping, Product Development, and Device Integration	1	2019	4	2025
SOF Assessment & Operational Testing	1	2019	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S800: <i>Munitions Advanced Development</i>	61.518	27.051	23.741	6.004	-	6.004	7.076	11.677	11.996	12.237	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Munitions Advanced Development	0.322	0.588	0.559	-	0.559
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 2020 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 2021 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 2020 to FY 2021 Increase/Decrease Statement: Net decrease of \$0.029 million is due to minor adjustments (-\$0.009 million) and funding was made available due to streamlining contract support efforts (-\$0.020 million).					
Title: Stand-Off Precision Guided Munitions (SOPGM)	9.245	-	3.155	-	3.155
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 2019.					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p><i>FY 2021 Base Plans:</i> Begins the engineering, integration and testing for SOPGMs guidance and control upgrades.</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Increase of \$3.155 million to begin the engineering and integration for the munitions guidance and control upgrades.</p>					
<p><i>Title:</i> Precision Strike Systems (PSS)</p> <p><i>Description:</i> Guided Rocket Systems provides for the engineering, integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms. PSS is designated a Middle Tier Acquisition (MTA) program which uses the rapid prototyping pathway and is executing using existing contracts, government agencies, and new contract competitively selected as appropriate.</p> <p><i>FY 2020 Plans:</i> Continue the engineering, integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms.</p> <p><i>FY 2021 Base Plans:</i> Continues the engineering, integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms.</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Decrease of \$5.972 million is due to planned completions of system test and certification, and intended transition to procurement funding of the munition for the medium range precision strike munition.</p>	2.500	8.262	2.290	-	2.290
<p><i>Title:</i> Counter Unmanned Aerial System (C-UAS)</p> <p><i>Description:</i> SOF C-UAS enhances the SOF operator's ability to detect, identify, classify, locate, track, deter, defeat and exploit unmanned system threats. The funding in this program supports a Family of Systems (FoS) design, development, integration, rapid prototyping and test of cutting edge C-UAS sensor integration technologies that delivers and integrates various detection sensor modalities including, but not limited to, passive sensors, Radio frequency (RF) detection, acoustic, Light Detection and Ranging (LiDAR), radar, and Electro-Optical and Infrared (EO/IR). C-UAS is designated a MTA program which uses the rapid prototyping pathway and is executed using existing contracts, government agencies, and new contract competitively selected as appropriate.</p> <p><i>FY 2020 Plans:</i></p>	1.056	1.891	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Continue C-UAS System Integration Module (SIM) phase 2 prototype development and begin phase 3 integration of a High Velocity 40mm effector turret sensor. This capability provides kinetic Counter-Unmanned Aerial System (C-UAS) capabilities to the Warfighter. <i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Decrease of \$1.891 million due to completion of development and evaluation of High Velocity 40mm High Explosive Air Bursting Ammunition.					
Accomplishments/Planned Programs Subtotals	13.123	10.741	6.004	-	6.004

	FY 2019	FY 2020
<i>Congressional Add:</i> SOPGM	13.928	13.000
<i>FY 2019 Accomplishments:</i> Continue integration and testing of Small Glide Munition (SGM) on SOF UAS platforms.		
<i>FY 2020 Plans:</i> Continue SGM UAS integration (\$3.000 million) and begin SGM collaborative strike enhancement (\$10.000 million) for SOPGM.		
Congressional Adds Subtotals	13.928	13.000

C. Other Program Funding Summary (\$ in Millions)						Cost To					
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total Cost
• PROC/0203ORDN: <i>Ordnance Items <\$5M</i>	417.346	412.244	186.197	105.355	291.552	188.013	185.499	251.376	232.940	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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>

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.

Counter Unmanned Aerial System (C-UAS): SOF C-UAS acquisition strategy utilizes MTA rapid prototyping to develop and integrate various advancing sensors with kinetic and non-kinetic capabilities. SOF Operators require C-UAS capability in mounted, dismounted and expeditionary fixed-site form factors. SOF C-UAS collaborates with the Joint Services, Academia and other government agencies to maintain interoperability and cost effectiveness. SOF C-UAS will continue to leverage the SOF-to-Service transition of proven capabilities.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Laser Small Diameter Bomb (LSDB)/Small Diameter Bomb (SDB) II Weapon Mount Hardware Development & Integration	SS/ Various	General Atomics : NY	3.157	7.105	Dec 2018	-		-		-		-	0.000	10.262	-
SOPGM MQ-9 LSDB Software Development & Integration	SS/ Various	Boeing : MO	1.700	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	1.636	Jan 2019	-		-		-		-	0.000	8.269	-
SOPGM SGM/MQ-9 Integration Congressional Plus Up	C/Various	Dynetics : AL	-	5.901	Jan 2019	-		-		-		-	0.000	5.901	-
SOPGM SGM/MQ-9 Integration Overseas Contingency Operations (OCO)	C/Various	Dynetics : AL	-	-		2.000	Feb 2020	-		-		-	0.000	2.000	-
SOPGM SGM Collaborative Strike Enhancement OCO	C/Various	Dynetics : AL	-	-		7.000	Feb 2020	-		-		-	0.000	7.000	-
SOPGM SGM Griffin Guidance Control Development and Integration	SS/ Various	Various : Various	-	-		-		3.155	Jan 2021	-		3.155	Continuing	Continuing	-
Counter Unmanned Aerial System (C-UAS) SIM Phase II: Prototype Development	C/Various	Night Vision Labs : Ft. Belvoir, VA	-	1.056	Feb 2019	1.891	Nov 2019	-		-		-	0.000	2.947	-
Precision Strike Prototypes for Demonstration and Assessment	C/Various	Various : Various	-	0.400	Feb 2019	8.262	Nov 2019	0.500	Nov 2020	-		0.500	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

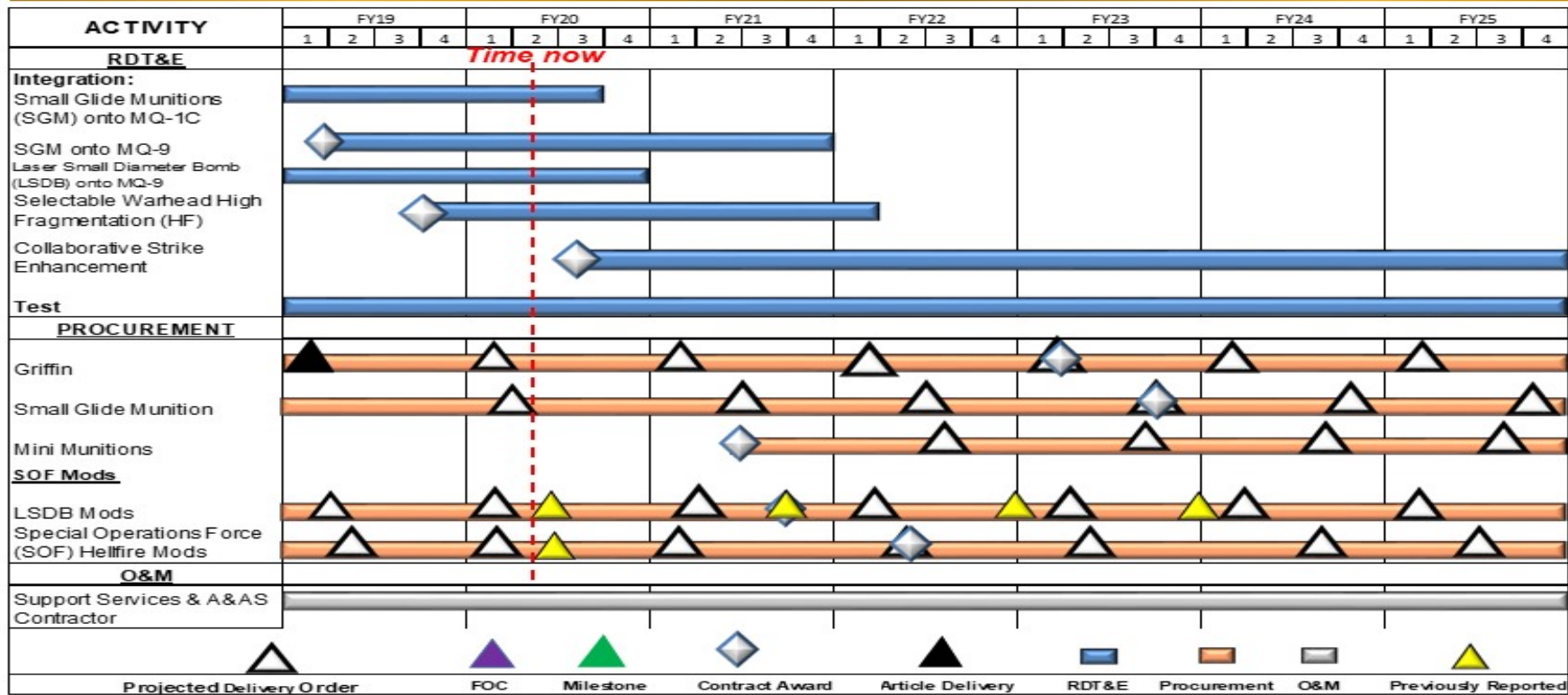
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / <i>Warrior Systems</i>	Project (Number/Name) S800 / <i>Munitions Advanced Development</i>
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Precision Strike Vehicle Mount and Engineering Assessment	C/Variou	Various : Various	-	1.350	Feb 2019	-		1.000	Nov 2020	-		1.000	Continuing	Continuing	-
Prior Year	C/Variou	Various : Various	36.541	-		-		-		-		-	0.000	36.541	-
Subtotal			48.031	18.488		19.153		4.655		-		4.655	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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/Variou	Dynetics : AL	4.754	3.115	May 2019	-		-		-		-	0.000	7.869	-
SOPGM SGM Support OCO	C/Variou	Dynetics : AL	-	-		2.000	Mar 2020	-		-		-	0.000	2.000	-
Prior Year	C/Variou	Various : Various	1.100	-		-		-		-		-	0.000	1.100	-
Subtotal			5.854	3.115		2.000		-		-		-	0.000	10.969	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 OCO	SS/TBD	Boeing : MO	-	0.406	May 2019	-		-		-		-	0.000	0.406	-
SOPGM SGM Test Congressional Plus Up	C/Variou	Dynetics : AL	4.998	-		-		-		-		-	0.000	4.998	-
SOPGM SGM/MQ-1C Test Congressional Plus Up	C/Variou	Dynetics : AL	-	1.638	May 2019	-		-		-		-	0.000	1.638	-
SOPGM SGM/MQ-9 Integration Congressional Plus Up	C/Variou	Dynetics : AL	-	1.638	Dec 2019	-		-		-		-	0.000	1.638	-

Stand-Off Precision Guided Munitions (SOPGM) PEO-Managed Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

Date: February 2020

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160431BB / Warrior Systems

Project (Number/Name)
S800 / Munitions Advanced Development

Munitions (Ordnance Items <\$5M) PEO-Managed Schedule

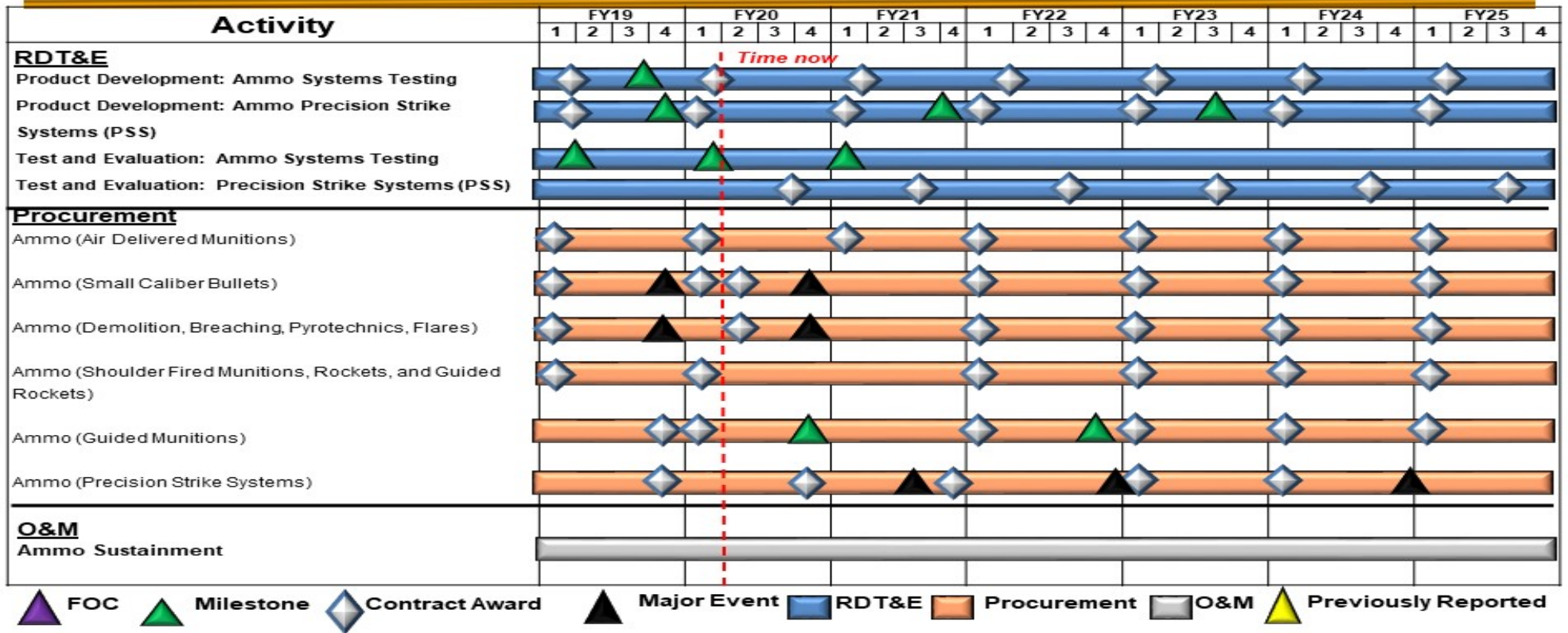
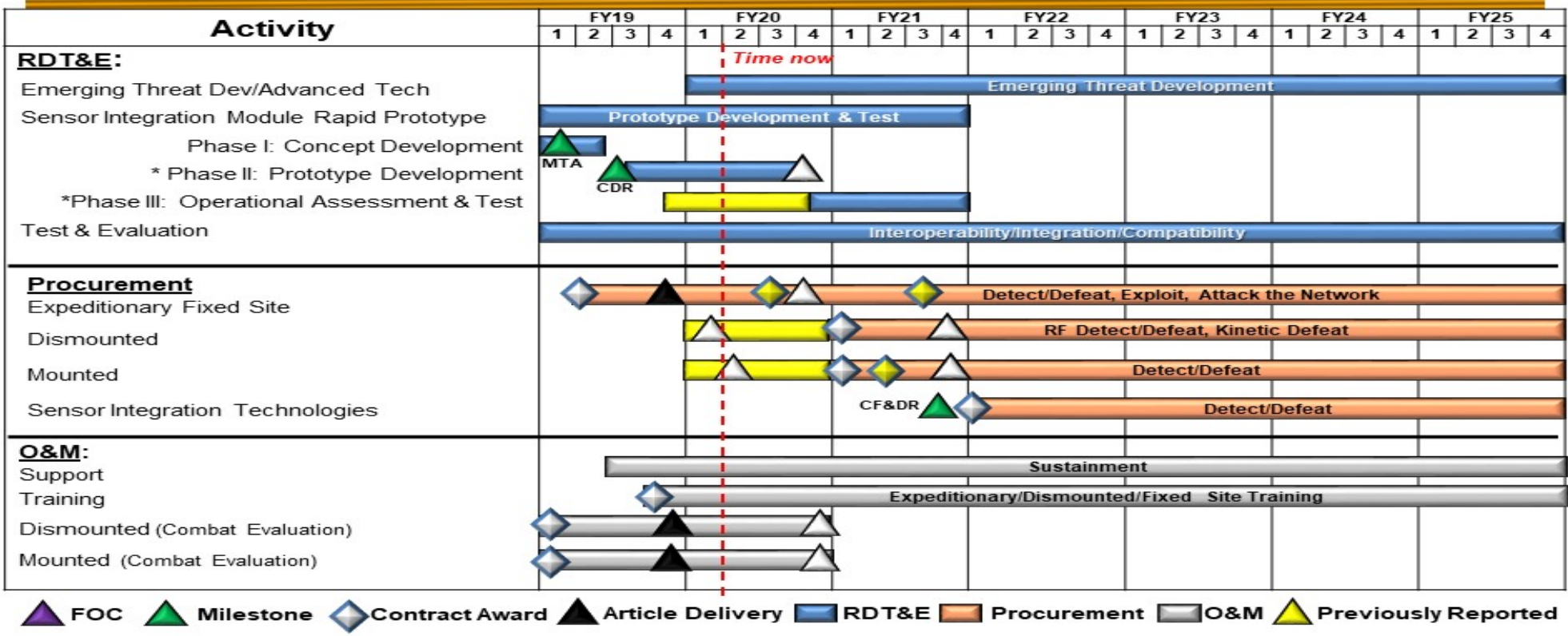


Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / Warrior Systems	Project (Number/Name) S800 / Munitions Advanced Development

Counter Unmanned Aerial Systems PEO-Managed Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Stand-off Precision Guided Munitions (SOPGM)</i>				
Small Glide Munitions (SGM) onto MQ-1C Integration	1	2019	3	2020
SGM onto MQ-9 Integration	2	2019	4	2021
Laser Small Diameter Bomb (LSDB) onto MQ-9 Integration	1	2019	4	2020
Selectable Warhead HellFire (HF) Integration	4	2019	1	2022
SGM Collaborative Strike Enhancement	2	2020	4	2025
SOPGM Testing	1	2019	4	2025
<i>Munitions (Ordnance Items)</i>				
Product Development: Ammo Systems Testing	1	2019	4	2025
Test and Evaluation: Ammo Systems Testing	1	2019	4	2025
Counter Unmanned Aerial Systems (C-UAS) SIM Phase II: Prototype Development	3	2019	4	2020
<i>Precision Strike System (PSS)</i>				
Product Development: Ammo Precision Strike System (PSS)	1	2019	4	2025
Test and Evaluation: PSS	1	2019	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	31.763	2.885	21.005	10.500	-	10.500	10.510	2.130	13.468	1.937	Continuing	Continuing
S500E: <i>Special Programs</i>	31.763	2.885	21.005	10.500	-	10.500	10.510	2.130	13.468	1.937	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 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	2.479	21.805	18.469	-	18.469
Current President's Budget	2.885	21.005	10.500	-	10.500
Total Adjustments	0.406	-0.800	-7.969	-	-7.969
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-0.800			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.495	-			
• SBIR/STTR Transfer	-0.089	-			
• Other Adjustments	-	-	-7.969	-	-7.969

Change Summary Explanation

Funding:

FY 2019: Net increase of \$0.406 million is due to transfer of funds to Small Business Innovative Research (SBIR)/Small Business Technology Transfer (STTR) programs (-\$0.089 million) and funding increase will be provided under separate cover (\$0.495 million).

FY 2020: Net decrease of -\$0.800 million is provided under separate cover.

FY 2021: Net decrease of -\$7.969 million is provided under separate cover.

Schedule: None.

Technical: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	53.657	44.970	42.377	19.154	5.000	24.154	22.252	24.152	26.058	25.859	Continuing	Continuing
S855: <i>Unmanned ISR</i>	53.657	44.970	42.377	19.154	5.000	24.154	22.252	24.152	26.058	25.859	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 ISR for deployed Special Operations Forces (SOF) using non-traditional means. USSOCOM has been designated as the Department of Defense lead for planning, synchronizing, and as directed, executing global operations against terrorist networks and targets. United States Special Operations Command (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 for both FY 2019 and FY 2020 enduring Overseas Contingency Operations (OCO) funding. FY 2021 funding includes OCO for Enduring Requirements (\$5.000 million). These technologies will be pursued via rapid prototyping efforts when appropriate.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	44.970	42.377	39.154	-	39.154
Current President's Budget	44.970	42.377	19.154	5.000	24.154
Total Adjustments	0.000	0.000	-20.000	5.000	-15.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other	-	-	-20.000	5.000	-15.000

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

Project: S855: *Unmanned ISR*

FY 2019	FY 2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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)

Congressional Add: *Anti-ice for Group 3 and above UAV's*

Congressional Add Subtotals for Project: S855

Congressional Add Totals for all Projects

	FY 2019	FY 2020
	6.000	-
	6.000	-
	6.000	-

Change Summary Explanation

Funding:

FY 2019: None.

FY 2020: None.

FY 2021: Net decrease of \$15.000 million is due to funding transfer from base (-\$5.000 million) to OCO (\$5.000 million) for Enduring Requirements.

For the Defense Wide Review (DWR), USSOCOM performed a comprehensive analysis of future capabilities and is reducing the SAFC projects to better align with the Department's priorities as outlined in the National Defense Strategy (-\$15.000 million).

-\$15.000 million - SAFC - reduces development, integration, evaluation, and miniaturization capability into SOF Small Unmanned Aerial Systems (SUAS).

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S855: <i>Unmanned ISR</i>	53.657	44.970	42.377	19.154	5.000	24.154	22.252	24.152	26.058	25.859	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: SAFC	20.679	22.276	10.070	-	10.070
<p>Description: SAFC's evolutionary development projects quickly provide integrated, SOF-unique mission kits, mission payloads, air vehicle enhancements and ground control station upgrades to its user community. These efforts rapidly develop and integrate Unmanned Aerial Systems (UAS) air vehicles, payloads and other technologies to field ISR capabilities and 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 2020 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 2021 Base Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Continues development and combat evaluation at a reduced level from prior years 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 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$12.206 million was made available due to reduced development and evaluation of selected sensor delivery platforms and mounted or deliverable ISR capabilities for global contingencies.</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.</p>	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. Leverage SAFC development efforts.</p> <p>FY 2020 Plans: Group 1 UAS funding is incorporated into the EOTACS program starting in FY20. 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 2021 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 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.004 million is due to minor adjustments.</p>	-	0.279	0.283	-	0.283
<p>Title: Group 2 Multi-Mission Tactical Unmanned Aerial Service (MTUAS)</p>	6.262	7.854	4.719	-	4.719

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Description: Group 2 MTUAS are medium tactical systems, between 21 pounds and 55 pounds in weight. Identifies, develops, integrates, and tests SOF-unique mission kits, payloads, aircraft and ground control station modifications.</p> <p>FY 2020 Plans: Continue 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, communications relay, Global Position Satellite (GPS) anti-jam technology, wartime mission, and decreased footprint. Additionally, acquires test articles for planned upgrades.</p> <p>FY 2021 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, communications relay, GPS anti-jam technology, wartime mission, and decreased footprint. Additionally, acquires test articles for planned upgrades. Awards contract for future materiel solution to meet updated requirements.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$3.135 million to continue iterative upgrades after a spike in FY20 for test articles.</p>					
<p>Title: Group 3 UAS</p> <p>Description: Group 3 UAS are systems, between 55 pounds and 1320 pounds in weight. Identifies, develops, integrates, and tests SOF-unique mission kits, payloads and ground control station modifications.</p> <p>FY 2020 Plans: Continue integration and testing of SOF-unique mission capabilities to meet Group 3 UAS requirements, to include but not limited to: signals intelligence gathering, full motion video, communications relay, GPS Anti-jam, Mode 5 Identification Friend or Foe (IFF) and mobile control station.</p> <p>FY 2021 Base Plans: None.</p> <p>FY 2021 OCO Plans:</p>	5.000	5.000	0.000	5.000	5.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command			Date: February 2020		
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Continues integration and testing of SOF-unique mission capabilities to meet Group 3 UAS requirements, to include but not limited to: signals intelligence gathering, full motion video, communications relay, GPS Anti-jam, Mode 5 IFF and mobile control station. FY 2020 to FY 2021 Increase/Decrease Statement: None.					
Title: Group 4 UAS 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. FY 2020 Plans: Develop, test, and integrate SOF peculiar emerging technology mission kits, mission payloads, weapons, and modification on MQ-1C UAVs, Ground Control Stations (GCS), and training systems. FY 2021 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. FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$2.886 million is a natural three-year pattern for developmental efforts which will show cyclical increases and decreases across the system lifecycle.	6.700	6.968	4.082	-	4.082
Accomplishments/Planned Programs Subtotals	38.970	42.377	19.154	5.000	24.154

	FY 2019	FY 2020
Congressional Add: Anti-ice for Group 3 and above UAV's FY 2019 Accomplishments: Continue development of anti-ice solutions for Group 3 and above UAV's.	6.000	-
Congressional Adds Subtotals	6.000	-

C. Other Program Funding Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/0201UMNISR: <i>Unmanned ISR</i>	101.308	19.955	25.488	8.207	33.695	27.469	26.795	30.360	28.991	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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>

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

SAFC acquisition strategy is evolutionary and spiral-based for technology insertion and low volume procurement. SAFC utilizes existing competed contract vehicles to the maximum extent possible for minor development and integration and modification of Government-Off-The-Shelf (GOTS)/Commercial-Off-The-Shelf (COTS) equipment. Utilizes limited/full and open competition contracts and rapid acquisition tools 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 solutions that deliver, integrate, and qualify SOF-unique modular mission kits that may include: mission payloads, weapons, air vehicle enhancements, training systems, and ground control station upgrades. These capabilities are obtained through available 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 but may also leverage Other Transactional Authorities (OTAs) when sensible. Proprietary considerations may direct some effort to the OEM on a sole source basis.

Group 3 UAS are evolutionary acquisition projects 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 efforts 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 may require sole source contracting to the original equipment manufacturer. Group 4 UAS leverages service common Contractor Logistics Support (CLS) and developmental activities and contracts for aircraft and ancillary equipment development, improvement, and sustainment.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Applications for Contingencies (SAFC) Platform/Payload Development and Integration	MIPR	Various; Various : Various	5.839	1.876	Dec 2018	0.706	Jan 2020	6.570	Dec 2020	-		6.570	Continuing	Continuing	-
SAFC - NAVSEA / JHU / APL	C/Various	JHU/ APL : Various	-	3.558	Jan 2019	4.757	Nov 2019	-		-		-	0.000	8.315	-
SAFC - NIWC: Beyond Line of Sight (BLOS) Laser Mod Payload Auto Target Recognition Development and Integration	C/Various	Various : Various	-	1.020	Jan 2020	2.109	Feb 2020	-		-		-	0.000	3.129	-
NAWC - AD	C/Various	Various : Various	-	-		4.353	Nov 2020	-		-		-	0.000	4.353	-
NexTech Solutions (NTS) Inc.	C/Various	Various : Various	-	-		4.931	Jun 2020	-		-		-	0.000	4.931	-
SAFC - GSA - ISIQ-Cambridge Inc. Platform/Payload Development and Integration	C/Various	Various : Various	-	9.264	Oct 2019	-		-		-		-	0.000	9.264	-
SAFC Heat Coat UAS Anti-Icing (Congressional Add)	MIPR	Alion Science and Technology : VA	3.586	5.640	Feb 2020	-		-		-		-	0.000	9.226	-
Group 1 Unmanned Aerial System (UAS)/ Expeditionary Organic Tactical Airborne ISR Capability Set (EOTACS) Payload Integration	C/IDIQ	Alion Science and Technology : VA	0.479	0.329	Mar 2019	0.279	Mar 2020	0.283	Mar 2021	-		0.283	Continuing	Continuing	-
Group 2 UAS Platform/Payloads Development and Integration	MIPR	Various : Various	5.753	5.099	Jan 2019	6.020	Mar 2020	1.655	Mar 2021	-		1.655	Continuing	Continuing	-
Group 3 UAS Platform/Payload Development and Integration (OCO)	MIPR	Various : Various	-	4.467	Mar 2019	4.400	Mar 2020	0.000		4.300	Mar 2021	4.300	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Group 4 UAS Platform/Payloads Development and Integration	MIPR	Various : Various	5.600	6.432	Mar 2019	6.681	Mar 2020	3.297	Mar 2021	-		3.297	Continuing	Continuing	-
Prior Year Effort	Various	Various : Various	9.504	-		-		-		-		-	0.000	9.504	-
Subtotal			30.761	37.685		34.236		11.805		4.300		16.105	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	1.282	0.250	Jan 2019	0.230	Jan 2020	0.500	Jan 2021	-		0.500	Continuing	Continuing	-
Group 2 UAS Platform/Payload Support	MIPR	Various : Various	0.818	0.100	Feb 2019	0.050	Jan 2020	0.050	Jan 2021	-		0.050	Continuing	Continuing	-
Subtotal			2.100	0.350		0.280		0.550		-		0.550	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	Various; Various : Various	12.288	0.430	Nov 2018	0.200	Nov 2019	2.000	Dec 2020	-		2.000	Continuing	Continuing	-
SAFC - NAVSEA - JHU / APL	C/Various	Various : Various	-	1.000	Jan 2019	1.200	Feb 2020	-		-		-	0.000	2.200	-
SAFC - NIWC: Beyond Line of Sight (BLOS) Laser Mod Payload Auto Target Recognition Development and Integration	C/Various	Various : Various	-	0.400	Jan 2020	0.400	Feb 2020	-		-		-	0.000	0.800	-
NAWC - AD	C/Various	Various : Various	-	-		1.200	Feb 2020	-		-		-	0.000	1.200	-
NextTech Solutions (NTS) Inc.	C/Various	Various : Various	-	-		1.000	Jun 2020	-		-		-	0.000	1.000	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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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Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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 - GSA - ISIQ-Cambridge Inc.	C/Various	Various : Various	-	2.000	Oct 2019	-		-		-		-	0.000	2.000	-
Group 2 UAS Platform/Payload Test and Evaluation	MIPR	Various : Various	0.951	0.496	Feb 2019	1.004	Mar 2020	1.004	Mar 2021	-		1.004	Continuing	Continuing	-
Group 3 UAS Test and Evaluation (OCO)	MIPR	Various Vendors During Integrations : Various	-	0.533	Jun 2019	0.600	Jan 2020	0.000		0.700	Jan 2021	0.700	Continuing	Continuing	-
Group 4 UAS Test and Evaluation	Various	Various : Various Vendors During Integration	0.120	0.268	Mar 2019	0.287	Mar 2020	0.785	Mar 2021	-		0.785	Continuing	Continuing	-
Prior Year	Various	Various : Various	3.393	-		-		-		-		-	0.000	3.393	-
Subtotal			16.752	5.127		5.891		3.789		0.700		4.489	Continuing	Continuing	N/A

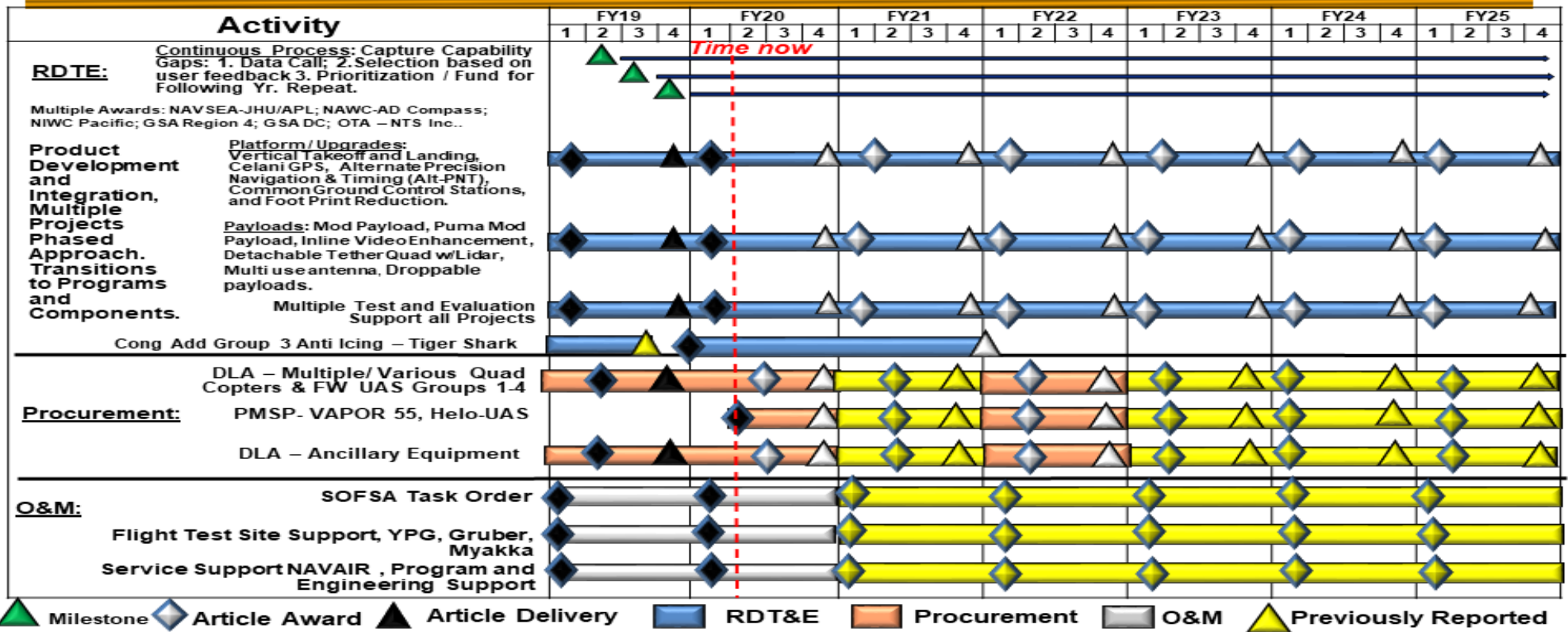
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SAFC Sensor Testing, Evaluation and Demonstration Management	MIPR	Various : Various	2.474	0.881	Mar 2019	1.190	Mar 2020	1.000	Dec 2020	-		1.000	Continuing	Continuing	-
SAFC Heat Coat UAS Anti-Icing Contract Administration (Congressional Add)	MIPR	Cambridge International : Cambridge, MD	0.247	-		-		-		-		-	0.000	0.247	-
SAFC Heat Coat UAS Anti-Icing Contract Administration (Congressional Add)	MIPR	Alion Science and Technology : Va	0.247	0.360	Feb 2020	-		-		-		-	0.000	0.607	-
Group 2 UAS Platform/Payload Management	MIPR	Various : Various	1.076	0.567	Feb 2019	0.780	Mar 2020	2.010	Mar 2021	-		2.010	Continuing	Continuing	-
Subtotal			4.044	1.808		1.970		3.010		-		3.010	Continuing	Continuing	N/A

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160434BB / Unmanned ISR

Project (Number/Name)
S855 / Unmanned ISR

Special Application For Contingencies (SAFC) PEO Managed Schedule



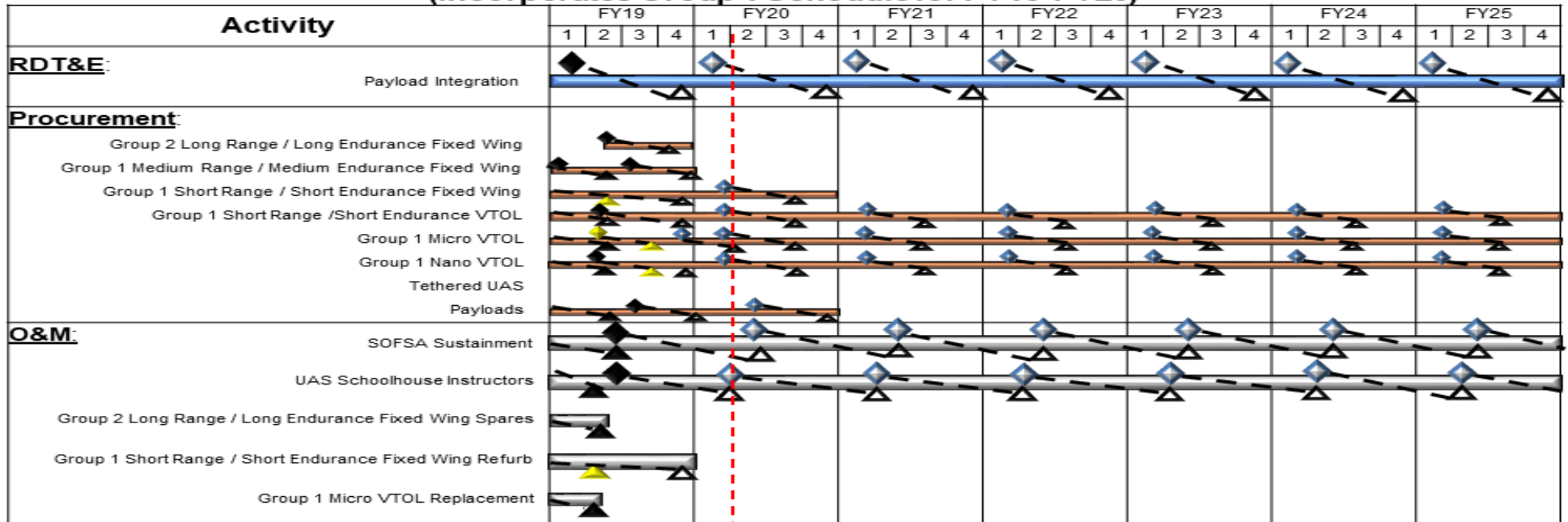
Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160434BB / Unmanned ISR

Project (Number/Name)
S855 / Unmanned ISR

Expeditionary Organic Tactical Airborne ISR Capability Set (EOTACS) PEO-Managed Schedule

(Incorporates Group 1 Schedule for FY19-FY20)

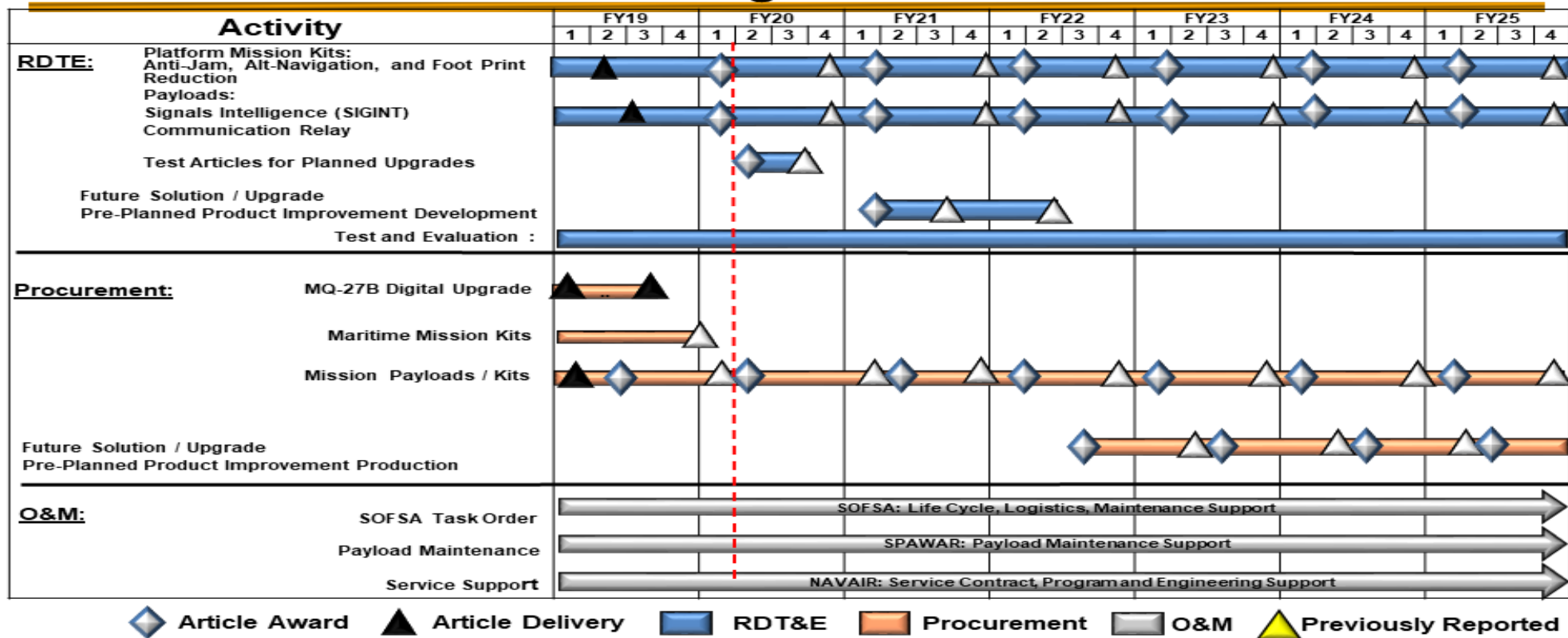


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160434BB / Unmanned ISR

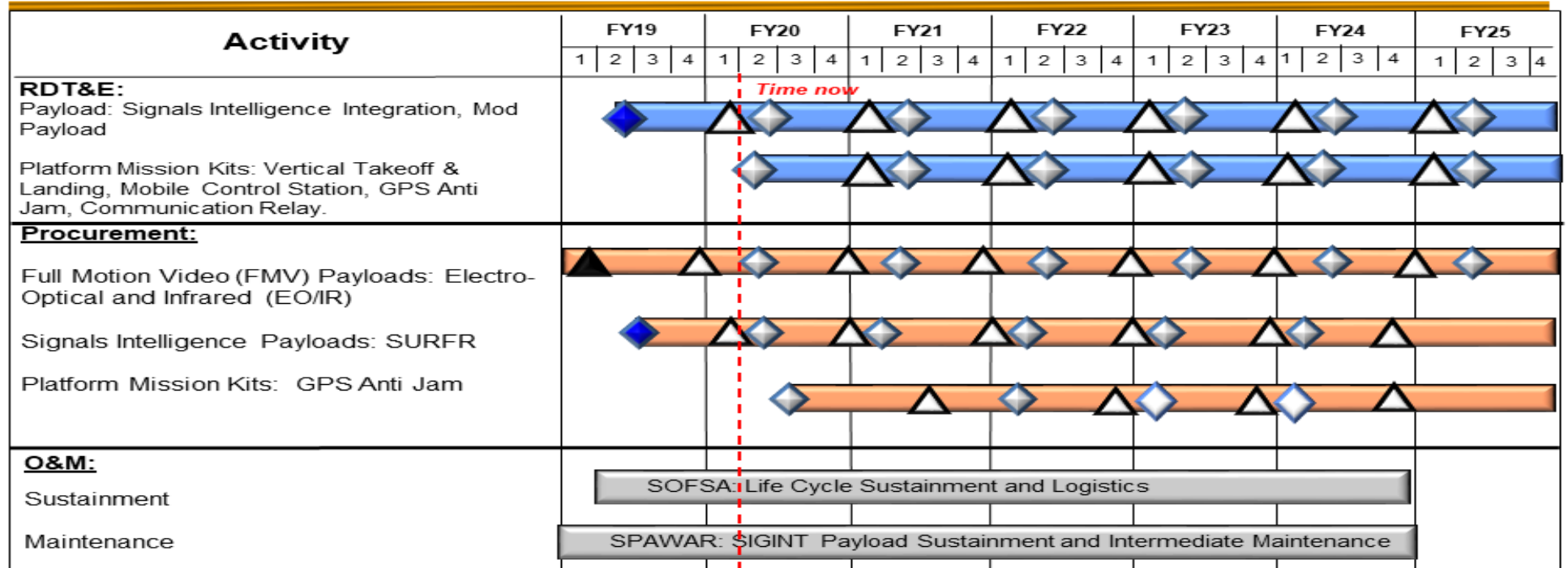
Project (Number/Name)
S855 / Unmanned ISR

Group 2 Multi-Mission Tactical Unmanned Aerial Service (MTUAS) PEO-Managed Schedule



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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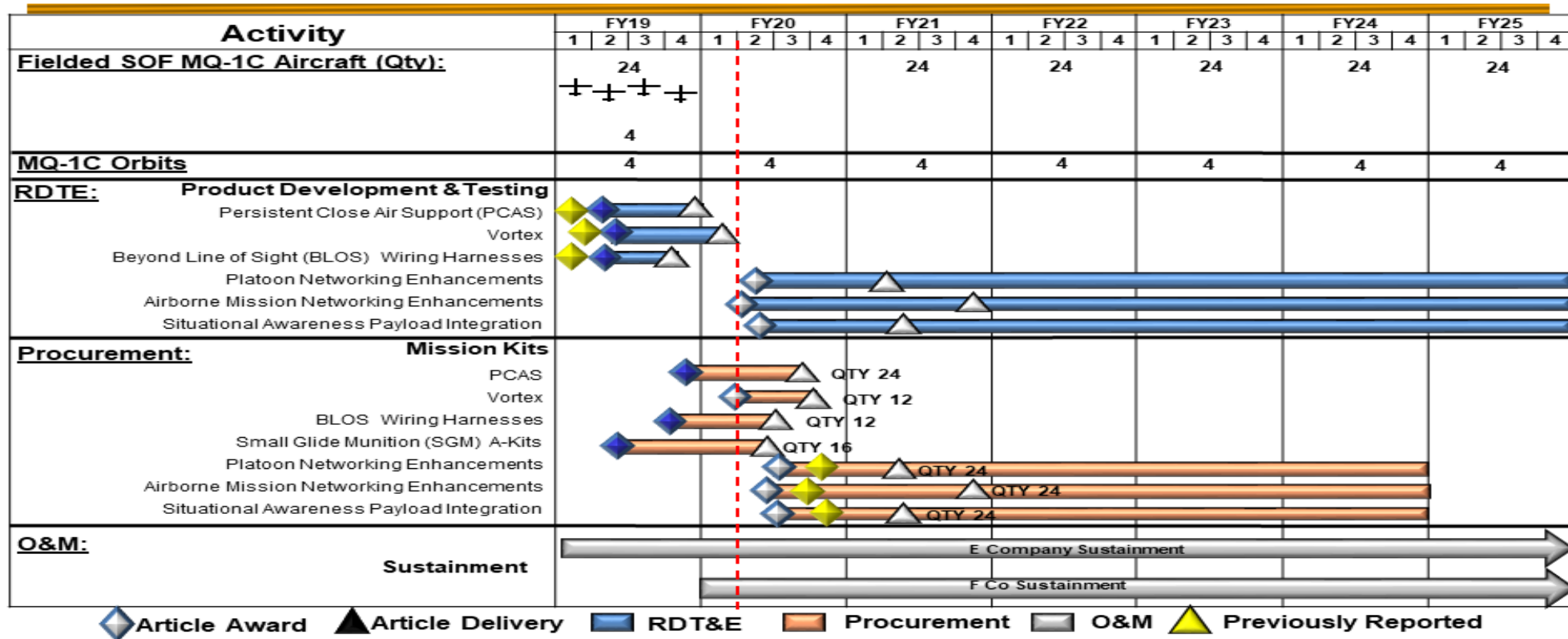
Group 3 Unmanned Aerial Service PEO-Managed Schedule



▲ Milestone
 ◆ Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ▲ Previously Reported

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 IV Unmanned ISR PEO-Managed Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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
<i>Special Application for Contingencies (SAFC)</i>				
Product Development, Support, and Management	1	2019	4	2025
Test and Evaluation	1	2019	4	2025
Anti-Icing Development on TigerShark	1	2019	4	2021
<i>Group 1 Unmanned Aerial System (UAS)/Expeditionary Organic Tactical Airborne ISR Capability Set (EOTACS)</i>				
Payload Integration; Test Range Support	1	2019	4	2025
<i>Group 2 UAS</i>				
Platform/Payload Development and Integration	1	2019	4	2025
Platform/Payload Test & Evaluation	1	2019	4	2025
<i>Group 3 UAS</i>				
Platform/Payload Development and Integration	2	2019	4	2025
<i>Group 4 UAS</i>				
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	4	2025
Airborne Mission Networking Enhancements	2	2020	4	2025
Situational Awareness Sensor Integration	2	2020	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	40.218	1.806	11.150	9.263	-	9.263	4.191	5.221	4.820	4.916	Continuing	Continuing
S910: <i>SOF Tactical Vehicles</i>	40.218	1.806	11.150	9.263	-	9.263	4.191	5.221	4.820	4.916	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for the development and testing of a variety of capability 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, Non Standard Commercial Vehicles (NSCV), and Joint Light Tactical Vehicle (JLTV). 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. These technologies will be pursued via rapid prototyping efforts when appropriate.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	1.846	11.150	9.263	-	9.263
Current President's Budget	1.806	11.150	9.263	-	9.263
Total Adjustments	-0.040	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.040	-			

Change Summary Explanation

Funding:

FY 2019: Decrease of \$0.040 million is due to the transfer of funds to Small Business Innovative Research/Small Business Technology Research Transfer programs (SBIR/STTR).

FY 2020: None.

FY 2021: None.

Schedule: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7:</i> <i>Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1160480BB / <i>SOF Tactical Vehicles</i>
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Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S910: <i>SOF Tactical Vehicles</i>	40.218	1.806	11.150	9.263	-	9.263	4.191	5.221	4.820	4.916	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: FSOV	1.806	11.150	9.263	-	9.263
Description: Funding provides for design/engineering, test, and evaluation costs related to capability upgrades in the following areas: Survivability, Lethality, Signature Management, Mobility/Performance, Communications, and Product Development. These capability upgrades and Engineering Change Proposals (ECPs) are incorporated across the FSOV portfolio of vehicles Non-Standard Commercial Vehicle (NSCV), Ground Mobility Vehicle (GMV 1.1), Light Tactical All-Terrain Vehicle (LTATV), Mine Resistant Ambush Protected (MRAP) vehicle, and the Joint Light Tactical Vehicle (JLTV).					
FY 2020 Plans: Continue design/development and integration of ECPs that implement capability upgrades and improve the performance of the NSCV, GMV1.1, LTATV, and MRAP vehicles. Design and produce prototypes of a hybrid/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.). Develop prototypes for a Purpose Built NSCV which will reduce future lifecycle costs and improve offroad mobility and durability for SOF operators. Additional technology development and insertion efforts include NSCV lightweight vehicle/armor design/transition, MRAP Situational Awareness improvements, Electronic Warfare Vulnerability Assessments, and Autonomous LTATV capability studies, and initiate and complete JLTV SOF evaluation and Command, Control, Communications, Computers, and Intelligence/Electronic Counter Measures (C4I/ECMs) design and testing.					
FY 2021 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Continues design/development and integration of ECPs that implement capability upgrades and improve the performance of the NSCV, GMV 1.1, LTATV, MRAP, and JLTV vehicles. Initiates test and evaluation for hybrid/electric GMV 1.1 and Purpose Built NSCV. In addition, FSOV will initiate integration and test of designated Counter-Unmanned Aerial System (C-UAS)/Precision Strike Systems (PSS) on vehicle platforms to ensure performance of both systems with minimal adverse impacts. FY 2021 also includes technology development and insertion efforts for Autonomous LTATV, Acoustic Signature Reduction, Transferable Armor, and other SOF modification upgrades.					
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> Decrease of -\$1.887 million is due to the transition of hybrid/electric GMV 1.1 and Purpose Built NSCV developmental prototypes into test and evaluation. Due to this, less funding is required in FY21 since no additional prototypes are planned for production during the test and evaluation phase.					
Accomplishments/Planned Programs Subtotals	1.806	11.150	9.263	-	9.263

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PROC/0204TACVEH: <i>Tactical Vehicles</i>	142.239	114.122	30.158	2.990	33.148	21.473	21.856	22.298	22.745	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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	13.118	0.768	Dec 2018	2.775	May 2020	1.350	Nov 2020	-		1.350	Continuing	Continuing	-
FSOV NSCV Capability Enhancements / ECP Development	Various	Various : Various	1.156	-		4.035	Apr 2020	1.650	Nov 2020	-		1.650	Continuing	Continuing	-
FSOV LTATV Capability Enhancements / ECP Development	Various	Various : Various	0.920	0.065	Nov 2019	0.050	Dec 2019	0.700	Jul 2021	-		0.700	Continuing	Continuing	-
MRAP Capability Enhancements/ECP Development	Various	Various : Various	-	-		0.825	Apr 2020	1.100	Nov 2020	-		1.100	Continuing	Continuing	-
FSOV JLTV Capability Enhancements / ECP Development	Various	Various : Various	-	-		0.989	Feb 2020	1.000	Nov 2020	-		1.000	Continuing	Continuing	-
FSOV GMV 1.1 and NSCV Survivability Enhancement/Improvement Efforts	Various	Various : Various	0.971	0.163	Jan 2019	1.100	Apr 2020	0.450	Feb 2021	-		0.450	Continuing	Continuing	-
FSOV GMV 1.1 Capability Enhancements / ECP Development Overseas Contingency Operations (OCO)	Various	Various : Various	-	0.725	Feb 2019	-		-		-		-	0.000	0.725	-
Prior Year Funding	Various	Various : Various	0.385	-		-		-		-		-	0.000	0.385	-
Subtotal			16.550	1.721		9.774		6.250		-		6.250	Continuing	Continuing	N/A

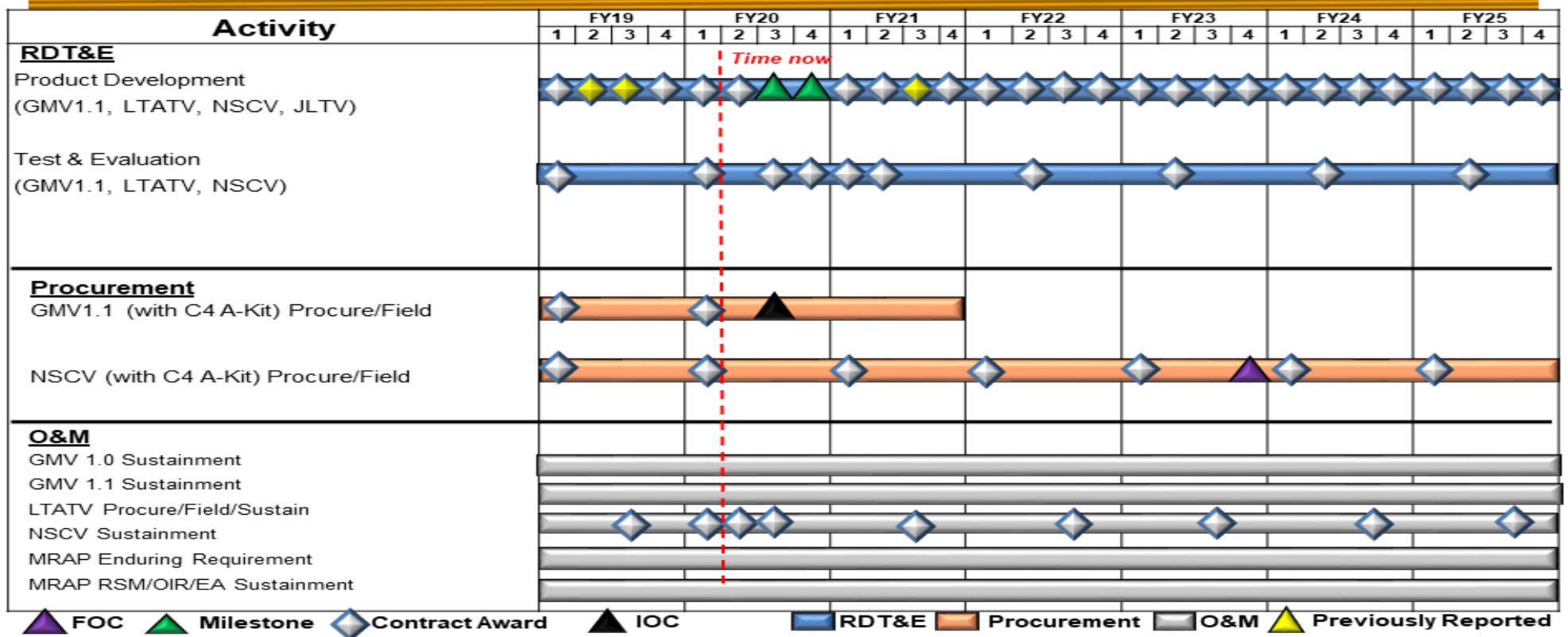
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Funding	Various	Various : Various	5.522	-		-		-		-		-	0.000	5.522	-
Subtotal			5.522	-		-		-		-		-	0.000	5.522	N/A

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160480BB / SOF Tactical Vehicles

Project (Number/Name)
S910 / SOF Tactical Vehicles

Family of Special Operations Vehicles (FSOV) PEO-Managed Schedule



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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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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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, JLTV)	1	2019	4	2025
Test & Evaluation (GMV 1.1, LTATV, NSCV)	1	2019	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	468.664	40.600	72.626	59.882	-	59.882	51.099	46.417	71.523	74.667	Continuing	Continuing
S0417: <i>Underwater Systems</i>	427.546	26.064	45.205	43.154	-	43.154	38.054	36.186	61.474	64.739	Continuing	Continuing
S1684: <i>Surface Craft</i>	41.118	14.536	27.421	16.728	-	16.728	13.045	10.231	10.049	9.928	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.

The Underwater Systems project provides for EMD of combat submersibles, SOF combat 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. These technologies will be pursued via rapid prototyping efforts when appropriate.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	42.471	72.626	61.921	-	61.921
Current President's Budget	40.600	72.626	59.882	-	59.882
Total Adjustments	-1.871	0.000	-2.039	-	-2.039
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	3.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.351	-			
• SBIR/STTR Transfer	-1.520	-			
• Other	-	-	-2.039	-	-2.039

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

Project: S0417: *Underwater Systems*

Congressional Add: *SOF Combat Diving*

	FY 2019	FY 2020
	-	3.000
Congressional Add Subtotals for Project: S0417	-	3.000
Congressional Add Totals for all Projects	-	3.000

Change Summary Explanation

Funding:

FY 2019: Net decrease of \$1.871 million is due to a transfer to Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) (-\$1.520 million) and funds made available to support critical emerging Command requirements in the year of execution (-\$0.351 million).

FY 2020: Net zero is due to a Congressional Directed Reduction which was a decrease within the Dry Combat Submersible (-\$3.000 million) and a Congressional Add increase for SOF Combat Diving (\$3.000 million).

FY 2021: Net decrease of \$2.039 million is due to an increase to align Tech Insertion Roadmap (TIR) for combatant craft systems for enhanced Global Positioning System (GPS), survivability and hybrid power study; SOF Peculiar Unmanned Underwater Vehicle (UUV) payloads; and integration of Maritime Precision Engagement (MPE) prototype on Combatant Craft Medium (CCM) test article (\$3.004 million), and Dry Combat Submersible (DCS) funding was made available to support critical emerging Command requirements (-\$0.450 million).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	PE 1160483BB / <i>Maritime Systems</i>

For the Defense Wide Review (DWR), USSOCOM performed a comprehensive analysis of future capabilities which reduces the product development and integration of the Combatant Craft Heavy (CCH) program to better align with the Department's priorities as outlined in the National Defense Strategy (-\$4.593 million).

Schedule: None.

Technical: None.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S0417: <i>Underwater Systems</i>	427.546	26.064	45.205	43.154	-	43.154	38.054	36.186	61.474	64.739	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) combat 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. 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. These technologies will be pursued via rapid prototyping efforts when appropriate.

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

	FY 2019	FY 2020	FY 2021
Title: Shallow Water Combat Submersible (SWCS)	1.397	1.395	1.411
Description: SWCS provides for the design, development, and test of one Engineering Development Model (EDM) and 10 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 2020 Plans: Continue Operational Testing and Preplanned Product Improvements (P3I). P3I enhancements include, but are not limited to, Propulsor, Acoustic and Radio Frequency indicators and warning capabilities, Electro-Optical (EO)/Infrared (IR) sensor development, and self recovery.			
FY 2021 Plans: Continues P3I. P3I enhancements include, but are not limited to, Propulsor, Power and Energy, Acoustic and Radio Frequency indicators and warning capabilities, EO/IR sensor, payload improvements, and self recovery.			
FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.016 million is due to continued support of ongoing and planned P3I enhancements.			
Title: Dry Combat Submersible (DCS)	14.462	16.209	17.292

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021
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Description: DCS 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 of one Engineering and Manufacturing Development (EMD) and two production units. USSOCOM tested 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 program includes funding for enhanced warfighter capabilities such as Mid-Water Column Lock-In/Lock-Out, depressurization pump, and submarine interoperability.

FY 2020 Plans:
Continue the incorporation of P3I to increase the operational capability of DCS. Complete developmental and begin operational testing on DCS 1. Complete government acceptance testing on DCS 2. Begin DCS Block II EMD efforts.

FY 2021 Plans:
Continues the incorporation of P3I to increase the operational capability of DCS. Begins government acceptance testing on DCS 3. Continues DCS Block II EMD efforts.

FY 2020 to FY 2021 Increase/Decrease Statement:
Increase of \$1.083 million is due to DCS shifting to Block II.

Title: Dry Deck Shelter (DDS) Modernization

Description: DDS 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 2020 Plans:
Continue Field Changes necessary to extend useful life of the DDS, transitions from Ship, Submersible, Guided Missile, Nuclear (SSGN) to Virginia (VA) Class host platform, and increases capacity to carry larger payloads.

FY 2021 Plans:
Continues Field Changes necessary to extend useful life of the DDS and increases capacity to carry larger payloads. Completes the transition study of the SSGN to VA Class host platform

FY 2020 to FY 2021 Increase/Decrease Statement:

	8.221	5.278	1.206
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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021
Decrease of \$4.072 million is due to the completion of the transition study from the SSGN and VA Class host platform and aligning FY21 Unmanned Underwater Vehicle (UUV) technology integration efforts to the UUV program.			
<p>Title: SOF Combat Diving</p> <p>Description: SOF Combat Diving provides the EMD, testing, and rapid 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, DCS, and surface craft 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 situational awareness, environmental protection, and communications between dive teams as well as between divers and external vessels/craft. SOF Combat Diving is designated a MTA program, which uses the rapid prototyping pathway and is executed using existing contracts, government agencies, and new contracts competitively selected as appropriate.</p> <p>FY 2020 Plans: Continue development, to include test and evaluation for environmental protection, navigation, communication, and propulsion.</p> <p>FY 2021 Plans: Continues development, to include test and evaluation for environmental protection, navigation, communication, propulsion, and begin shallow water underwater breathing apparatus.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.045 million supports spiral development of SOF-Peculiar diving system-of-systems approach and integrates the man-carried diving equipment with the Undersea Platforms.</p>	1.984	2.160	2.205
<p>Title: Undersea Craft Mission Equipment (UCME)</p> <p>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. UCME focuses on spearheading specific Technology Readiness Level (TRL) 6 technology for compatibility, maturity, marinization, and successful transition to SOF undersea craft programs.</p> <p>FY 2020 Plans: Begin development of undersea survivability enhancements; underwater and maritime domain communications; enhanced situational awareness and Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and</p>	-	17.163	19.692

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021
<p>Reconnaissance (C5/ISR); unique power and energy capabilities; other capability enhancements and enabling technologies for assured access, which supports the National Defense Strategy (NDS).</p> <p>FY 2021 Plans: Continues development of undersea survivability enhancements; underwater and maritime domain communications; enhanced situational awareness and C5/ISR; unique power and energy capabilities; other capability enhancements and enabling technologies for assured access, which supports the NDS.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$2.529 million is due to increased investment in enhanced survivability, navigation, C5ISR/Situational Awareness (SA), power and energy, and other assured access technologies.</p>			
<p>Title: MK18 Mod 1 Unmanned Underwater Vehicle (UUV)</p> <p>Description: MK 18 Mod 1 UUV enables access to contested / denied areas in the maritime domain, provides Maritime Special Reconnaissance capabilities and reduces risk to personnel and manned platforms. This program develops and integrates SOF-peculiar modifications to the Service Common, MFP-2 funded, Mark 18 Mod 1 UUV.</p> <p>FY 2021 Plans: Begins payload development/integration for Beyond Line Of Sight (BLOS) capability via cognitive router effort, encrypted communications, underwater launch and recovery, and artificial intelligence. Begins and completes development/integration for Acoustic Intercept Receiver.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$1.000 million is due to heightened demand signal for Naval Special Warfare (NSW) undersea capabilities.</p>	-	-	1.000
<p>Title: Combatant Craft Light (CCL)</p> <p>Description: CCL is a small combatant craft that supports deployment of six combat equipped SOF operators and their payloads for selected missions in multiple threat environments. Its compact form factor provides SOF with versatile mission transportability, deployment, and utility capabilities.</p> <p>FY 2021 Plans: Completes integration and testing of Low Rate Initial Production (LRIP) craft.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.348 million is due to integration and testing of LRIP craft.</p>	-	-	0.348
Accomplishments/Planned Programs Subtotals	26.064	42.205	43.154

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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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	FY 2019	FY 2020
Congressional Add: SOF Combat Diving	-	3.000
FY 2020 Plans: Continue development of SOF Diver propulsion.		
Congressional Adds Subtotals	-	3.000

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/0210US: <i>Underwater Systems</i>	128.816	58.991	20.556	-	20.556	18.974	7.219	15.562	15.873	Continuing	Continuing

Remarks

D. Acquisition Strategy

- 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. Sole source Justification and Approval (J&A) was approved and awarded to deliver final production Articles to meet full operational capability (FOC).
- DCS used full and open competition, resulting in the selection of a single prime contractor and award of a Fixed Price Incentive Firm Target contract for three vessels. DCS-Block II begins market research in FY 2020.
- The DDS is currently in sustainment through a maintenance and service contract which was competitively sourced, and awarded for a five-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 an MTA program which supports rapid prototyping and is executed using existing contracts, government agencies, and new contracts competitively selected as appropriate.
- UCME will use streamlined Federal Acquisition Regulation (FAR) contracting with existing or planned Indefinite Delivery, Indefinite Quantity (IDIQ), Blanket Order Agreement (BOA), University Affiliated Research Center (UARC), and Federally Funded Research and Development Center (FFRDC) contracts and use Non-FAR Acquisition Authorities and Other Transaction Authority (OTA) agreements, where appropriate.
- UUV will procure an existing service common man-portable UUV and augment it with purpose built, modular, plug-and-play sensors and payloads to meet SOF requirements.
- CCL engineering and manufacturing development was sole source. Program Management Office (PMO) is evaluating limited competition for follow-on production contract contingent on cost tradeoffs and completeness of technical data.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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/Various	Various : Various	-	1.197	Jan 2019	1.191	Jan 2020	1.203	Jan 2021	-		1.203	Continuing	Continuing	-
Dry Combat Submersible (DCS) Block II EMD	C/Various	Various : Various	-	-		2.986	Feb 2020	5.500	Feb 2021	-		5.500	Continuing	Continuing	-
DCS Enhancements / Planning, Performance, Process and Innovative Solutions (P3I) Changes	C/Various	Various : Various	9.418	1.998	Nov 2018	4.589	Nov 2019	7.242	Nov 2020	-		7.242	Continuing	Continuing	-
DCS Engineering & Manufacturing Development (EMD)	C/FPIF	Lockheed Martin : Riviera Beach, FL	65.858	2.224	Dec 2018	-		-		-		-	0.000	68.082	-
DCS Depressurization Pump/Signature Management/Modeling and Simulation/Risk Mitigation (Congressional add)	C/Various	Various : Various	14.100	-		-		-		-		-	0.000	14.100	-
DCS Technologies Government Furnished Equipment	C/Various	Various : Various	40.753	0.100	Nov 2018	-		-		-		-	0.000	40.853	-
Dry Deck Shelter (DDS) Modernization	C/CPFF	Oceaneering International Inc. Marine Services Division : Chesapeake, VA	26.999	7.899	Jan 2019	4.950	Jan 2020	-		-		-	0.000	39.848	-
DDS Field Changes	C/Various	Oceaneering International Inc. Marine Services Division : Chesapeake, VA	-	-		-		0.872	Jan 2021	-		0.872	Continuing	Continuing	-
Special Operation Forces (SOF) Combat Diving-Unique Diving Technologies	Various	Various : Various	4.942	1.302	Apr 2019	1.464	Nov 2019	1.502	Feb 2021	-		1.502	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Undersea Craft Mission Equipment (UCME) Survivability, Navigation, C5ISR/SA, Power & Energy enhancements and other assured access technologies	C/Variou	Various : Various	-	-		16.360	Feb 2020	19.101	Dec 2020	-		19.101	Continuing	Continuing	-
MK18 Mod 1 Unmanned Underwater Vehicle (UUV)	C/Variou	Various : Various	-	-		-		1.000	Mar 2021	-		1.000	Continuing	Continuing	-
Prior Year Funding	Various	Various : Various	202.681	-		-		-		-		-	0.000	202.681	-
Subtotal			364.751	14.720		31.540		36.420		-		36.420	Continuing	Continuing	N/A

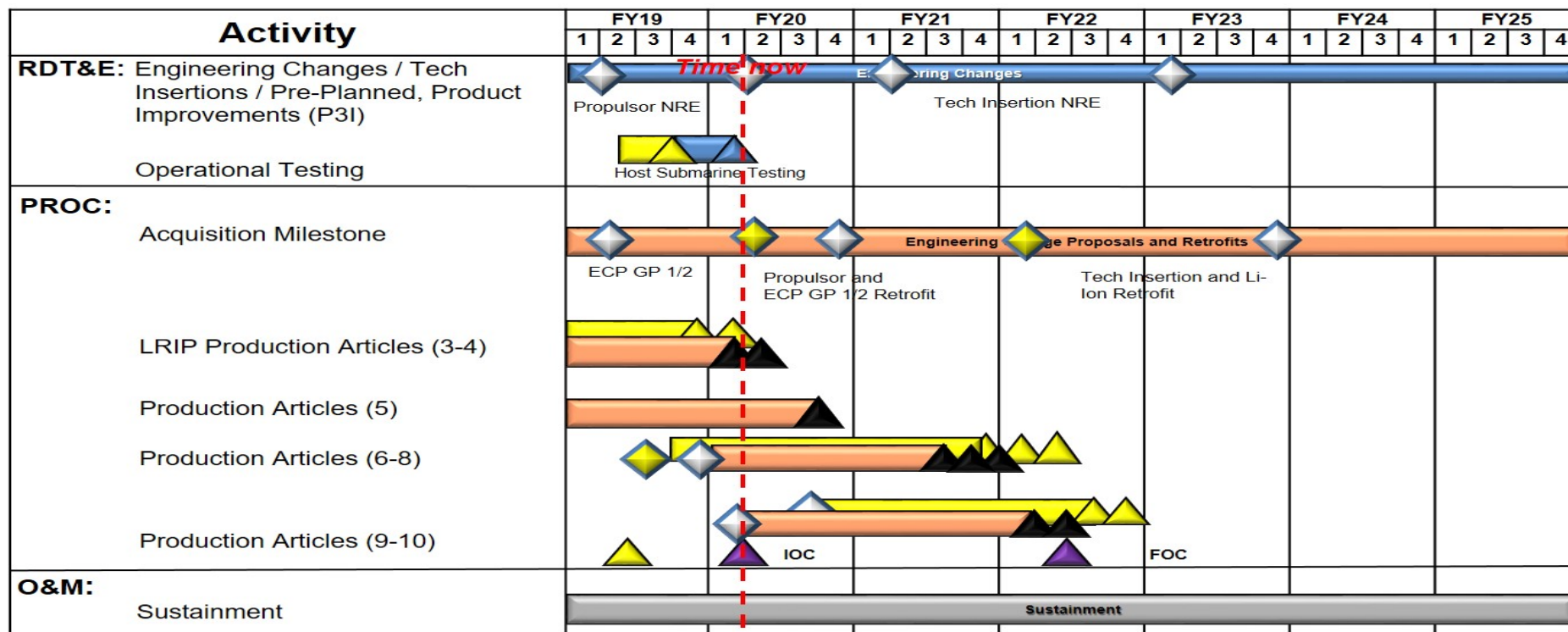
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior 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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	PSU ARL / JHU-APL : Laurel, MD / State College, PA	3.192	0.200	Nov 2018	0.204	Nov 2019	0.208	Nov 2020	-		0.208	Continuing	Continuing	-
DCS	C/Variou	NAVSEA / CRANE : Crane, IN	11.831	7.769	Nov 2018	9.254	Nov 2019	4.550	Oct 2020	-		4.550	Continuing	Continuing	-
SOF Combat Diving	Various	Various : Various	1.130	0.491	Mar 2019	0.520	Oct 2019	0.520	Oct 2020	-		0.520	Continuing	Continuing	-
UCME	C/Variou	Various : Various	-	-		0.275	Jun 2020	-		-		-	0.000	0.275	-
CCL	C/Variou	Various : Various	-	-		-		0.348	Dec 2020	-		0.348	0.000	0.348	-
Prior Year Funding	Various	Various : Various	9.320	-		-		-		-		-	0.000	9.320	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / Maritime Systems	Project (Number/Name) S0417 / Underwater Systems

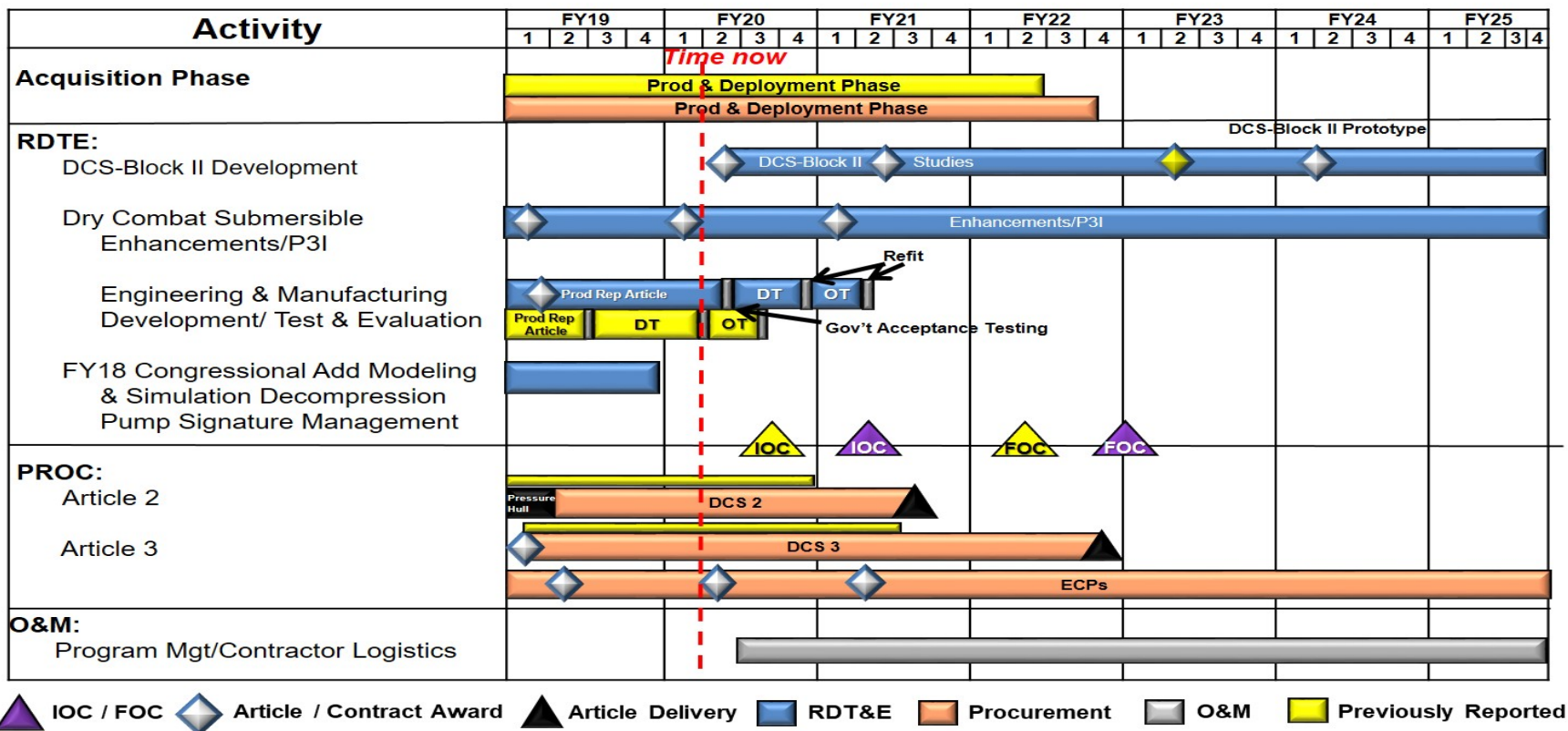
Shallow Water Combat Submersible (SWCS) PEO-Managed Schedule



▲ IOC / FOC
 ◆ Article / Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ■ Previously Reported

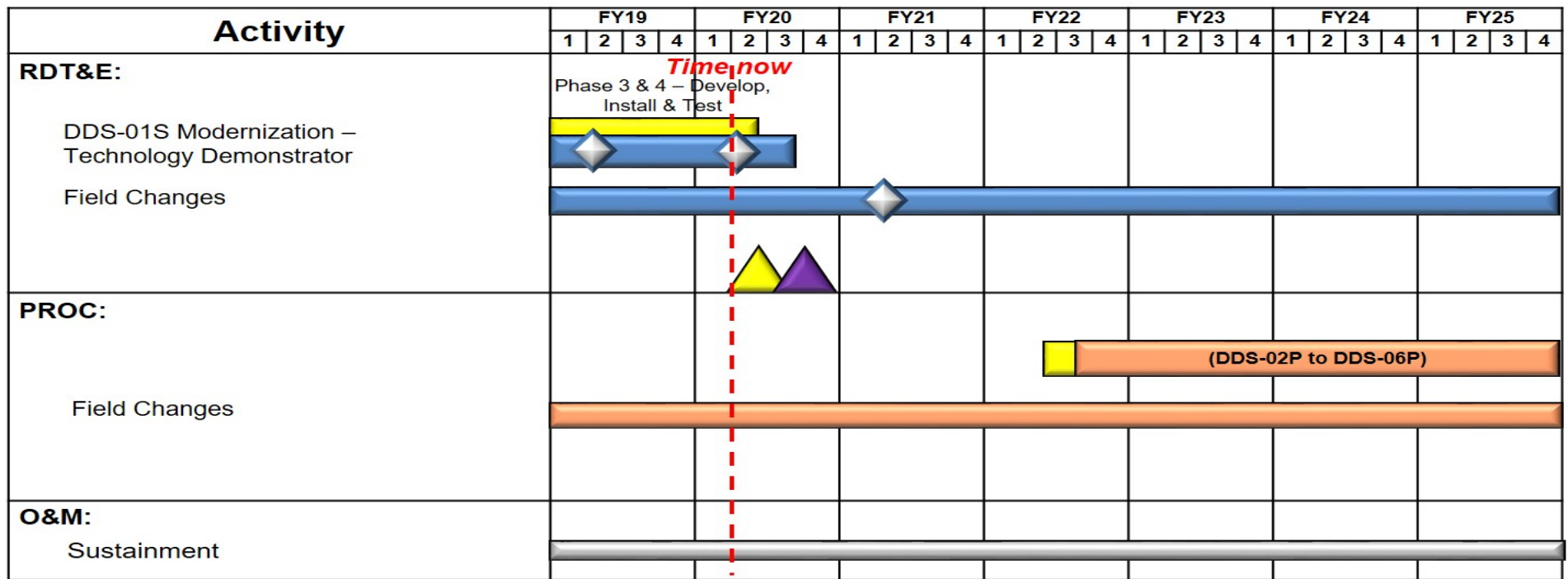
Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / Maritime Systems	Project (Number/Name) S0417 / Underwater Systems

Dry Combat Submersible (DCS) PEO-Managed Schedule



Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / Maritime Systems	Project (Number/Name) S0417 / Underwater Systems
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Dry Deck Shelter (DDS) PEO-Managed Schedule

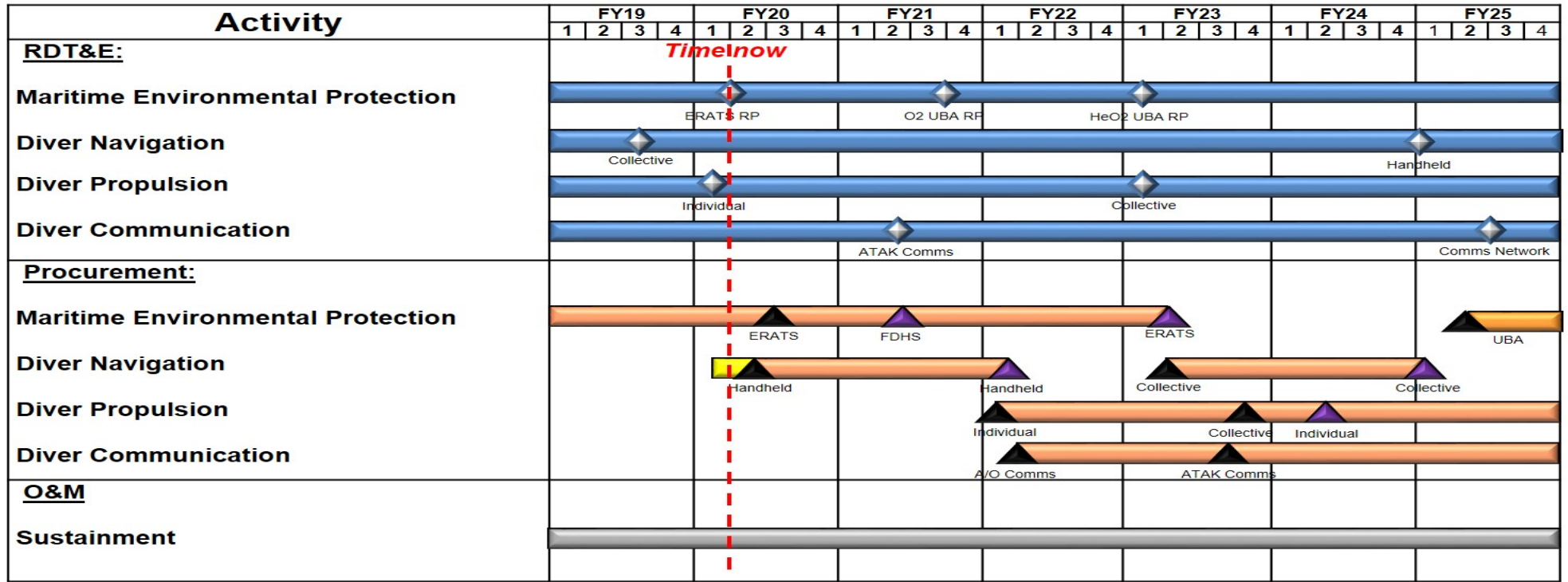


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S0417 / Underwater Systems

Special Operations Forces (SOF) Combat Diving PEO-Managed Schedule

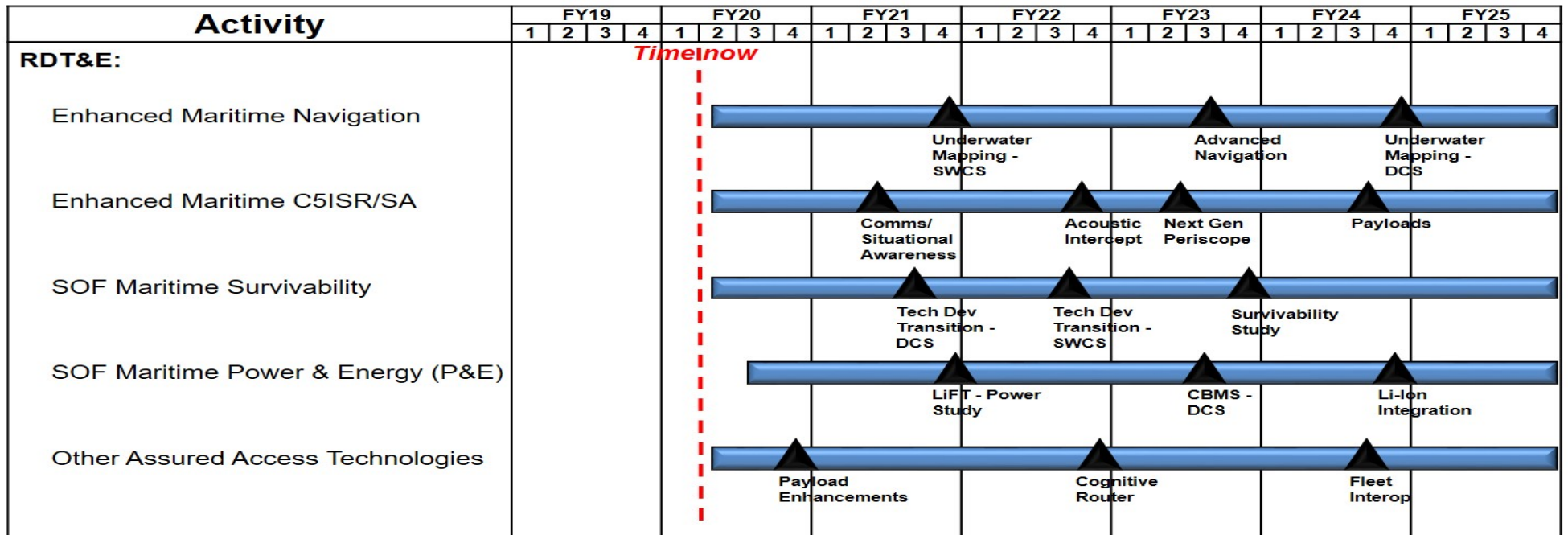


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S0417 / Underwater Systems

Undersea Craft Mission Equipment (UCME) PEO-Managed Schedule



Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / Maritime Systems	Project (Number/Name) S0417 / Underwater Systems
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Mk 18 Mod 1 Unmanned Underwater Vehicle (UUV) PEO-Managed Schedule

Activity	FY19				FY20				FY21				FY22				FY23				FY24				FY25							
	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: (P31): Payload development / integration for Acoustic Intercept Receiver, and develop EO Camera payload. Develop maritime beyond line of sight (BLOS) capability via Cognitive Router Effort, Clandestine Comms and AUMA (artificial Intelligence)																																
PROC: Systems procured through MFP-2 funds																																
O&M: Sustainment																																

▲ IOC / FOC
 ◆ Article / Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ■ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command **Date:** February 2020

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / Maritime Systems	Project (Number/Name) S0417 / Underwater Systems
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Combatant Craft Light (CCL) PEO-Managed Schedule

Activity	FY19				FY20				FY21				FY22				FY23				FY24				FY25							
	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: Test & Evaluation/Integration																																
PROC: Initial Operational Capability (IOC) Production (FRP 6 - 8)																																
O&M: Sustainment Planning/ Execution																																

Time now

▲ IOC / FOC
 ◆ Article / Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ■ Previously Reported

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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 (SWCS)</i>				
Enhancements/ Preplanned Product Improvements (P3I)	1	2019	4	2025
Operational Testing	4	2019	1	2020
<i>Dry Combat Submersibles (DCS)</i>				
DCS Block II	2	2020	4	2025
Enhancements/ P3I	1	2019	4	2025
Production Representative Article (Engineering and Manufacturing Development)	1	2019	2	2020
Developmental Test and Evaluation	2	2020	4	2020
Operational Test and Evaluation	4	2020	2	2021
<i>Dry Deck Shelter Modernization (DDS)</i>				
Phase 3 & 4 Development	1	2019	3	2020
Field Changes	1	2019	4	2025
<i>Special Operation Forces (SOF) Combat Diving</i>				
Maritime Environmental Protection Rapid Prototyping, Test, and Integration	1	2019	4	2025
Diver Navigation Rapid Prototyping, Test, and Integration	1	2019	4	2025
Diver Propulsion Rapid Prototyping, Test, and Integration	1	2019	4	2025
Diver Communication Rapid Prototyping, Test, and Integration	1	2019	4	2025
<i>Undersea Craft Mission Equipment (UCME)</i>				
Enhanced Maritime Navigation	2	2020	4	2025
Enhanced Maritime C5ISR/SA	2	2020	4	2025
SOF Maritime Survivability	2	2020	4	2025
SOF Maritime Power & Energy (P&E)	3	2020	4	2025
Other Assured Access Technologies	2	2020	4	2025

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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
<i>MK18 Mods 1 Unmanned Underwater Vehicle (UUV)</i>				
MK18 Mods 1 Unmanned Underwater Vehicle (UUV) P3I	1	2021	4	2025
Tech Insertion	1	2021	4	2022
<i>Combatant Craft Light (CCL)</i>				
Test and Evaluation / Integration	1	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command										Date: February 2020		
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S1684: <i>Surface Craft</i>	41.118	14.536	27.421	16.728	-	16.728	13.045	10.231	10.049	9.928	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for engineering and manufacturing development of small, medium, heavy, and assault 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. The craft capabilities and unique equipment provide small, highly trained forces the ability to successfully conduct operations associated with SOF maritime missions.

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

	FY 2019	FY 2020	FY 2021
Title: Combatant Craft Medium (CCM)	1.629	2.917	2.243
Description: CCM is a semi-enclosed multi-mission combatant craft for platoon-size maritime mobility in maritime contested 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 contested environments. 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 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 2020 Plans: Begin survivability enhancements, MK 50 remote weapon system integration, and Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance, and Reconnaissance (C5ISR) upgrades, and complete integration of the Joint Threat Warning System (JTWS). Begin aft enclosure development and testing.			
FY 2021 Plans: Continues survivability enhancements, MK 50 integration, and C5ISR upgrades. Continues aft enclosure development and testing.			
FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$0.674 million is due to completion of JTWS integration.			
Title: Combatant Craft Heavy (CCH)	0.586	3.956	0.925
Description: CCH 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-controlled,			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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)	FY 2019	FY 2020	FY 2021
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semi-submersible craft that operates in contested environments. 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, shore based mobile travel lift, or crane.

FY 2020 Plans:

Continue development and integration of upgraded situational awareness enhancement and begin design and development of tech data package for CCH - (replacement of 1 and 2).

FY 2021 Plans:

Continues development and integration of upgraded situational awareness enhancement and integration of JTWS. Continues development of tech data package for CCH - (replacement of 1 and 2).

FY 2020 to FY 2021 Increase/Decrease Statement:

Decrease of -\$3.031 million is due to USSOCOM performing a comprehensive analysis of future capabilities and is reducing Combat Craft Heavy (CCH) program to better align with the Department's priorities as outlined in the National Defense Strategy.

<i>Title:</i> Combatant Craft Mission Equipment (CCME)	3.794	6.490	7.381
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Description: CCME 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. CCME focuses on spearheading specific Technology Readiness Level (TRL) 6 technology for compatibility, maturity, marinization, and successful transition to SOF combatant craft programs.

FY 2020 Plans:

Continue evaluation of candidate solutions for technology development including shock mitigation, family of antennas, situational awareness, Maritime Tactical Mission Network (MTMN), and enhanced Global Positioning System (GPS). Begin evaluation of candidate solutions for Digital Radar. Expand investment in enhanced survivability, navigation, Computers, Intelligence, Surveillance, and Reconnaissance Systems (C5ISR)/Situational Awareness (SA), power & energy, and other assured access technologies. Continue Link 16 integration.

FY 2021 Plans:

Continues evaluation of candidate solutions for technology development including shock mitigation, family of antennas, situational awareness, MTMN and enhanced GPS. Continues development, to include test and evaluation of solution for Digital Radar.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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)	FY 2019	FY 2020	FY 2021
<p>Expands investment in enhanced survivability, navigation, C5ISR/SA, power & energy, and other assured access technologies. Continues Link 16 integration.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.891 million is due to increased investment in enhanced survivability, navigation, C5ISR/SA, power and energy, and other assured access technologies.</p>			
<p>Title: Combatant Craft Assault (CCA)</p> <p>Description: CCA is a combatant craft for squad-size maritime mobility operations in contested environments. CCA is NSW's best craft for Visit, Board, Search, and Seizure (VBSS). 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.</p> <p>FY 2020 Plans: Continue integration and testing of Combatant Craft Forward Looking Infrared Radar (CCFLIR2) mast design and Comms Box/ Tactical Operations Center Intercommunications System (TOCNET).</p> <p>FY 2021 Plans: Continues integration and testing of CCFLIR2 mast design and Comms box/TOCNET.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase of \$0.011 million is due to minor adjustments.</p>	1.033	0.521	0.532
<p>Title: Maritime Precision Engagement (MPE)</p> <p>Description: MPE 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. MPE consists of combatant craft alterations, integration of the MK 50 Remote Weapon System (RWS), and munition launcher systems. Munitions for this effort are funded through PEO SOF Warrior. The MK 50 RWS consists of a MK 50 RWS and a M2 .50 Cal heavy machine gun that provides stabilized accurate fire from the bow of the CCM.</p> <p>FY 2020 Plans: Continue design and development of craft modifications such as bow hatches that preserve survivability, launcher system components, and the operator control station. Efforts will include the final design, integration and testing of the MPE Engineering Development Module (EDM) for the MK 50 RWS. Continued work on a government-controlled architecture and interfaces for the munition launcher, munition datalink/antennae requirements, and associated control systems which will include drafting of interface control documents. Finalize the CCM MPE A-kit design for installation on the CCM test article, representing a major</p>	6.740	13.537	5.647

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
modification to the bow of the CCM. The final MPE A-kit design will support both the munition launcher and the MK 50 RWS, allowing both to be stowed below the deck of the CCM bow when not in use. FY 2021 Plans: Continues detailed design and development of craft modifications, a MK 50 RWS production representative article, and operator control station to develop a fully integrated operational capability. Continues prototype development and initial testing of the munition launcher B-Kit to produce an MPE launcher EDM for installation on the CCM test article. Additional work will be performed in the design and subsequent integration of similar MPE launcher capabilities into the Combatant Craft Heavy platform. FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of \$7.890 million is due to completion of MK 50 RWS EDM.			
Title: Combatant Craft Forward Looking Infrared (CCFLIR) System Description: The CCFLIR program consists of a legacy CCFLIR and the CCFLIR2. The CCFLIR capability provides Special Operations Forces (SOF) with a multi-sensor, electro-optic system that enhances SOF effectiveness by improving their ability to detect, recognize, identify, range, track, and highlight objects of interest in a maritime environment. The legacy CCFLIR is under sustainment and is currently used on CCA, CCM, and Special Operations Craft Riverine (SOCR).	0.754	-	-
Accomplishments/Planned Programs Subtotals	14.536	27.421	16.728

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

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/0204SCCS: <i>Combatant Craft Systems</i>	19.069	48.462	17.278	-	17.278	36.876	45.239	24.415	25.479	Continuing	Continuing

Remarks

N/A

D. Acquisition Strategy

• 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 logistics support.

• 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 (SOFSA). 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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>

- CCME will use streamlined Federal Acquisition Regulation (FAR) contracting with existing or planned Indefinite Delivery, Indefinite Quantity (IDIQ), Blanket Order Agreement (BOA), University Affiliated Research Center (UARC), and Federally Funded Research and Development Center (FFRDC) contracts and use Non-FAR Acquisition Authorities and Other Transaction Authority (OTA) agreements, where appropriate.
- CCA will continue to develop, test, and integrate capability enhancements required to increase the crafts performance characteristics, reliability, and survivability.
- MPE will employ Government engineering expertise and lessons learned to develop a common launch system for NSW combatant craft. Munitions selection will be executed as an MTA to meet program requirements.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	15.040	1.629	Nov 2018	2.917	Nov 2019	2.243	Nov 2020	-		2.243	Continuing	Continuing	-
Combatant Craft Heavy (CCH)	C/Variou	Various : Various	6.194	0.586	Jan 2019	3.956	Jan 2020	0.925	Jan 2021	-		0.925	Continuing	Continuing	-
Combat Craft Mission Equipment (CCME)	C/Variou	Various : Various	4.905	3.554	Nov 2018	5.701	Nov 2019	7.381	Nov 2020	-		7.381	Continuing	Continuing	-
Combatant Craft Assault (CCA)	C/Variou	NSWC-Carderock : Norfolk, VA	1.089	1.033	Nov 2018	0.521	Nov 2019	0.532	Nov 2020	-		0.532	Continuing	Continuing	-
Maritime Precision Engagement (MPE)	C/Variou	NSWC : Dahlgren, VA	-	6.743	Dec 2018	13.333	Dec 2019	5.437	Dec 2020	-		5.437	Continuing	Continuing	-
Combatant Craft Forward Looking Infrared (CCFLIR) System	C/Variou	Various : Various	-	0.754	May 2020	-		-		-		-	0.000	0.754	-
Prior Year Costs	C/Variou	Various : Various	6.461	-		-		-		-		-	0.000	6.461	-
Subtotal			33.689	14.299		26.428		16.518		-		16.518	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
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	1.498	0.237	Nov 2018	0.239	Nov 2019	-		-		-	0.000	1.974	-
Prior Year Costs	C/Variou	Various : Various	2.395	-		-		-		-		-	0.000	2.395	-
Subtotal			3.893	0.237		0.239		-		-		-	0.000	4.369	N/A

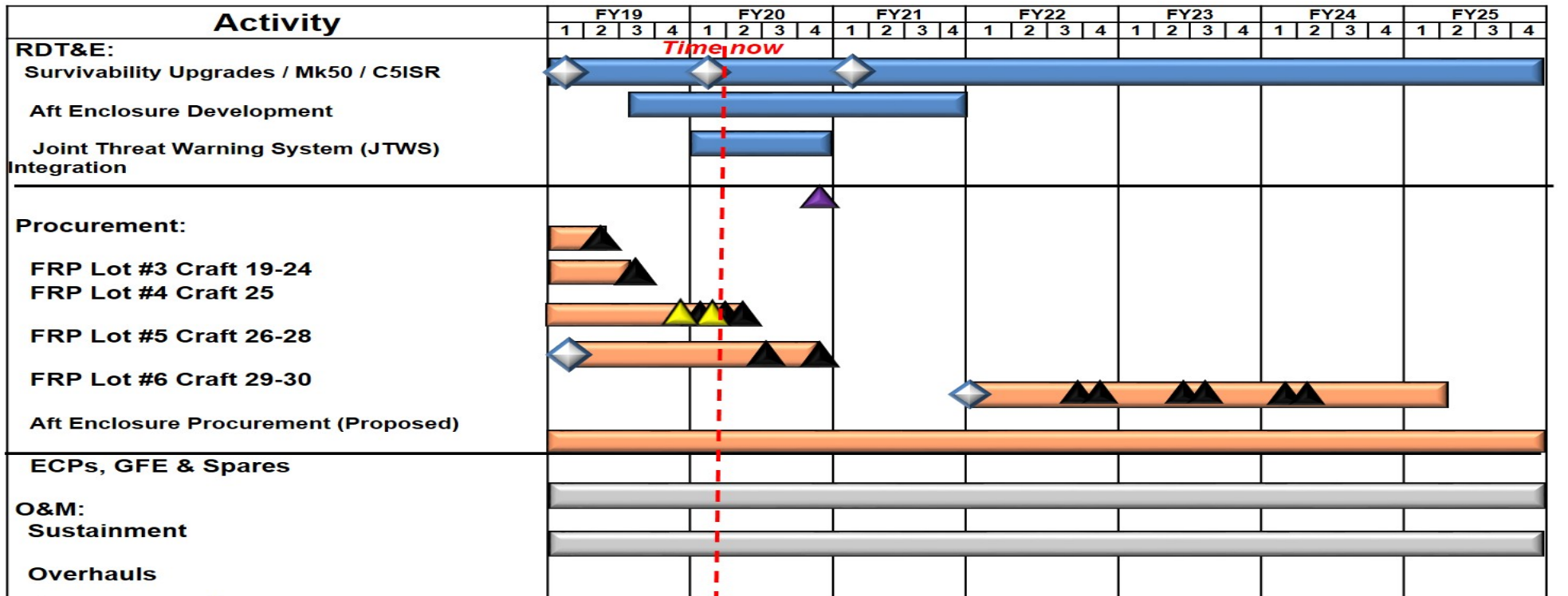
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CCME	C/Variou	Various : Various	-	-		0.550	Nov 2019	-		-		-	0.000	0.550	-
MPE	C/Variou	Various : Various	-	-		0.204	Dec 2019	0.210	Dec 2020	-		0.210	Continuing	Continuing	-
Prior Year Costs	C/Variou	Various : Various	3.536	-		-		-		-		-	0.000	3.536	-

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S1684 / Surface Craft

Combatant Craft Medium (CCM) PEO-Managed Schedule

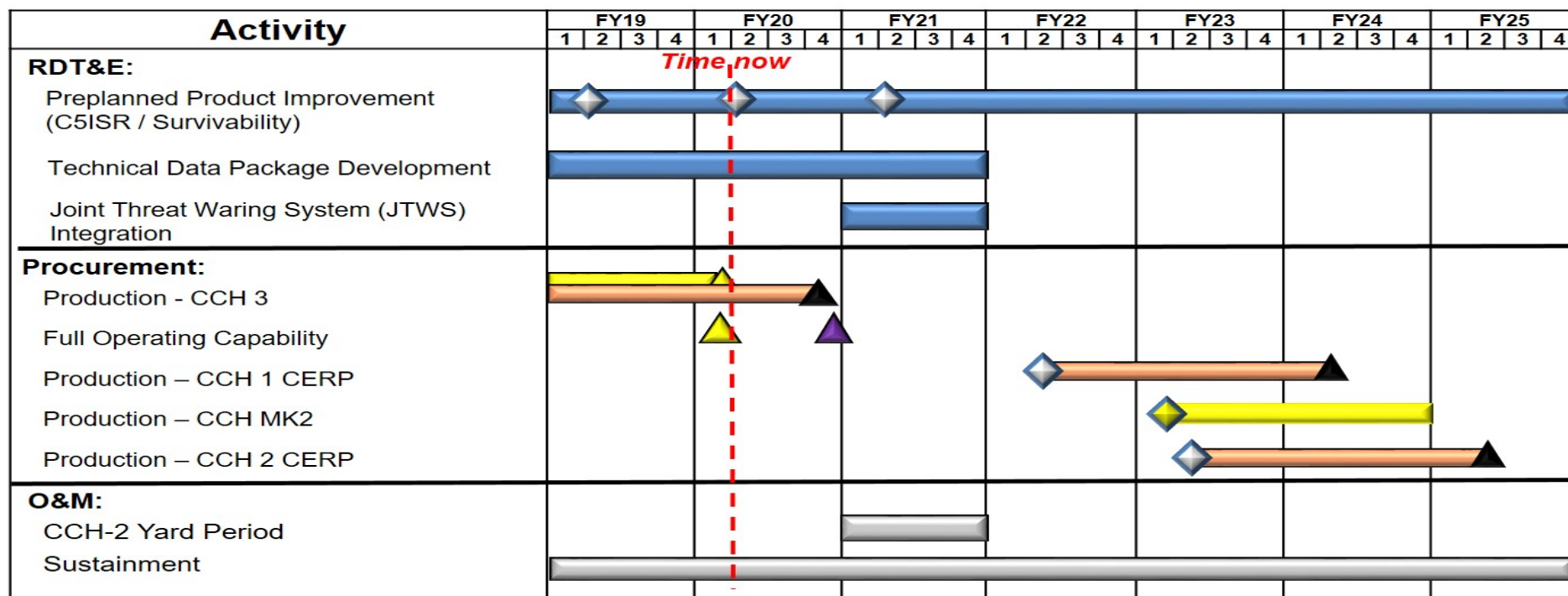


▲ IOC / FOC
 ◆ Article / Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ■ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / Maritime Systems	Project (Number/Name) S1684 / Surface Craft

Combatant Craft Heavy (CCH) PEO-Managed Schedule



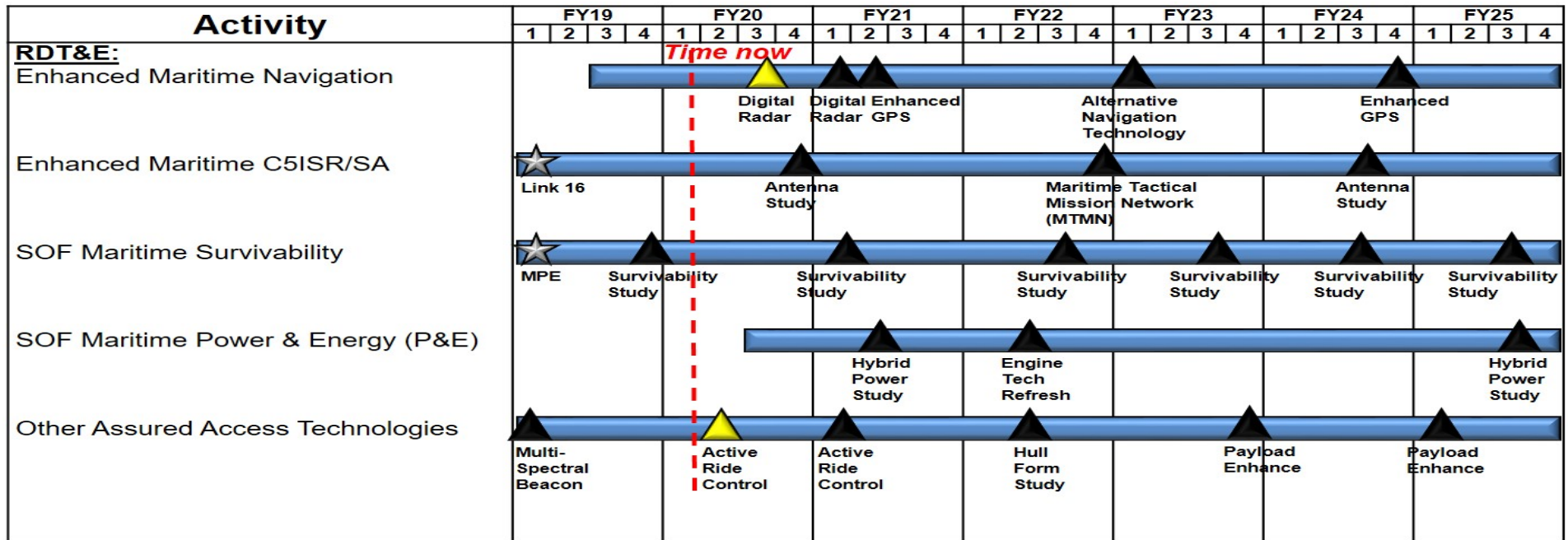
▲ IOC / FOC
 ◆ Article / Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ■ Previously Reported

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S1684 / Surface Craft

Combatant Craft Mission Equipment (CCME) PEO-Managed Schedule

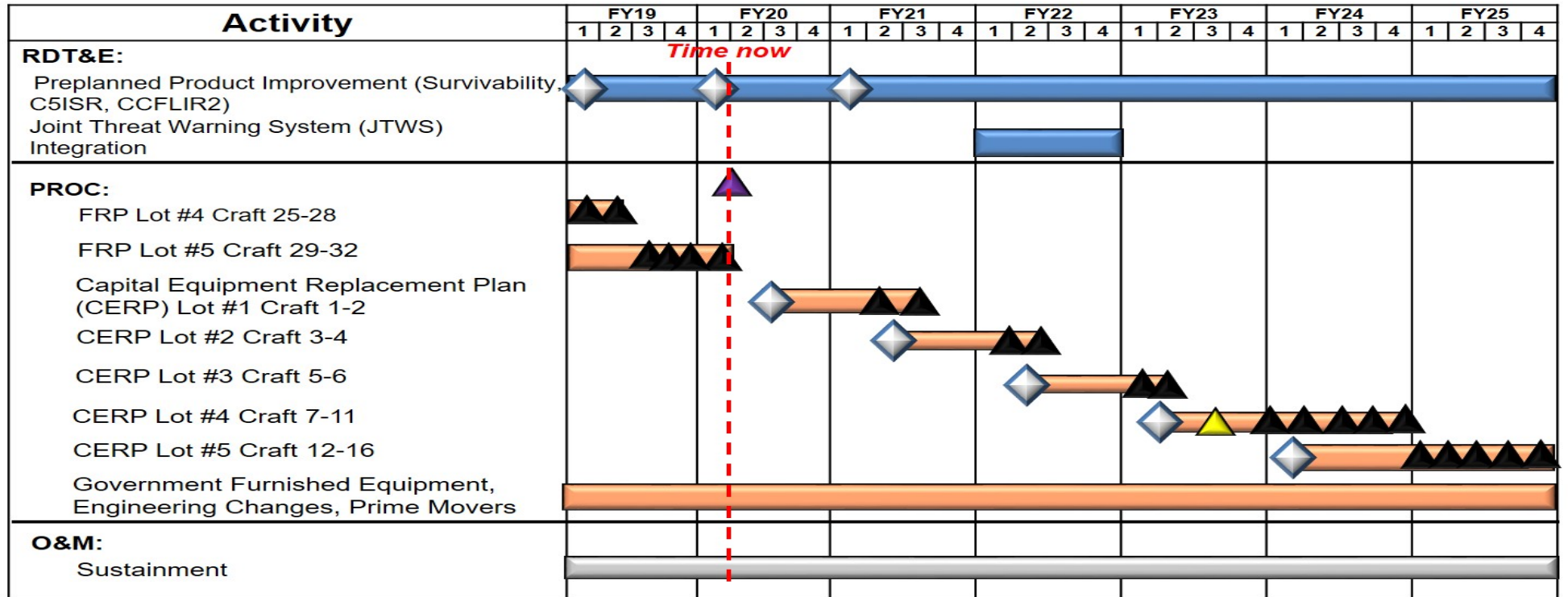


Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S1684 / Surface Craft

Combatant Craft Assault (CCA) PEO-Managed Schedule

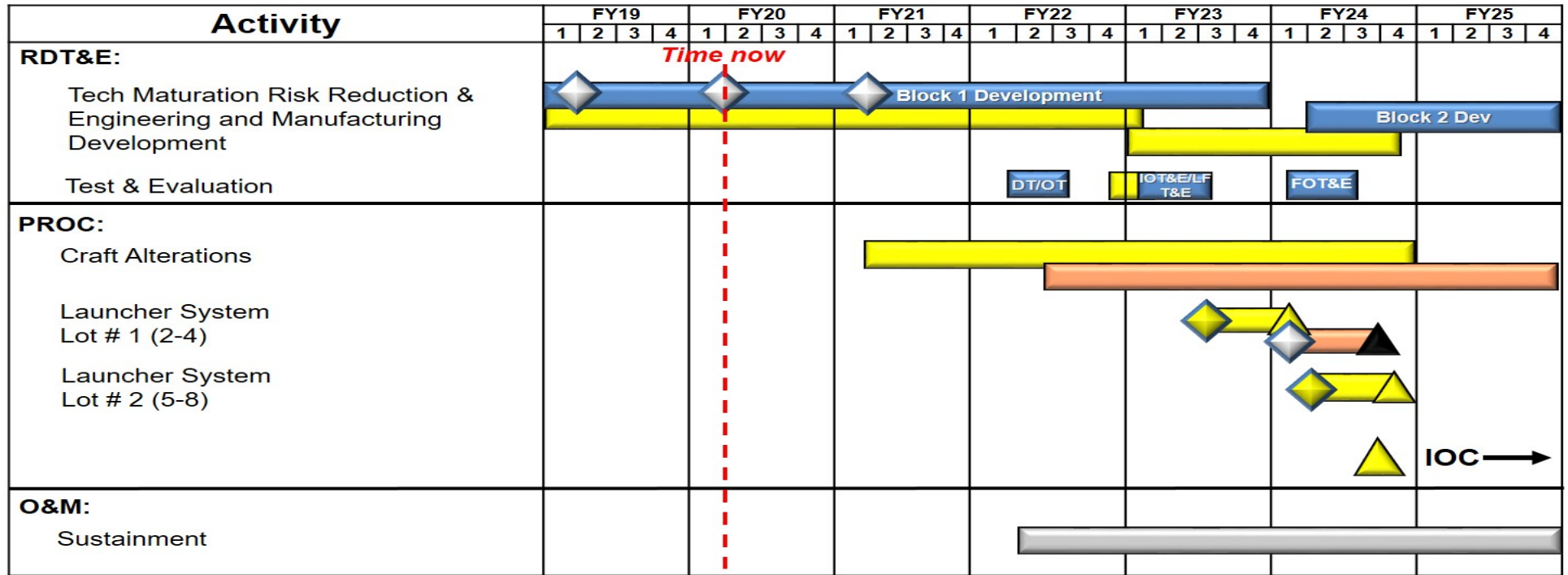


▲ IOC / FOC
 ◆ Article / Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ■ Previously Reported

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command Date: February 2020

Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / Maritime Systems	Project (Number/Name) S1684 / Surface Craft
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Maritime Precision Engagement (MPE) PEO-Managed Schedule



▲ IOC / FOC
 ◆ Article / Contract Award
 ▲ Article Delivery
 ■ RDT&E
 ■ Procurement
 ■ O&M
 ■ Previously Reported

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command

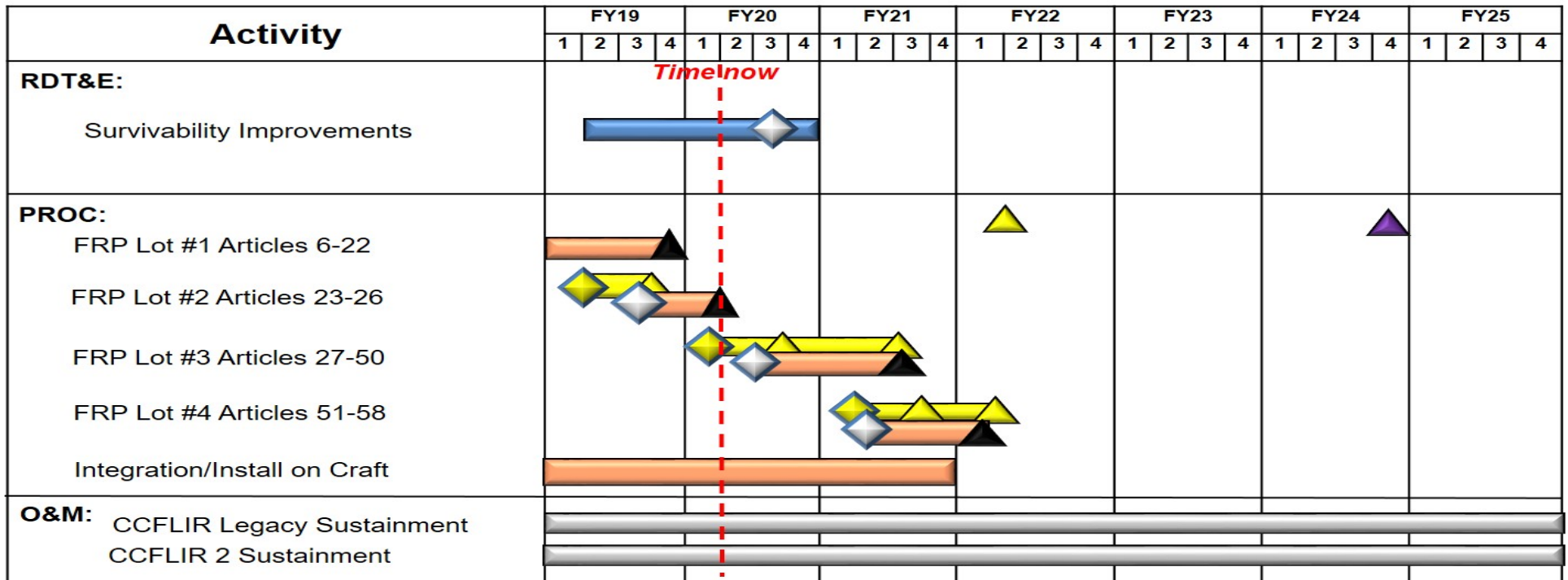
Date: February 2020

Appropriation/Budget Activity
0400 / 7

R-1 Program Element (Number/Name)
PE 1160483BB / Maritime Systems

Project (Number/Name)
S1684 / Surface Craft

Combatant Craft Forward Looking Infrared 2 (CCFLIR) PEO-Managed Schedule



IOC / FOC
 Article / Contract Award
 Article Delivery
 RDT&E
 Procurement
 O&M
 Previously Reported

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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 (CCM)				
Weapons, Survivability, C5ISR, Combatant Craft Forward Looking Infrared (CCFLIR2), and MK50	1	2019	4	2025
Aft Enclosure Development	3	2019	4	2021
Joint Threat Warning System (JTWS) integration	1	2020	4	2020
Combatant Craft Heavy (CCH)				
Preplanned Product Improvement (Weapons / C5ISR / Survivability)	1	2019	4	2025
Technical Data Package Development	1	2019	4	2021
Joint Threat Warning System (JTWS) integration	1	2021	4	2021
Combatant Craft Mission Equipment (CCME)				
Enhanced Maritime Navigation	3	2019	4	2025
Enhanced Maritime C5ISR/SA	1	2019	4	2025
SOF Maritime Survivability	1	2019	4	2025
SOF Maritime Power & Energy (P&E)	3	2020	4	2025
Other Assured Access Technologies	1	2019	4	2025
Combatant Craft Assault (CCA)				
Preplanned Product Improvement (Survivability, Weapons, C5ISR, CCFLIR2)	1	2019	4	2025
Joint Threat Warning System (JTWS) Integration	1	2022	4	2022
Maritime Precision Engagement (MPE)				
Block I Technology Maturation and Risk Reduction (TMRR) and Engineering and Manufacturing Development (EMD)	1	2019	4	2023
Block II TMRR and EMD	2	2024	4	2025
Developmental Test/Operational Test	1	2022	3	2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command **Date:** February 2020

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
Initial Operational Test and Evaluation/Live Fire Test and Evaluation	1	2023	3	2023
Follow-On Operational Test and Evaluation Test and Evaluation	1	2024	3	2024
<i>Combatant Craft Forward Looking Infrared System (CCFLIR)</i>				
Survivability Improvements	2	2019	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	58.478	4.780	5.363	4.606	-	4.606	5.024	5.129	5.096	4.749	Continuing	Continuing
S500C: <i>Global Video Surveillance Activities</i>	58.478	4.780	5.363	4.606	-	4.606	5.024	5.129	5.096	4.749	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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	4.780	5.363	5.471	-	5.471
Current President's Budget	4.780	5.363	4.606	-	4.606
Total Adjustments	0.000	0.000	-0.865	-	-0.865
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.865	-	-0.865

Change Summary Explanation

Funding:

FY2019: None.

FY2020: None.

FY2021: Decrease of \$0.865 million is provided under separate cover.

Technical: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	110.094	12.176	9.962	11.612	-	11.612	11.031	11.260	11.522	11.752	Continuing	Continuing
S500D: <i>Operational Enhancements Intelligence</i>	110.094	12.176	9.962	11.612	-	11.612	11.031	11.260	11.522	11.752	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 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	12.176	12.962	16.270	-	16.270
Current President's Budget	12.176	9.962	11.612	-	11.612
Total Adjustments	0.000	-3.000	-4.658	-	-4.658
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-4.658	-	-4.658

Change Summary Explanation

Funding:

FY2019: None.

FY2020: Decrease of \$3.000 million is provided under separate cover.

FY2021: Decrease of \$4.658 million is provided under separate cover.

Schedule: None.

Technical: None.

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**Department of Defense
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



Washington Headquarters Services

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Summary Recap of Budget Activities					
Advanced Technology Development	29,198				
Management Support	1,000	1,000			1,000
Total Research, Development, Test & Evaluation	30,198	1,000			1,000
Summary Recap of FYDP Programs					
Research and Development	30,198	1,000			1,000
Total Research, Development, Test & Evaluation	30,198	1,000			1,000

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Defense-Wide
FY 2021 President's Budget
Exhibit R-1 FY 2021 President's Budget
Total Obligational Authority
(Dollars in Thousands)

17 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development					
Management Support	999				999
Total Research, Development, Test & Evaluation	999				999
<u>Summary Recap of FYDP Programs</u>					
Research and Development	999				999
Total Research, Development, Test & Evaluation	999				999

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Washington Headquarters Services	30,198	1,000			1,000
Total Research, Development, Test & Evaluation	30,198	1,000			1,000

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Washington Headquarters Services	999				999
Total Research, Development, Test & Evaluation	999				999

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

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

Line No	Element Number	Program Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
41	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03	29,198				U
		Advanced Technology Development		29,198				
177	0606589D8W	Defense Digital Service (DDS) Development Support	06	1,000	1,000			1,000 U
		Management Support		1,000	1,000			1,000
Total Research, Development, Test & Eval, DW				30,198	1,000			1,000

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Defense-Wide
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
41	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03						U
		Advanced Technology Development							
177	0606589D8W	Defense Digital Service (DDS) Development Support	06	999				999	U
		Management Support		999				999	
Total Research, Development, Test & Eval, DW				999				999	

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Washington Headquarters Services
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO)	c
41	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03	29,198					U
		Advanced Technology Development		29,198					
177	0606589D8W	Defense Digital Service (DDS) Development Support	06	1,000	1,000			1,000	U
		Management Support		1,000	1,000			1,000	
Total Washington Headquarters Services				30,198	1,000			1,000	

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Washington Headquarters Services
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

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

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	See
41	0603342D8W	Defense Innovation Unit Experimental (DIUx)	03						U
		Advanced Technology Development							
177	0606589D8W	Defense Digital Service (DDS) Development Support	06	999				999	U
		Management Support		999				999	
Total Washington Headquarters Services				999				999	

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Research, Development, Test & Eval, DW	30,198	1,000			1,000
Total Research, Development, Test & Evaluation	30,198	1,000			1,000

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

Appropriation	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Research, Development, Test & Eval, DW	999				999
Total Research, Development, Test & Evaluation	999				999

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Summary Recap of Budget Activities					
Advanced Technology Development	29,198				
Management Support	1,000	1,000			1,000
Total Research, Development, Test & Evaluation	30,198	1,000			1,000
Summary Recap of FYDP Programs					
Research and Development	30,198	1,000			1,000
Total Research, Development, Test & Evaluation	30,198	1,000			1,000

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Department of Defense
 FY 2021 President's Budget
 Exhibit R-1 FY 2021 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

17 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Technology Development					
Management Support	999				999
Total Research, Development, Test & Evaluation	999				999
<u>Summary Recap of FYDP Programs</u>					
Research and Development	999				999
Total Research, Development, Test & Evaluation	999				999

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Line #	Budget Activity	Program Element Number	Program Element Title	Page
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Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Line #	Budget Activity	Program Element Number	Program Element Title	Page
177	06	0606589D8W	Defense Digital Service (DDS).....	Volume 5 - 1315

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Defense Innovation Unit (DIU)	0603342D8W	41	03.....	Volume 5 - 1311

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Washington Headquarters Services **Date:** February 2020

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	23.498	29.198	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
434: <i>Defense Innovation Unit (DIU)</i>	23.498	29.198	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Effective FY 2020, the DIU transferred from WHS Program Element (PE) 0603342D8W to OSD Program Element 0603342D8Z with a functional realignment across the Future Year Defense Program (FYDP) to the Office of the Under Secretary of Defense (Research & Engineering) (OUSD(R&E)).

A. Mission Description and Budget Item Justification

The DIU mission is to accelerate innovation and help the U.S. military make faster and more efficient use of emerging commercial technologies. The Department of Defense (DoD) relies on innovation to maintain our nation's ability to deter and prevail in conflict. The DIU increases the Department's access to leading-edge technologies and talent that reside in the commercial sector. Working across the country, and in collaboration with the military departments and international partners, the 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.

B. Program Change Summary (\$ in Millions)

	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>
Previous President's Budget	29.198	0.000	0.000	-	0.000
Current President's Budget	29.198	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

Effective FY 2020, the DIU transferred from WHS PE 0603342D8W to OSD PE 0603342D8Z with a functional realignment across the FYDP to OUSD(R&E).

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Washington Headquarters Services **Date:** February 2020

Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603342D8W / <i>Defense Innovation Unit (DIU)</i>				Project (Number/Name) 434 / <i>Defense Innovation Unit (DIU)</i>			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
434: <i>Defense Innovation Unit (DIU)</i>	23.498	29.198	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

As of the FY 2020 President's Budget submission, the DIU has been transferred to the OUSD(R&E) for oversight, policy and control.

A. Mission Description and Budget Item Justification

The DIU mission is to accelerate innovation and help the U.S. military make faster and more efficient use of emerging commercial technologies. The Department of Defense (DoD) relies on innovation to maintain our nation's ability to deter and prevail in conflict. The DIU increases the Department's access to leading-edge technologies and talent that reside in the commercial sector. Working across the country, and in collaboration with the military departments and 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.

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

Title: Defense Innovation Unit (DIU)	FY 2019	FY 2020	FY 2021
<p>Description: The FY 2019 request funded the development of 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 integrate into the DoD technological ecosystem.</p> <p>In FY 2019, the DIU scaled commercial solutions essential to military-technical advantage across the joint force. Through predictive maintenance, DIU improved mission readiness by partnering with the Air Force to prototype predictive maintenance technology for the E-3 Sentry and C-5 Galaxy aircraft. The prototype reduced unscheduled maintenance by 20-40% and increased readiness by 3-6%. This prototype is being scaled across the Air Force's 5,400 military aircraft and to the Army's Apache and Blackhawk helicopters.</p> <p>The DIU also executed agile software development through Kessel Run, and saved taxpayer dollars by taking the Tanker Planning Tool from a white board to a digital application within four months at an initial cost of \$1.5 million. The tool has saved more than \$300 million and has scaled to a 300 person Air Force software development organization. Finally, DIU increased the National Security Innovation Base (NSIB) by receiving solution briefs from more than 1,200 companies based in 43 states and the District of Columbia. DIU is working with 122 non-traditional defense contractors, 66 of which are first-time DoD vendors.</p> <p>FY 2020 Plans:</p>	29.198	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Washington Headquarters Services		Date: February 2020
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603342D8W / <i>Defense Innovation Unit (DIU)</i>	Project (Number/Name) 434 / <i>Defense Innovation Unit (DIU)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Effective FY 2020, the DIU transferred from WHS PE 0603342D8W to OSD PE 0603342D8Z with a functional realignment across the FYDP to OUSD(R&E).			
<i>FY 2021 Plans:</i> Effective FY 2020, the DIU transferred from WHS PE 0603342D8W to OSD PE 0603342D8Z with a functional realignment across the FYDP to OUSD(R&E). While the DIU is newly aligned to OUSD(R&E), it will continue its current mission and overall focus.			
Accomplishments/Planned Programs Subtotals	29.198	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• O&M: <i>PE 0901583D8W</i>	9.026	0.000	0.000	-	0.000	0.000	0.000	0.000	-	Continuing	Continuing

Remarks
DIU O&M mission support funding.

D. Acquisition Strategy
N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Washington Headquarters Services **Date:** February 2020

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 <i>Defense Digital Service (DDS)</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	1.000	1.000	0.999	-	0.999	0.999	0.999	1.019	1.039	Continuing	Continuing
281: <i>Defense Digital Service (DDS)</i>	0.000	1.000	1.000	0.999	-	0.999	0.999	0.999	1.019	1.039	Continuing	Continuing

A. Mission Description and Budget Item Justification

Launched in November 2015, and formally chartered under DoD Directive 5105.87 in January 2017 within the Office of the Secretary of Defense (OSD) of the Department of Defense (DoD), and a renewed charter in 2019, DDS is charged with bringing the best available technology in an efficient way into the DoD. The DDS serves as an organization composed of commercially experienced software developers, software designers, product managers, and problem solvers within DoD and utilizes best-in-class private sector practices, talent, and technology to transform the way digital services are delivered within the Department.

The DDS uses design and technology to improve government services, strengthen national defense, and care for military members and their families. For FY 2021 DDS will expand on previous technology efforts, leverage public and private sector initiatives, and pursue innovative solutions to transform technology and improve and expand modern digital services and capabilities across the Department.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	1.000	1.000	1.000	-	1.000
Current President's Budget	1.000	1.000	0.999	-	0.999
Total Adjustments	0.000	0.000	-0.001	-	-0.001
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Inflation Rates for Non-Pay and Non-Fuel Purchases	-	-	-0.001	-	-0.001

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Washington Headquarters Services										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0606589D8W / Defense Digital Service (DDS)				Project (Number/Name) 281 / Defense Digital Service (DDS)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
281: Defense Digital Service (DDS)	0.000	1.000	1.000	0.999	-	0.999	0.999	0.999	1.019	1.039	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The FY 2021 request will continue to enable DDS to build software prototypes and implement proof-of-concept tests for key Department projects that support missions and long term goals of the Department to modernize its offensive and defensive technological capabilities. This funding will allow DDS to determine which private sector software development best practices and/or technology work best for the Department.

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

	FY 2019	FY 2020	FY 2021
Title: Defense Digital Service (DDS)	1.000	1.000	0.999
Description: Over the past four years, DDS has provided services and tools that have improved and saved the lives of Service members and their families, and provided technological superiority in areas critical to national defense. Key initiatives include: reforming digital services that provide military families critical health benefits; launching the Federal Government's first bug bounty program 'Hack the Pentagon'; building the next-generation Global Positioning System; developing drone detection technologies; hunting adversaries on DoD networks; overhauling the logistics system that helps military families move; and redesigning training for cyber soldiers.			
FY 2020 Plans: The DoD's need for technical innovation to maintain our nation's ability to deter, and prevail in physical and technological conflict is on-going. DDS projects are positioned to complement and support the Department's innovation and modernization priorities and will continue to support data science, cyber security, and stronger technology platforms across the DoD. Criteria for project selection include the potential for impact, sustainability, and long-term ownership within the Department. Some current efforts include expanding the DDS "Jyn" program that pairs cyber soldiers and other military tech talent with DoD experts on special projects; launching a pilot to help modernize and automate portions of the security clearance process; building out a new satellite office in Augusta, Georgia; and continuing to advise on the JEDI cloud procurement.			
DDS will continue to support the Secretary of Defense in his focus on IT modernization, supporting military personnel, and overall vision for the DoD.			
FY 2021 Plans: 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 war fighter			

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Washington Headquarters Services		Date: February 2020
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0606589D8W / <i>Defense Digital Service (DDS)</i>	Project (Number/Name) 281 / <i>Defense Digital Service (DDS)</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>missions. DDS requirements are driven by challenging technical problems identified by the Secretary of Defense where technology is failing the Department's mission and could impede the lethality and effectiveness of the war fighter. These technical problems vary in scope and complexity, but at a minimum, when resolved, have a positive impact on the war fighter's mission and capabilities. 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. 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.</p> <p>The most pressing project in which DDS is engaged involves the vetting and security clearance process for personnel. DDS has partnered with the Office of the Under Secretary of Defense for Intelligence and the Defense Counterintelligence and Security Agency to build a prototype to improve the personnel vetting and security clearance process. With the transfer of the background investigation mission from the U.S. Office of Personnel Management to the DoD, DDS is exploring ways to deliver more accurate vetting results while eliminating the existing backlog of cases. The DDS-led System for Automated Background Evaluation and Review (SABER) prototype effort will focus on delivery of an automated investigation result, beginning with the user applying for a clearance, processing the data through government and commercial databases, recording an adjudication decision, and enrolling in continuous evaluation.</p> <p><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> There are no significant changes between FY 2020 and FY 2021.</p>			
Accomplishments/Planned Programs Subtotals	1.000	1.000	0.999

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• O&M: BA4, PE 0901589D8W	4.113	4.549	4.344	-	4.344	4.338	4.333	4.423	4.512	Continuing	Continuing

Remarks

D. Acquisition Strategy

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