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**Department of Defense
Fiscal Year (FY) 2024 Budget Estimates**

March 2023



Air Force

Justification Book Volume 3 of 4

Research, Development, Test & Evaluation, Air Force

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Air Force • Budget Estimates FY 2024 • RDT&E Program

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Fiscal Year (FY) 2024 President's Budget RDT&E Descriptive Summaries Budget Activities March 2023

INTRODUCTION AND EXPLANATION OF CONTENTS

GENERAL

- This document has been prepared to provide information on the United States Air Force (USAF) Research, Development, Test and Evaluation (RDT&E) program elements and projects in the FY24 President's Budget (PB).
 - All exhibits in this document have been assembled in accordance with DoD 7000.14R, Financial Management Regulation, Volume 2B, Chapter 5.
 - Other comments on exhibit contents in this document:
 - Exhibits R-2/2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2024 RDT&E program with the exception of classified program elements. The format and contents of this document are in accordance to the guidelines and requirements of the Congressional committees in so far as possible.
 - The "Other Program Funding Summary" portion of the R-2 includes, in addition to RDT&E funds, Procurement funds and quantities, Military Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to the development effort described, and where appropriate, Department of Energy (DOE) costs.

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- All exhibits contained in Volumes I, II, and III are unclassified. Classified exhibits are not included in the submission due to the level of security classification and necessity of special security clearances.

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Department of the Air Force
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 Exhibit R-1 FY 2024 President's Budget
 Total Obligational Authority
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Line No	Program Element Number	Item	Act	Se c	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment
1	0601102F	Defense Research Sciences	01	U	331,118	406,125		406,125
2	0601103F	University Research Initiatives	01	U	174,048	206,192		206,192
	Basic Research				505,166	612,317		612,317
3	0602020F	Future AF Capabilities Applied Research University Affiliated Research Center (UARC) - Tactical	02	U	74,393	99,901		99,901
4	0602022F	Autonomy	02	U				
5	0602102F	Materials	02	U	214,878	275,945		275,945
6	0602201F	Aerospace Vehicle Technologies	02	U	173,628	199,453		199,453
7	0602202F	Human Effectiveness Applied Research	02	U	139,287	150,771		150,771
8	0602203F	Aerospace Propulsion	02	U	173,665	212,361		212,361
9	0602204F	Aerospace Sensors	02	U	244,612	260,833		260,833
10	0602212F	Defense Laboratories R&D Projects (10 U.S.C, Sec 2358) Science and Technology Management - Major Headquarters	02	U	98,862			
11	0602298F	Activities	02	U	8,891	8,856		8,856
12	0602602F	Conventional Munitions	02	U	142,906	144,303		144,303
13	0602605F	Directed Energy Technology	02	U	109,529	120,947		120,947
14	0602788F	Dominant Information Sciences and Methods	02	U	209,892	271,005		271,005
	Applied Research				1,590,543	1,744,375		1,744,375
15	0603032F	Future AF Integrated Technology Demos	03	U	103,886	163,887		163,887
16	0603112F	Advanced Materials for Weapon Systems	03	U	60,566	49,765		49,765
17	0603199F	Sustainment Science and Technology (S&T)	03	U	17,598	10,662		10,662

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

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Line <u>No</u>	Program Element <u>Number</u>	<u>Item</u>	<u>Act</u>	<u>Se</u> <u>c</u>	<u>FY 2024</u> <u>Request</u>
1	0601102F	Defense Research Sciences	01	U	401,486
2	0601103F	University Research Initiatives	01	U	182,372
	Basic Research				583,858
3	0602020F	Future AF Capabilities Applied Research University Affiliated Research Center (UARC) - Tactical	02	U	90,713
4	0602022F	Autonomy	02	U	8,018
5	0602102F	Materials	02	U	142,325
6	0602201F	Aerospace Vehicle Technologies	02	U	161,268
7	0602202F	Human Effectiveness Applied Research	02	U	146,921
8	0602203F	Aerospace Propulsion	02	U	184,867
9	0602204F	Aerospace Sensors	02	U	216,269
10	0602212F	Defense Laboratories R&D Projects (10 U.S.C, Sec 2358) Science and Technology Management - Major Headquarters	02	U	
11	0602298F	Activities	02	U	10,303
12	0602602F	Conventional Munitions	02	U	160,599
13	0602605F	Directed Energy Technology	02	U	129,961
14	0602788F	Dominant Information Sciences and Methods	02	U	182,076
	Applied Research				1,433,320
15	0603032F	Future AF Integrated Technology Demos	03	U	255,855
16	0603112F	Advanced Materials for Weapon Systems	03	U	30,372
17	0603199F	Sustainment Science and Technology (S&T)	03	U	10,478

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
18	0603203F	Advanced Aerospace Sensors	03	U	50,326	37,917		37,917
19	0603211F	Aerospace Technology Dev/Demo	03	U	98,806	95,267		95,267
20	0603216F	Aerospace Propulsion and Power Technology	03	U	103,219	94,540		94,540
21	0603270F	Electronic Combat Technology	03	U	41,869	31,037		31,037
22	0603273F	Science & Technology for Nuclear Re-entry Systems	03	U		27,031		27,031
23	0603444F	Maui Space Surveillance System (MSSS)	03	U				
24	0603456F	Human Effectiveness Advanced Technology Development	03	U	31,135	15,440		15,440
25	0603601F	Conventional Weapons Technology	03	U	144,116	154,618		154,618
26	0603605F	Advanced Weapons Technology	03	U	29,585	89,024		89,024
27	0603680F	Manufacturing Technology Program	03	U	169,459	270,959		270,959
28	0603788F	Battlespace Knowledge Development and Demonstration	03	U	67,753	55,919		55,919
29	0207412F	Control and Reporting Center (CRC)	03	U				
Advanced Technology Development					918,318	1,096,066		1,096,066
30	0603036F	Modular Advanced Missile	04	U		75,688		75,688
31	0603260F	Intelligence Advanced Development	04	U	5,795	6,101	1,300	7,401
32	0603742F	Combat Identification Technology	04	U	17,536	13,718		13,718
33	0603790F	NATO Research and Development	04	U	4,114	4,295		4,295
34	0603851F	Intercontinental Ballistic Missile - Dem/Val	04	U	73,897	46,100		46,100
35	0604001F	NC3 Advanced Concepts	04	U	6,900	5,098		5,098
36	0604002F	Air Force Weather Services Research	04	U	3,714			
37	0604003F	Advanced Battle Management System (ABMS)	04	U	262,452	237,332		237,332

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

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18	0603203F	Advanced Aerospace Sensors	03	U	48,046
19	0603211F	Aerospace Technology Dev/Demo	03	U	51,896
20	0603216F	Aerospace Propulsion and Power Technology	03	U	56,789
21	0603270F	Electronic Combat Technology	03	U	32,510
22	0603273F	Science & Technology for Nuclear Re-entry Systems	03	U	70,321
23	0603444F	Maui Space Surveillance System (MSSS)	03	U	2
24	0603456F	Human Effectiveness Advanced Technology Development	03	U	15,593
25	0603601F	Conventional Weapons Technology	03	U	132,311
26	0603605F	Advanced Weapons Technology	03	U	102,997
27	0603680F	Manufacturing Technology Program	03	U	44,422
28	0603788F	Battlespace Knowledge Development and Demonstration	03	U	37,779
29	0207412F	Control and Reporting Center (CRC)	03	U	2,005
	Advanced Technology Development				891,376
30	0603036F	Modular Advanced Missile	04	U	105,238
31	0603260F	Intelligence Advanced Development	04	U	6,237
32	0603742F	Combat Identification Technology	04	U	21,298
33	0603790F	NATO Research and Development	04	U	2,208
34	0603851F	Intercontinental Ballistic Missile - Dem/Val	04	U	45,319
35	0604001F	NC3 Advanced Concepts	04	U	10,011
36	0604002F	Air Force Weather Services Research	04	U	
37	0604003F	Advanced Battle Management System (ABMS)	04	U	500,575

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
38	0604004F	Advanced Engine Development	04	U	562,717	220,363		220,363
39	0604005F	NC3 Commercial Development & Prototyping	04	U		97,000		97,000
40	0604006F	Dept of the Air Force Tech Architecture	04	U	24,407	50,000		50,000
41	0604007F	E-7	04	U		426,776		426,776
42	0604009F	AFWERX Prime	04	U		170,860		170,860
43	0604015F	Long Range Strike - Bomber	04	U	2,775,581	3,143,584		3,143,584
44	0604025F	Rapid Defense Experimentation Reserve (RDER)	04	U				
45	0604032F	Directed Energy Prototyping	04	U	15,498	4,269		4,269
46	0604033F	Hypersonics Prototyping	04	U	308,089	114,981		114,981
47	0604183F	Hypersonics Prototyping - Hypersonic Attack Cruise Missile (HACM)	04	U	183,889	423,359		423,359
48	0604201F	PNT Resiliency, Mods, and Improvements	04	U	46,022	12,010		12,010
49	0604257F	Advanced Technology and Sensors	04	U	23,745	12,311		12,311
50	0604288F	Survivable Airborne Operations Center (SAOC)	04	U	91,378	98,213		98,213
51	0604317F	Technology Transfer	04	U	36,574	35,430		35,430
52	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04	U	12,826	141,826		141,826
53	0604414F	Cyber Resiliency of Weapon Systems-ACS	04	U	69,143	43,372		43,372
54	0604534F	Adaptive Engine Transition Program (AETP)	04	U		286,096		286,096
55	0604668F	Joint Transportation Management System (JTMS)	04	U		27,758		27,758
56	0604776F	Deployment & Distribution Enterprise R&D	04	U	39,311	27,586		27,586
57	0604858F	Tech Transition Program	04	U	348,134	370,810		370,810

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

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38	0604004F	Advanced Engine Development	04	U	595,352
39	0604005F	NC3 Commercial Development & Prototyping	04	U	78,799
40	0604006F	Dept of the Air Force Tech Architecture	04	U	2,620
41	0604007F	E-7	04	U	681,039
42	0604009F	AFWERX Prime	04	U	83,336
43	0604015F	Long Range Strike - Bomber	04	U	2,984,143
44	0604025F	Rapid Defense Experimentation Reserve (RDER)	04	U	154,300
45	0604032F	Directed Energy Prototyping	04	U	1,246
46	0604033F	Hypersonics Prototyping	04	U	150,340
47	0604183F	Hypersonics Prototyping - Hypersonic Attack Cruise Missile (HACM)	04	U	381,528
48	0604201F	PNT Resiliency, Mods, and Improvements	04	U	18,041
49	0604257F	Advanced Technology and Sensors	04	U	27,650
50	0604288F	Survivable Airborne Operations Center (SAOC)	04	U	888,829
51	0604317F	Technology Transfer	04	U	26,638
52	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04	U	19,266
53	0604414F	Cyber Resiliency of Weapon Systems-ACS	04	U	37,121
54	0604534F	Adaptive Engine Transition Program (AETP)	04	U	
55	0604668F	Joint Transportation Management System (JTMS)	04	U	37,026
56	0604776F	Deployment & Distribution Enterprise R&D	04	U	31,833
57	0604858F	Tech Transition Program	04	U	210,806

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
58	0604860F	Operational Energy and Installation Resilience	04	U	100,839	25,500		25,500
59	0605164F	Air Refueling Capability Modernization	04	U		11,281		11,281
60	0605230F	Ground Based Strategic Deterrent	04	U	2,464,875			
61	0207110F	Next Generation Air Dominance	04	U	1,452,934	1,657,635		1,657,635
62	0207179F	Autonomous Collaborative Platforms	04	U		51,747		51,747
63	0207420F	Combat Identification	04	U		1,866		1,866
64	0207455F	Three Dimensional Long-Range Radar (3DELRR)	04	U		14,490		14,490
65	0207522F	Airbase Air Defense Systems (ABADS)	04	U	10,526	47,465		47,465
66	0208030F	War Reserve Materiel - Ammunition	04	U	3,943	10,288		10,288
67	0304369F	Cyber Capabilities Support Office (CCSO)	04	U	16,949			
68	0305236F	Common Data Link Executive Agent (CDL EA)	04	U	43,881	37,460		37,460
69	0305601F	Mission Partner Environments	04	U	15,819	17,378		17,378
70	0306250F	Cyber Operations Technology Support	04	U	272,404	272,583		272,583
71	0306415F	Enabled Cyber Activities	04	U	23,511	16,728		16,728
72	0708051F	Rapid Sustainment Modernization (RSM)	04	U	90,117	69,000		69,000
73	0808737F	Integrated Primary Prevention	04	U		9,315		9,315
74	0901410F	Contracting Information Technology System	04	U	19,733	14,050		14,050
75	1206415F	U.S. Space Command Research and Development Support	04	U		8,350		8,350
Advanced Component Development & Prototypes					9,427,253	8,360,072	1,300	8,361,372
76	0604200F	Future Advanced Weapon Analysis & Programs	05	U	18,180	9,879		9,879
77	0604201F	PNT Resiliency, Mods, and Improvements	05	U	158,193	176,335		176,335

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

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58	0604860F	Operational Energy and Installation Resilience	04	U	46,305
59	0605164F	Air Refueling Capability Modernization	04	U	19,400
60	0605230F	Ground Based Strategic Deterrent	04	U	
61	0207110F	Next Generation Air Dominance	04	U	2,326,128
62	0207179F	Autonomous Collaborative Platforms	04	U	118,826
63	0207420F	Combat Identification	04	U	1,902
64	0207455F	Three Dimensional Long-Range Radar (3DELRR)	04	U	19,763
65	0207522F	Airbase Air Defense Systems (ABADS)	04	U	78,867
66	0208030F	War Reserve Materiel - Ammunition	04	U	8,175
67	0304369F	Cyber Capabilities Support Office (CCSO)	04	U	
68	0305236F	Common Data Link Executive Agent (CDL EA)	04	U	25,157
69	0305601F	Mission Partner Environments	04	U	17,727
70	0306250F	Cyber Operations Technology Support	04	U	
71	0306415F	Enabled Cyber Activities	04	U	
72	0708051F	Rapid Sustainment Modernization (RSM)	04	U	43,431
73	0808737F	Integrated Primary Prevention	04	U	9,364
74	0901410F	Contracting Information Technology System	04	U	28,294
75	1206415F	U.S. Space Command Research and Development Support	04	U	14,892
	Advanced Component Development & Prototypes				9,859,030
76	0604200F	Future Advanced Weapon Analysis & Programs	05	U	9,757
77	0604201F	PNT Resiliency, Mods, and Improvements	05	U	163,156

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
78	0604222F	Nuclear Weapons Support	05	U	29,215	63,906		63,906
79	0604270F	Electronic Warfare Development	05	U	6,849	7,222		7,222
80	0604281F	Tactical Data Networks Enterprise	05	U	122,940	129,941		129,941
81	0604287F	Physical Security Equipment	05	U	8,302	6,897		6,897
82	0604602F	Armament/Ordnance Development	05	U	8,821	5,279		5,279
83	0604604F	Submunitions	05	U	2,954	3,273		3,273
84	0604617F	Agile Combat Support	05	U	26,972	19,252		19,252
85	0604706F	Life Support Systems	05	U	22,335	50,042		50,042
86	0604735F	Combat Training Ranges	05	U	23,218	103,784		103,784
87	0604932F	Long Range Standoff Weapon	05	U	580,365	928,850		928,850
88	0604933F	ICBM Fuze Modernization	05	U	115,200	98,376		98,376
89	0605030F	Joint Tactical Network Center (JTNC)	05	U		2,222		2,222
90	0605031F	Joint Tactical Network (JTN)	05	U				
91	0605056F	Open Architecture Management	05	U	36,157	38,201		38,201
92	0605057F	Next Generation Air-refueling System	05	U				
93	0605223F	Advanced Pilot Training	05	U	182,330	33,621		33,621
94	0605229F	HH-60W	05	U	53,363	58,974		58,974
95	0605238F	Ground Based Strategic Deterrent EMD	05	U		3,614,290		3,614,290
96	0207171F	F-15 EPAWSS	05	U	100,232	67,956		67,956
97	0207279F	Isolated Personnel Survivability and Recovery	05	U		27,881		27,881
98	0207328F	Stand In Attack Weapon	05	U	161,199	263,152		263,152

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78	0604222F	Nuclear Weapons Support	05	U	45,884
79	0604270F	Electronic Warfare Development	05	U	13,804
80	0604281F	Tactical Data Networks Enterprise	05	U	74,023
81	0604287F	Physical Security Equipment	05	U	10,605
82	0604602F	Armament/Ordnance Development	05	U	5,918
83	0604604F	Submunitions	05	U	3,345
84	0604617F	Agile Combat Support	05	U	21,967
85	0604706F	Life Support Systems	05	U	39,301
86	0604735F	Combat Training Ranges	05	U	152,569
87	0604932F	Long Range Standoff Weapon	05	U	911,406
88	0604933F	ICBM Fuze Modernization	05	U	71,732
89	0605030F	Joint Tactical Network Center (JTNC)	05	U	2,256
90	0605031F	Joint Tactical Network (JTN)	05	U	452
91	0605056F	Open Architecture Management	05	U	36,582
92	0605057F	Next Generation Air-refueling System	05	U	7,928
93	0605223F	Advanced Pilot Training	05	U	77,252
94	0605229F	HH-60W	05	U	48,268
95	0605238F	Ground Based Strategic Deterrent EMD	05	U	3,746,935
96	0207171F	F-15 EPAWSS	05	U	13,982
97	0207279F	Isolated Personnel Survivability and Recovery	05	U	56,225
98	0207328F	Stand In Attack Weapon	05	U	298,585

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99	0207701F	Full Combat Mission Training	05	U	12,064	12,528		12,528
100	0208036F	Medical C-CBRNE Programs	05	U				
101	0303267F	Auctioned Spectrum Relocation Fund	05	U	28,186			
102	0305205F	Endurance Unmanned Aerial Vehicles	05	U				
103	0401221F	KC-46A Tanker Squadrons	05	U	54,145	177,529		177,529
104	0401319F	VC-25B	05	U	407,147	147,932		147,932
105	0701212F	Automated Test Systems	05	U	15,445	16,664		16,664
106	0804772F	Training Developments	05	U	2,482	10,838		10,838
System Development & Demonstration					2,176,294	6,074,824		6,074,824
107	0604256F	Threat Simulator Development	06	U	46,393	21,067		21,067
108	0604759F	Major T&E Investment	06	U	128,708	171,314		171,314
109	0605101F	RAND Project Air Force	06	U	34,698	32,767		32,767
110	0605502F	Small Business Innovation Research	06	U	780,381			
111	0605712F	Initial Operational Test & Evaluation	06	U	12,582	13,926		13,926
112	0605807F	Test and Evaluation Support	06	U	811,032	841,854		841,854
113	0605827F	Acq Workforce- Global Vig & Combat Sys	06	U	271,819	283,995		283,995
114	0605828F	Acq Workforce- Global Reach	06	U	439,459	457,589		457,589
115	0605829F	Acq Workforce- Cyber, Network, & Bus Sys	06	U	432,971	479,423		479,423
116	0605830F	Acq Workforce- Global Battle Mgmt	06	U		3,696		3,696
117	0605831F	Acq Workforce- Capability Integration	06	U	255,914	253,568		253,568
118	0605832F	Acq Workforce- Advanced Prgm Technology	06	U	61,648	67,361		67,361

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

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99	0207701F	Full Combat Mission Training	05	U	7,597
100	0208036F	Medical C-CBRNE Programs	05	U	2,006
101	0303267F	Auctioned Spectrum Relocation Fund	05	U	
102	0305205F	Endurance Unmanned Aerial Vehicles	05	U	30,000
103	0401221F	KC-46A Tanker Squadrons	05	U	124,662
104	0401319F	VC-25B	05	U	490,701
105	0701212F	Automated Test Systems	05	U	12,911
106	0804772F	Training Developments	05	U	1,922
	System Development & Demonstration				6,481,731
107	0604256F	Threat Simulator Development	06	U	16,626
108	0604759F	Major T&E Investment	06	U	31,143
109	0605101F	RAND Project Air Force	06	U	38,398
110	0605502F	Small Business Innovation Research	06	U	1,466
111	0605712F	Initial Operational Test & Evaluation	06	U	13,736
112	0605807F	Test and Evaluation Support	06	U	913,213
113	0605827F	Acq Workforce- Global Vig & Combat Sys	06	U	317,901
114	0605828F	Acq Workforce- Global Reach	06	U	541,677
115	0605829F	Acq Workforce- Cyber, Network, & Bus Sys	06	U	551,213
116	0605830F	Acq Workforce- Global Battle Mgmt	06	U	
117	0605831F	Acq Workforce- Capability Integration	06	U	243,780
118	0605832F	Acq Workforce- Advanced Prgm Technology	06	U	109,030

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
119	0605833F	Acq Workforce- Nuclear Systems	06	U	227,425	236,382		236,382
120	0605898F	Management HQ - R&D	06	U	6,644	5,624		5,624
121	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	U	70,788	133,420		133,420
122	0605978F	Facilities Sustainment - Test and Evaluation Support	06	U	30,057	31,561		31,561
123	0606017F	Requirements Analysis and Maturation	06	U	88,259	109,513		109,513
124	0606398F	Management HQ - T&E	06	U	7,263	6,285		6,285
125	0303166F	Support to Information Operations (IO) Capabilities	06	U	537	556		556
126	0303255F	Command, Control, Communication, and Computers (C4) -	06	U	35,340	29,092		29,092
127	0308602F	ENTEPRISE INFORMATION SERVICES (EIS)	06	U	26,004	73,100		73,100
128	0702806F	Acquisition and Management Support	06	U	36,317	49,152		49,152
129	0804731F	General Skill Training	06	U	1,506	871		871
130	0804772F	Training Developments	06	U	2,957			
131	0909999F	Financing for Cancelled Account Adjustments	06	U	17,055			
132	1001004F	International Activities	06	U	2,420	2,593		2,593
133	1206864F	Space Test Program (STP)	06	U	2			
		Management Support			3,828,179	3,304,709		3,304,709
134	0604233F	Specialized Undergraduate Flight Training	07	U	8,333	17,267		17,267
135	0604283F	Battle Mgmt Com & Ctrl Sensor Development	07	U				
136	0604445F	Wide Area Surveillance	07	U	2,687			
137	0604617F	Agile Combat Support	07	U		8,199		8,199

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

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119	0605833F	Acq Workforce- Nuclear Systems	06	U	336,788
120	0605898F	Management HQ - R&D	06	U	5,005
121	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	U	87,889
122	0605978F	Facilities Sustainment - Test and Evaluation Support	06	U	35,065
123	0606017F	Requirements Analysis and Maturation	06	U	89,956
124	0606398F	Management HQ - T&E	06	U	7,453
125	0303166F	Support to Information Operations (IO) Capabilities	06	U	
126	0303255F	Command, Control, Communication, and Computers (C4) - STRATCOM	06	U	20,871
127	0308602F	ENTEPRISE INFORMATION SERVICES (EIS)	06	U	100,357
128	0702806F	Acquisition and Management Support	06	U	20,478
129	0804731F	General Skill Training	06	U	796
130	0804772F	Training Developments	06	U	
131	0909999F	Financing for Cancelled Account Adjustments	06	U	
132	1001004F	International Activities	06	U	3,917
133	1206864F	Space Test Program (STP)	06	U	
	Management Support				3,486,758
134	0604233F	Specialized Undergraduate Flight Training	07	U	41,464
135	0604283F	Battle Mgmt Com & Ctrl Sensor Development	07	U	40,000
136	0604445F	Wide Area Surveillance	07	U	8,018
137	0604617F	Agile Combat Support	07	U	5,645

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
138	0604776F	Deployment & Distribution Enterprise R&D	07	U	193	156		156
139	0604840F	F-35 C2D2	07	U	1,085,909	1,032,528		1,032,528
140	0605018F	AF Integrated Personnel and Pay System (AF-IPPS)	07	U	25,582	37,901		37,901
141	0605024F	Anti-Tamper Technology Executive Agency	07	U	50,669	50,066		50,066
142	0605117F	Foreign Materiel Acquisition and Exploitation	07	U	109,249	80,338	37,500	117,838
143	0605278F	HC/MC-130 Recap RDT&E	07	U	43,095	52,940		52,940
144	0606018F	NC3 Integration	07	U	30,077	22,743		22,743
145	0101113F	B-52 Squadrons	07	U	620,115	723,107		723,107
146	0101122F	Air-Launched Cruise Missile (ALCM)	07	U	436	571		571
147	0101126F	B-1B Squadrons	07	U	37,951	20,044		20,044
148	0101127F	B-2 Squadrons	07	U	123,749	101,790		101,790
149	0101213F	Minuteman Squadrons	07	U	111,754	73,650		73,650
150	0101316F	Worldwide Joint Strategic Communications	07	U	11,712	22,708		22,708
151	0101318F	Service Support to STRATCOM - Global Strike	07	U				
152	0101324F	Integrated Strategic Planning & Analysis Network	07	U	28,895	32,062		32,062
153	0101328F	ICBM Reentry Vehicles	07	U	100,463	115,616		115,616
155	0102110F	MH-139A	07	U	15,913	15,922		15,922
156	0102326F	Region/Sector Operation Control Center Modernization Program	07	U	756	406		406
157	0102412F	North Warning System (NWS)	07	U	95	240,159		240,159
158	0102417F	Over-the-Horizon Backscatter Radar	07	U	66,022	12,210		12,210

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138	0604776F	Deployment & Distribution Enterprise R&D	07	U	
139	0604840F	F-35 C2D2	07	U	1,275,268
140	0605018F	AF Integrated Personnel and Pay System (AF-IPPS)	07	U	40,203
141	0605024F	Anti-Tamper Technology Executive Agency	07	U	49,613
142	0605117F	Foreign Materiel Acquisition and Exploitation	07	U	93,881
143	0605278F	HC/MC-130 Recap RDT&E	07	U	36,536
144	0606018F	NC3 Integration	07	U	22,910
145	0101113F	B-52 Squadrons	07	U	950,815
146	0101122F	Air-Launched Cruise Missile (ALCM)	07	U	290
147	0101126F	B-1B Squadrons	07	U	12,619
148	0101127F	B-2 Squadrons	07	U	87,623
149	0101213F	Minuteman Squadrons	07	U	33,237
150	0101316F	Worldwide Joint Strategic Communications	07	U	24,653
151	0101318F	Service Support to STRATCOM - Global Strike	07	U	7,562
152	0101324F	Integrated Strategic Planning & Analysis Network	07	U	
153	0101328F	ICBM Reentry Vehicles	07	U	475,415
155	0102110F	MH-139A	07	U	25,737
156	0102326F	Region/Sector Operation Control Center Modernization Program	07	U	831
157	0102412F	North Warning System (NWS)	07	U	102
158	0102417F	Over-the-Horizon Backscatter Radar	07	U	428,754

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
159	0202834F	Vehicles and Support Equipment - General	07	U	2,909	14,483		14,483
160	0205219F	MQ-9 UAV	07	U	76,847	145,499		145,499
161	0205671F	Joint Counter RCIED Electronic Warfare	07	U	3,733	1,747		1,747
162	0207040F	Multi-Platform Electronic Warfare Equipment	07	U	27,063	45,895		45,895
163	0207131F	A-10 Squadrons	07	U	33,434	64,593		64,593
164	0207133F	F-16 Squadrons	07	U	221,838	247,536		247,536
165	0207134F	F-15E Squadrons	07	U	231,898	200,139		200,139
166	0207136F	Manned Destructive Suppression	07	U	14,222	16,695		16,695
167	0207138F	F-22A Squadrons	07	U	626,329	559,709		559,709
168	0207142F	F-35 Squadrons	07	U	58,374	65,730		65,730
169	0207146F	F-15EX	07	U	103,950	83,830		83,830
170	0207161F	Tactical AIM Missiles	07	U	31,863	34,536		34,536
171	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	U	49,686	52,704		52,704
172	0207227F	Combat Rescue - Pararescue	07	U	845	863		863
173	0207238F	E-11A	07	U				
174	0207247F	AF TENCAP	07	U	23,685	23,309	2,250	25,559
175	0207249F	Precision Attack Systems Procurement	07	U	14,016	12,722		12,722
176	0207253F	Compass Call	07	U	87,925	50,000		50,000
177	0207268F	Aircraft Engine Component Improvement Program	07	U	111,566	136,087		136,087
178	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	U	114,018	117,198		117,198
179	0207327F	Small Diameter Bomb (SDB)	07	U	31,003	32,713		32,713

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159	0202834F	Vehicles and Support Equipment - General	07	U	15,498
160	0205219F	MQ-9 UAV	07	U	81,123
161	0205671F	Joint Counter RCIED Electronic Warfare	07	U	2,303
162	0207040F	Multi-Platform Electronic Warfare Equipment	07	U	7,312
163	0207131F	A-10 Squadrons	07	U	
164	0207133F	F-16 Squadrons	07	U	98,633
165	0207134F	F-15E Squadrons	07	U	50,965
166	0207136F	Manned Destructive Suppression	07	U	16,543
167	0207138F	F-22A Squadrons	07	U	725,889
168	0207142F	F-35 Squadrons	07	U	97,231
169	0207146F	F-15EX	07	U	100,006
170	0207161F	Tactical AIM Missiles	07	U	41,958
171	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	U	53,679
172	0207227F	Combat Rescue - Pararescue	07	U	726
173	0207238F	E-11A	07	U	64,888
174	0207247F	AF TENCAP	07	U	25,749
175	0207249F	Precision Attack Systems Procurement	07	U	11,872
176	0207253F	Compass Call	07	U	66,932
177	0207268F	Aircraft Engine Component Improvement Program	07	U	55,223
178	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	U	132,937
179	0207327F	Small Diameter Bomb (SDB)	07	U	37,518

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
180	0207410F	Air & Space Operations Center (AOC)	07	U	87,873	78,889		78,889
181	0207412F	Control and Reporting Center (CRC)	07	U	9,565	6,615		6,615
182	0207417F	Airborne Warning and Control System (AWACS)	07	U	167,956	11,598		11,598
183	0207418F	AFSPECWAR - TACP	07	U	3,678	5,982		5,982
185	0207431F	Combat Air Intelligence System Activities	07	U	17,863	29,704	7,750	37,454
186	0207438F	Theater Battle Management (TBM) C4I	07	U	7,716	5,851		5,851
187	0207439F	Electronic Warfare Integrated Reprogramming (EWIR)	07	U	15,000	15,990		15,990
188	0207444F	Tactical Air Control Party-Mod	07	U	12,779	10,304		10,304
189	0207452F	DCAPES	07	U	4,147	8,049		8,049
190	0207521F	Air Force Calibration Programs	07	U	2,256	2,123		2,123
191	0207522F	Airbase Air Defense Systems (ABADS)	07	U	7,177			
192	0207573F	National Technical Nuclear Forensics	07	U	1,971	2,039		2,039
193	0207590F	Seek Eagle	07	U	30,484	32,853		32,853
194	0207601F	USAF Modeling and Simulation	07	U	16,838	19,283		19,283
195	0207605F	Wargaming and Simulation Centers	07	U	7,535	7,004		7,004
196	0207610F	Battlefield Abn Comm Node (BACN)	07	U	30,953			
197	0207697F	Distributed Training and Exercises	07	U	3,860	4,624		4,624
198	0208006F	Mission Planning Systems	07	U	92,956	98,807		98,807
199	0208007F	Tactical Deception	07	U	13,812	34,574		34,574
200	0208064F	OPERATIONAL HQ - CYBER	07	U	2,037	14,347		14,347
201	0208087F	Distributed Cyber Warfare Operations	07	U	68,152	76,425		76,425

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180	0207410F	Air & Space Operations Center (AOC)	07	U	72,059
181	0207412F	Control and Reporting Center (CRC)	07	U	17,498
182	0207417F	Airborne Warning and Control System (AWACS)	07	U	
183	0207418F	AFSPECPWAR - TACP	07	U	2,106
185	0207431F	Combat Air Intelligence System Activities	07	U	72,010
186	0207438F	Theater Battle Management (TBM) C4I	07	U	6,467
187	0207439F	Electronic Warfare Integrated Reprogramming (EWIR)	07	U	10,388
188	0207444F	Tactical Air Control Party-Mod	07	U	10,060
189	0207452F	DCAPES	07	U	8,233
190	0207521F	Air Force Calibration Programs	07	U	2,172
191	0207522F	Airbase Air Defense Systems (ABADS)	07	U	
192	0207573F	National Technical Nuclear Forensics	07	U	2,049
193	0207590F	Seek Eagle	07	U	33,478
194	0207601F	USAF Modeling and Simulation	07	U	
195	0207605F	Wargaming and Simulation Centers	07	U	11,894
196	0207610F	Battlefield Abn Comm Node (BACN)	07	U	
197	0207697F	Distributed Training and Exercises	07	U	3,811
198	0208006F	Mission Planning Systems	07	U	96,272
199	0208007F	Tactical Deception	07	U	26,533
200	0208064F	OPERATIONAL HQ - CYBER	07	U	
201	0208087F	Distributed Cyber Warfare Operations	07	U	50,122

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
202	0208088F	AF Defensive Cyberspace Operations	07	U	21,950	16,809		16,809
203	0208097F	Joint Cyber Command and Control (JCC2)	07	U	78,592	79,955		79,955
204	0208099F	Unified Platform (UP)	07	U	89,135	106,916		106,916
208	0208288F	Intel Data Applications	07	U	474	2,130		2,130
209	0301025F	GeoBase	07	U	2,680	2,928		2,928
210	0301112F	Nuclear Planning and Execution System (NPES)	07	U	14,738	16,158		16,158
211	0301113F	Cyber Security Intelligence Support	07	U	5,224	8,972		8,972
218	0301401F	AF Multi-Domain Non-Traditional ISR Battlespace Awareness	07	U	2,463	3,069		3,069
219	0302015F	E-4B National Airborne Operations Center (NAOC)	07	U	22,798	25,701		25,701
220	0303004F	EIT CONNECT	07	U				
221	0303089F	Cyberspace Operations Systems	07	U				
222	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	U	51,681	35,548		35,548
223	0303133F	High Frequency Radio Systems	07	U				
224	0303140F	Information Systems Security Program	07	U	12,795	70,263		70,263
225	0303142F	Global Force Management - Data Initiative	07	U	435			
226	0303248F	All Domain Common Platform	07	U	60,894	46,540		46,540
227	0303260F	Joint Military Deception Initiative	07	U		2,588		2,588
228	0304100F	Strategic Mission Planning & Execution System (SMPES)	07	U				
230	0304260F	Airborne SIGINT Enterprise	07	U	88,645	109,528		109,528
231	0304310F	Commercial Economic Analysis	07	U	3,632	4,221		4,221

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202	0208088F	AF Defensive Cyberspace Operations	07	U	113,064
203	0208097F	Joint Cyber Command and Control (JCC2)	07	U	
204	0208099F	Unified Platform (UP)	07	U	
208	0208288F	Intel Data Applications	07	U	967
209	0301025F	GeoBase	07	U	1,514
210	0301112F	Nuclear Planning and Execution System (NPES)	07	U	
211	0301113F	Cyber Security Intelligence Support	07	U	8,476
218	0301401F	AF Multi-Domain Non-Traditional ISR Battlespace Awareness	07	U	2,890
219	0302015F	E-4B National Airborne Operations Center (NAOC)	07	U	39,868
220	0303004F	EIT CONNECT	07	U	32,900
221	0303089F	Cyberspace Operations Systems	07	U	4,881
222	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	U	33,567
223	0303133F	High Frequency Radio Systems	07	U	40,000
224	0303140F	Information Systems Security Program	07	U	95,523
225	0303142F	Global Force Management - Data Initiative	07	U	
226	0303248F	All Domain Common Platform	07	U	71,296
227	0303260F	Joint Military Deception Initiative	07	U	4,682
228	0304100F	Strategic Mission Planning & Execution System (SMPES)	07	U	64,944
230	0304260F	Airborne SIGINT Enterprise	07	U	108,947
231	0304310F	Commercial Economic Analysis	07	U	4,635

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
234	0305015F	C2 Air Operations Suite - C2 Info Services	07	U		7,708		7,708
235	0305020F	CCMD Intelligence Information Technology	07	U	1,663	1,751		1,751
236	0305022F	ISR Modernization & Automation Dvmt (IMAD)	07	U	15,888	13,138		13,138
237	0305099F	Global Air Traffic Management (GATM)	07	U	4,658	4,533		4,533
238	0305103F	Cyber Security Initiative	07	U	279	91		91
239	0305111F	Weather Service	07	U	36,524	56,457		56,457
240	0305114F	Air Traffic Control, Approach, and Landing System (ATCALs)	07	U	15,266	8,367		8,367
241	0305116F	Aerial Targets	07	U	1,488	1,365		1,365
244	0305128F	Security and Investigative Activities	07	U	214	223		223
245	0305146F	Defense Joint Counterintelligence Activities	07	U	8,733	8,328		8,328
246	0305179F	Integrated Broadcast Service (IBS)	07	U	21,335	14,123		14,123
247	0305202F	Dragon U-2	07	U	40,713	20,170		20,170
248	0305206F	Airborne Reconnaissance Systems	07	U	108,291	70,048		70,048
249	0305207F	Manned Reconnaissance Systems	07	U	14,799	14,590		14,590
250	0305208F	Distributed Common Ground/Surface Systems	07	U	24,558	26,901		26,901
251	0305220F	RQ-4 UAV	07	U	82,355	68,801		68,801
252	0305221F	Network-Centric Collaborative Targeting	07	U	17,224	17,564		17,564
253	0305238F	NATO AGS	07	U	19,473	826		826
254	0305240F	Support to DCGS Enterprise	07	U	40,421	28,774		28,774
255	0305600F	International Intelligence Technology and Architectures	07	U	14,473	25,036		25,036

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

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234	0305015F	C2 Air Operations Suite - C2 Info Services	07	U	13,751
235	0305020F	CCMD Intelligence Information Technology	07	U	1,660
236	0305022F	ISR Modernization & Automation Dvmt (IMAD)	07	U	18,680
237	0305099F	Global Air Traffic Management (GATM)	07	U	5,031
238	0305103F	Cyber Security Initiative	07	U	301
239	0305111F	Weather Service	07	U	26,329
240	0305114F	Air Traffic Control, Approach, and Landing System (ATCALs)	07	U	8,751
241	0305116F	Aerial Targets	07	U	6,915
244	0305128F	Security and Investigative Activities	07	U	352
245	0305146F	Defense Joint Counterintelligence Activities	07	U	6,930
246	0305179F	Integrated Broadcast Service (IBS)	07	U	21,588
247	0305202F	Dragon U-2	07	U	16,842
248	0305206F	Airborne Reconnaissance Systems	07	U	43,158
249	0305207F	Manned Reconnaissance Systems	07	U	14,330
250	0305208F	Distributed Common Ground/Surface Systems	07	U	88,854
251	0305220F	RQ-4 UAV	07	U	1,242
252	0305221F	Network-Centric Collaborative Targeting	07	U	12,496
253	0305238F	NATO AGS	07	U	2
254	0305240F	Support to DCGS Enterprise	07	U	31,589
255	0305600F	International Intelligence Technology and Architectures	07	U	15,322

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					Actuals	Supplementals Enactment	Supplementals Enactment*	Enactment
256	0305881F	Rapid Cyber Acquisition	07	U	4,193	3,739		3,739
257	0305984F	Personnel Recovery Command & Ctrl (PRC2)	07	U	2,473	2,702		2,702
258	0307577F	Intelligence Mission Data (IMD)	07	U	6,169	6,332		6,332
259	0401115F	C-130 Airlift Squadron	07	U	12,383	407		407
260	0401119F	C-5 Airlift Squadrons (IF)	07	U	16,998	3,100		3,100
261	0401130F	C-17 Aircraft (IF)	07	U	15,779	25,387		25,387
262	0401132F	C-130J Program	07	U	18,392	10,060		10,060
263	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	U	6,429	2,909		2,909
264	0401218F	KC-135s	07	U	3,461	12,955		12,955
265	0401318F	CV-22	07	U	16,663	10,121		10,121
266	0408011F	Special Tactics / Combat Control	07	U	6,467	6,297		6,297
267	0708055F	Maintenance, Repair & Overhaul System	07	U	26,211	19,892		19,892
268	0708610F	Logistics Information Technology (LOGIT)	07	U	6,870	17,271		17,271
269	0801380F	AF LVC Operational Training (LVC-OT)	07	U				
270	0804743F	Other Flight Training	07	U	5,778	2,214		2,214
271	0808716F	Other Personnel Activities	07	U	4,817			
272	0901202F	Joint Personnel Recovery Agency	07	U	1,759	1,885		1,885
273	0901218F	Civilian Compensation Program	07	U	3,560	4,098		4,098
274	0901220F	Personnel Administration	07	U	3,267	3,191		3,191
275	0901226F	Air Force Studies and Analysis Agency	07	U	1,202	899		899
276	0901538F	Financial Management Information Systems Development	07	U	4,675	5,121		5,121

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

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257	0305984F	Personnel Recovery Command & Ctrl (PRC2)	07	U	2,764
258	0307577F	Intelligence Mission Data (IMD)	07	U	7,090
259	0401115F	C-130 Airlift Squadron	07	U	5,427
260	0401119F	C-5 Airlift Squadrons (IF)	07	U	29,502
261	0401130F	C-17 Aircraft (IF)	07	U	2,753
262	0401132F	C-130J Program	07	U	19,100
263	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	U	5,982
264	0401218F	KC-135s	07	U	51,105
265	0401318F	CV-22	07	U	18,127
266	0408011F	Special Tactics / Combat Control	07	U	9,198
267	0708055F	Maintenance, Repair & Overhaul System	07	U	
268	0708610F	Logistics Information Technology (LOGIT)	07	U	17,520
269	0801380F	AF LVC Operational Training (LVC-OT)	07	U	25,144
270	0804743F	Other Flight Training	07	U	2,265
271	0808716F	Other Personnel Activities	07	U	
272	0901202F	Joint Personnel Recovery Agency	07	U	2,266
273	0901218F	Civilian Compensation Program	07	U	4,006
274	0901220F	Personnel Administration	07	U	3,078
275	0901226F	Air Force Studies and Analysis Agency	07	U	5,309
276	0901538F	Financial Management Information Systems Development	07	U	4,279

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277	0901554F	Defense Enterprise Acntng and Mgt Sys (DEAMS)	07	U	52,707	48,199		48,199
278	1202140F	Service Support to SPACECOM Activities	07	U	6,549	13,418		13,418
999	999999999	Classified Programs	07	U	16,966,755	17,653,475	236,046	17,889,521
	Operational Systems Development				23,061,515	23,805,224	283,546	24,088,770
Total Research, Development, Test and Evaluation, Air Force					41,507,268	44,997,587	284,846	45,282,433

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

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Line <u>No</u>	Program Element <u>Number</u>	<u>Item</u>	<u>Act</u>	<u>Se</u> <u>c</u>	FY 2024 <u>Request</u>
277	0901554F	Defense Enterprise Acntng and Mgt Sys (DEAMS)	07	U	45,925
278	1202140F	Service Support to SPACECOM Activities	07	U	9,778
999	999999999	Classified Programs	07	U	16,814,245
	Operational Systems Development				23,829,283
Total Research, Development, Test and Evaluation, Air Force					46,565,356

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Air Force • Budget Estimates FY 2024 • RDT&E Program

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

Mar 2023

	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment	FY 2024 Request
<u>Summary Recap of Budget Activities</u>					
Basic Research	505,166	612,317		612,317	583,858
Applied Research	1,590,543	1,744,375		1,744,375	1,433,320
Advanced Technology Development	918,318	1,096,066		1,096,066	891,376
Advanced Component Development & Prototypes	9,427,253	8,360,072	1,300	8,361,372	9,859,030
System Development & Demonstration	2,176,294	6,074,824		6,074,824	6,481,731
Management Support	3,828,179	3,304,709		3,304,709	3,486,758
Operational Systems Development	23,061,515	23,805,224	283,546	24,088,770	23,829,283
Total Research, Development, Test, & Evaluation	41,507,268	44,997,587	284,846	45,282,433	46,565,356
<u>Summary Recap of FYDP Programs</u>					
Strategic Forces	1,117,861	1,358,245		1,358,245	2,047,638
General Purpose Forces	4,400,861	4,731,867	10,000	4,741,867	5,160,229
Intelligence and Communications	1,209,806	1,173,980		1,173,980	1,061,042
Mobility Forces	557,864	396,697		396,697	756,557
Research and Development	16,948,692	19,386,302	38,800	19,425,102	20,470,070
Central Supply and Maintenance	174,960	171,979		171,979	94,340
Training Medical and Other	17,540	23,238		23,238	39,491
Administration and Associated Activities	103,958	77,443		77,443	93,157
Support of Other Nations	2,420	2,593		2,593	3,917
Space	6,551	21,768		21,768	24,670
Classified Programs	16,966,755	17,653,475	236,046	17,889,521	16,814,245

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

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

Mar 2023

	FY 2022 Actuals	FY 2023 Less Supplementals Enactment	FY 2023 Supplementals Enactment*	FY 2023 Total Enactment	FY 2024 Request
Total Research, Development, Test, & Evaluation	41,507,268	44,997,587	284,846	45,282,433	46,565,356

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

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ACRONYMS

GENERAL ACRONYMS

A&AS	- Advisory & Assistance Services
ABIDES	- Automated Budget Interactive Data Environment System
ACAT	- Acquisition Category
ACTD	- Advanced Concept Technology Demonstration
AGM	- Air-to-Ground Missile
AIM	- Air Intercept Missile
AIS	- Avionics Intermediate Shop
ACMI	- Aircraft Combat Maneuvering Instrumentation
AMRAAM	- Advanced Medium-Range Air-to-Air Missile
APPN	- Appropriation
ATD	- Advanced Technology Development
BA	- Budget Activity
BES	- Budget Estimate Submission
BY	- Budget Year
C3	- Command, Control, and Communication System
CFE	- Contractor Furnished Equipment
CONOPS	- Concept of Operation
CONUS	- Continental United States
CPMS	- Comprehensive Power Management System
CPT	- Cockpit Procedures Trainer
CRA	- Continuing Resolution Authority
CTS	- Countermeasures Test Set
CY	- Current Year
ECCM	- Electronic Counter Counter-Measures
ECM	- Electronic Counter Measures
ECO	- Engineering Change Orders
EOQ	- Economic Order Quantity
ECP	- Engineering Change Proposal
EPA	- Economic Price Adjustment
EW	- Electronic Warfare
EWASIP	- Electronic Warfare Avionics Integration Support Facility
FLIR	- Forward Looking Infra Red

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FOT&E	- Follow-on Test and Evaluation
FOC	- Fully Operational Capability
FLTS	- Flight Line Test Set
FPIF	- Fixed Price Incentive Firm
FPIS	- Fixed Price Incentive Fee, Successive Targets
FY	- Fiscal Year
GANS	- Global Access Navigation & Safety
GATM	- Global Air Traffic Management
GFE	- Government Furnished Equipment
GFP	- Government Furnished Property
GPS	- Global Positioning System
GSE	- Ground Support Equipment
ICS	- Interim Contractor Support
IOC	- Initial Operating Capability
IT	- Information Technology
JUON	- Joint Urgent Operational Need
MAIS	- Major Automated Information System Program
MDAP	- Major Defense Acquisition Program
METS	- Mobile Electronic Test Stations
MYP	- Multiyear Procurement
NAVWAR	- Navigation Warfare
NMC Rate	- Not Mission Capable Rate
OCO	- Overseas Contingency Operations
OOC	- Overseas Operations Costs
OT&E	- Operational Test and Evaluation
OWRM	- Other War Reserve Material
PAGEL	- Priced Aerospace Ground Equipment List
PB	- President's Budget
PBR	- Program Budget Review
PMA	- Program Management Administration
PMC	- Procurement Method Code
PNO	- Acquisition Program Number (MDAP Codes)
PR	- Purchase Request
PRCP	- Program Resource Collection Process
PTT	- Part Task Trainer
PY	- Prior Year

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R&M	- Reliability and Maintainability
RAA	- Rapid Acquisition Authority
RDT&E	- Research, Development, Test and Evaluation
RWR	- Radar Warning Receiver
ROM	- Rough Order of Magnitude
SS	- Sole Source
SOF	- Special Operation Force
TAF	- Tactical Air Force
TCAS	- Traffic Collision Alert and Avoidance System
TEWS	- Tactical Electronic Warfare System
TISS	- TEWS Intermediate Support System
TOA	- Total Obligation Authority
WCF	- Working Capital Fund
WRM	- War Reserve Material
WST	- Weapon System Trainer
UAV	- Unmanned Aerial Vehicle
XML	- Extensible Markup Language

BASE / ORGANIZATIONAL ACRONYMS

ACC	- Air Combat Command
AETC	- Air Education & Training Command
AFCAO	- Air Force Computer Acquisition Office
AFCEA	- Air Force Civil Engineering Support Agency
AFCIC	- AF Communications & Information Center
AFCSC	- Air Force Cryptologic Service Center
AFESC	- Air Force Engineering Services Center
AFGWC	- Air Force Global Weather Central
AFIT	- Air Force Institute of Technology
AFLCMC	- Air Force Life Cycle Management Center
AFMC	- Air Force Materiel Command
AFMETCAL	- Air Force Metrology and Calibration Office
AFMLO	- Air Force Medical Logistics Office
AFOSI	- Air Force Office of Special Investigation
AFOTEC	- Air Force Operational Test & Evaluation Center
AFPC	- Air Force Personnel Center

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AFPSL	- AF Primary Standards Lab
AFR	- Air Force Reserve
AFSOC	- AF Special Operations Command
AFSPC	- Air Force Space Command
AIA	- Air Intelligence Agency
ALC	- Air Logistics Center
AMC	- Air Mobility Command
ANG	- Air National Guard
ASC	- Aeronautical Systems Center
AETC	- Air Education Training Command
AU	- Air University
AWS	- Air Weather Service
CIA	- Central Intelligence Agency
DGSC	- Defense General Support Center
DLA	- Defense Logistics Center
DOE	- Department of Energy
DPSC	- Defense Personnel Support Center
DSCC	- Defense Supply Center, Columbus
DTIC	- Defense Technical Information Center
ER	- Eastern Range
ESC	- Electronic Systems Center
FAA	- Federal Aviation Agency
FBI	- Federal Bureau of Investigation
GSA	- General Services Administration
JCS	- Joint Chiefs of Staff
NATO	- North Atlantic Treaty Organization
OSD	- Office of the Secretary of Defense
PACAF	- Pacific Air Forces
USAF	- United States Air Force
USAFA	- United States Air Force Academy
USAFE	- United States Air Force Europe
USCENTCOM	- United States Central Command
USEUCOM	- United States European Command
USMC	- United States Marine Corps
USSTRATCOM	- United States Strategic Command
WP AFB	- Wright-Patterson AFB, OH

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CONTRACT METHOD / TYPE ACRONYMS

C	- Competitive
BA	- Basic Agreement
BOA	- Basic Ordering Agreement
BPA	- Blanket Purchasing Agreement
CS	- Cost Sharing
IDDQ	- Indefinite Delivery, Definite Quantity
IDIQ	- Indefinite Delivery, Indefinite Quantity
IDRT	- Indefinite Delivery, Requirements
Letter	- Letter
LH	- Labor-hour
MIPR	- Military Interdepartmental Purchase Request
MIPR-C	- Military Interdepartmental Purchase Request - Competitive
MIPR-OPT	- Military Interdepartmental Purchase Request - Option
MIPR-OTH	- Military Interdepartmental Purchase Request – Other
MIPR-SS	- Military Interdepartmental Purchase Request - Sole Source
OPT	- Option
OTH	- Other
PO	- Project Order
REQN	- Requisition
SS	- Sole Source
T&M	- Time and Materials
UCA	- Undefined Contract Action
WP	- Work Project

CONTRACTED BY ACRONYMS

11 WING	- 11th Support Wing, Washington, DC
ACC	- Air Combat Command, Langley AFB, VA
AEDC	- Arnold Engineering Development Center, Arnold AFB, TN
AAC	- Air Armament Center, Eglin AFB, FL
AEDC	- Arnold Engineering Development Center, Arnold AFB, TN
AETC	- Air Education and Training Command, Randolph AFB, TX
AFCIC	- Air Force Communications and Information Center, Washington, DC
AFCESA	- Air Force Civil Engineering Support Agency, Tyndall AFB, FL

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AFFTC	- Air Force Flight Test Center, Edwards AFB, CA
AFLCMC	- Air Force Life Cycle Management Center, Wright-Patterson AFB, OH
AFMC	- Air Force Materiel Command, Wright-Patterson AFB, OH
AFMETCAL	- Air Force Metrology and Calibration Office, Heath, Ohio
AFMLO	- Air Force Medical Logistics Office, Ft Detrick, MD
AIA	- Air Intelligence Agency, Kelly AFB, TX
AMC	- Air Mobility Command, Scott AFB, IL
ASC	- Aeronautical Systems Center, Wright-Patterson AFB, OH & Eglin AFB, FL
AFWA	- Air Force Weather Agency, Offutt AFB, NE
DGSC	- Defense General Support Center, Richmond, VA
DPSC	- Defense Personnel Support Center, Philadelphia, PA
ER	- Eastern Range, Patrick SFB, FL
ESC	- Electronic Systems Center, Hanscom AFB, MA
HSC	- Human Services Center, Brook AFB, TX
OC-ALC	- Oklahoma City Air Logistics Center, Tinker AFB, OK
OO-ALC	- Ogden Air Logistics Center, Hill AFB, UT
SMC	- Space & Missile Systems Center, Los Angeles AFB, CA
US STRATCOM	- US Strategic Command, Offutt AFB, NE
WACC	- Washington Area Contracting Center, Washington DC
WR	- Western Range, Vandenberg SFB, CA
WR-ALC	- Warner-Robins Air Logistics Center, Robins AFB, GA
AFSPC	- Air Force Space Command, Peterson AFB, CO
HQ ANG	- Headquarters, Air National Guard, Washington, DC
USAFE	- United States Air Force Europe, Ramstein AB, GE
USAFA	- United States Air Force Academy, Colorado Springs, CO

IDENTIFICATION CODES

Code "A"	- Line items of material which have been approved for Air Force service use.
Code "B"	- Line items of material that have not been approved for Service use
OBAN	- Operating Budget Account Number, 2-digit code for unit allocated funds

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force											Date: March 2023	
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>					R-1 Program Element (Number/Name) PE 0604256F / <i>Threat Simulator Development</i>							
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	46.393	21.067	16.626	0.000	16.626	20.391	42.980	49.100	50.876	Continuing	Continuing
662907: <i>Electronic Combat Intel Support</i>	-	2.661	2.801	2.863	0.000	2.863	2.927	2.999	3.061	3.172	Continuing	Continuing
663321: <i>Electronic Warfare Ground Test Resources</i>	-	36.198	16.125	5.819	0.000	5.819	9.171	31.480	37.364	38.715	0.000	174.872
667500: <i>Foreign Materiel Acquisition/Analysis</i>	-	7.534	2.141	7.944	0.000	7.944	8.293	8.501	8.675	8.989	Continuing	Continuing

A. Mission Description and Budget Item Justification

The AF requires a comprehensive set of indoor and outdoor test facilities to implement the Air Force Electronic Warfare (EW) Test Process in order to test EW systems, including Directed Energy (DE). To manage program risk effectively throughout the EW weapons system acquisition process, and to conduct T&E effectively and efficiently, a broad multi-spectrum integrated set of T&E capabilities, ranging from Modeling and Simulation (M&S), to full-scale chamber testing, to flight testing on open-air ranges (OAR), is required. The EW Test Process Support task provides investment management and coordinated technical oversight of EW T&E facilities, including studies, analyses, and related documentation. Additionally, successful EW capabilities in battle are predicated upon a thorough understanding of the threat. To meet that requirement, this PE also includes funding to acquire foreign materiel, and to thoroughly test and evaluate that foreign materiel to understand how those threat systems affect and are affected by our EW systems.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	46.909	21.067	16.771	0.000	16.771
Current President's Budget	46.393	21.067	16.626	0.000	16.626
Total Adjustments	-0.516	0.000	-0.145	0.000	-0.145
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.516	0.000			
• Other Adjustments	0.000	0.000	-0.145	0.000	-0.145

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0604256F / Threat Simulator Development				Project (Number/Name) 662907 / Electronic Combat Intel Support			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
662907: <i>Electronic Combat Intel Support</i>	-	2.661	2.801	2.863	0.000	2.863	2.927	2.999	3.061	3.172	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides funding to support Foreign Materiel Operational Test and Evaluation (FMOT&E), which ensures the ability of operational commands to test and develop effective Electronic Attack/Electronic Protection (EA/EP) techniques and tactics. Funds are required for: deployment of systems to test facilities; travel of personnel to the test sites to evaluate and validate test results; range and laboratory costs; test consumables; costs for instrumentation of systems; and contracted engineering support for the conduct of tests and subsequent reporting. Funding for this program is required to prevent future aircraft losses due to improper and inaccurate aircrew tactics (e.g., lack of evasive action or proper tactics training to avoid missile attack).

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

	FY 2022	FY 2023	FY 2024
Title: FMOT&E	2.661	2.801	2.863
Description: Supports Foreign Materiel Operational Test and Evaluation (FMOT&E)			
FY 2023 Plans: Continue operations of electronic combat intelligence support for fighter and bomber testing, mobility special operations transport and helicopter testing, classified operational assessments and extensive evaluations and reporting of system effectiveness.			
FY 2024 Plans: Continue operations of electronic combat intelligence support for fighter and bomber testing, mobility special operations transport and helicopter testing, classified operational assessments and extensive evaluations and reporting of system effectiveness.			
FY 2023 to FY 2024 Increase/Decrease Statement: N/A			
Accomplishments/Planned Programs Subtotals	2.661	2.801	2.863

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

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTE 06 0605807F: <i>Test and Evaluation Support</i>	811.032	841.854	913.213	-	913.213	892.125	1,005.821	1,063.898	1,116.911	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0604256F / <i>Threat Simulator Development</i>	Project (Number/Name) 662907 / <i>Electronic Combat Intel Support</i>

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

Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To	
			Base	OCO	Total					Complete	Total Cost
• RDTE 06 0605976F: <i>Facilities Restoration and Modernization - Test and Evaluation Support</i>	70.788	133.420	87.889	-	87.889	94.662	217.566	202.455	209.540	Continuing	Continuing
• RDTE 06 0605978F: <i>Facilities Sustainment - Test and Evaluation Support</i>	30.057	31.561	35.065	-	35.065	41.225	54.342	53.420	55.290	Continuing	Continuing
• RDTE 06 0604759F: <i>Major T&E Investment</i>	128.708	171.314	31.143	-	31.143	74.096	208.545	480.460	497.846	Continuing	Continuing
• RDTE 06 0606398F: <i>Management HQ - T&E</i>	7.263	6.285	7.453	-	7.453	7.481	7.639	7.801	8.159	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0604256F / <i>Threat Simulator Development</i>				Project (Number/Name) 663321 / <i>Electronic Warfare Ground Test Resources</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
663321: <i>Electronic Warfare Ground Test Resources</i>	-	36.198	16.125	5.819	0.000	5.819	9.171	31.480	37.364	38.715	0.000	174.872
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AF requires a comprehensive set of test facility modernizations to improve Electronic Warfare (EW) which includes Directed Energy (DE) weapons Test and Evaluation (T&E) capabilities. This funding is used to improve and modernize threat system simulators, stimulators, emitters and supporting infrastructure to sufficiently and cost effectively test and evaluate current and future weapon systems' ability to perform in realistic EW threat representative environments. The National Radar Cross Section (RCS) Test Facility (NRTF) at Holloman AFB, NM, provides timely, accurate, and secure RCS and antenna measurements for tri-service and joint program offices, DoD laboratories, Defense Advanced Research Projects Agency (DARPA) and industry. The NRTF tests fielded and developmental systems and technologies to meet Low Observable (LO) and EW customer requirements. The Guided Weapons Evaluation Facility (GWEF) at Eglin AFB, FL, and the Digital Integrated Air Defense System (DIADS) at Edwards AFB, CA, provide the ability to realistically evaluate hardware and software components of US weapon systems against manned hardware threat representations throughout the acquisition process. The GWEF provides simulations of advanced Infrared (IR) Surface-to-Air Missiles (SAMs) and Air-to-Air Missiles (AAMs), IR and Laser countermeasure functions, and the integration of actual threat hardware and ground clutter into advanced threat IR missile simulations. DIADS provides mission level simulations of both algorithm-based and man-in-the-loop-based enemy command and control (C2) capabilities that integrate early warning radar detection, SAM engagement capabilities, and limited ground-controlled fighter intercepts. The Benefield Anechoic Facility (BAF) at Edwards AFB, CA, and the Joint Preflight Integration of Munitions and Electronic Systems (J-PRIMES) facility at Eglin AFB, FL, both provide threat-representative EW emitters and stimulators to replicate a variety of land, sea and airborne threats in a controlled RF environment to evaluate full-scale weapon systems. The BAF additionally provides an ability to perform Electromagnetic Interference/Compatibility (EMI/EMC) testing to ensure radars, jammers, radios, and other flight-critical electronic systems will not interfere with each other during a mission. The Central Inertial and GPS Test Facility (CIGTF) at the 704th Test Group at Holloman AFB, NM provides threat-representative GPS jammers and laydowns in both lab and open-air environments to test avionics systems' performance when under various GPS-denial conditions. Provides EW test process support, conducting requirements analyses and other studies in support of AF T&E investments in test infrastructure and capabilities.

In previous R-2 Exhibits, EW T&E modernization efforts within this PE's BPAC were identified via two mission area categories: Improvement and Modernization (I&M) and EC Test Process Support. To more accurately align this R-2 Exhibit with the funding/execution baseline for this BPAC, the two aforementioned mission area categories have been combined into a single mission area titled, "Electronic Warfare Ground Test Resources".

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

	FY 2022	FY 2023	FY 2024
Title: Electronic Warfare Ground Test Resources	36.198	16.125	5.819
Description: Provides for planning, monitoring, improvement and modernization of test capabilities to conduct and support the AF EW test process. Provides for EW test process support. Conducts requirements analyses and other studies in support of Air Force T&E investments in test infrastructure and capabilities. Plans for FY2020 and FY2021 include, but are not limited to,			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0604256F / <i>Threat Simulator Development</i>	Project (Number/Name) 663321 / <i>Electronic Warfare Ground Test Resources</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
the following EW efforts which may be accelerated or delayed due to variations in customer requirements and overall project execution.			
<i>FY 2023 Plans:</i> Off-ramp (shut down) Electronic Warfare Test Capability Improvement Program (EWTICIP) due to under execution reductions. Pause for one year the Jammer/ECM Enhancement & Integration (JECM) project due to funding shortfalls. Start planning for FY25 Hypersonic Plus up by planning the DIADS Hypersonic Air Defense Effectiveness and Susceptibility (HADES) project. Start planning the Advanced NAVWAR Open-Air T&E project at AEDC. Continue executing development, procurement and integration of EW programs such as Red Integrated Air Defense System (Red-IADS), National RCS Test Facility (NRTF) Modernization and Measurement, Infra-Red Countermeasure-Capability Modernization (IRCM-CM), and Electronic Combat Range - Dynamic Moving Target Simulator (ECR-DMTS). Also included is continued funding of SETA support necessary to implement planned Air Force test processes and infrastructure for I&M capabilities, support tri-service monitoring and analysis teams established to identify emerging joint investment needs and requirements development, and assist in the management and monitoring of I&M program elements and activities.			
<i>FY 2024 Plans:</i> Close out Red Integrated Air Defense System (Red-IADS). Re-start the Jammer/ECM Enhancement & Integration (JECM) project. Continue planning the DIADS Hypersonic Air Defense Effectiveness and Susceptibility (HADES) project and the Advanced NAVWAR Open-Air T&E project at AEDC. Continue executing development, procurement and integration of EW programs (at significantly reduced funding) such as the National RCS Test Facility (NRTF) Modernization and Measurement, Infra-Red Countermeasure-Capability Modernization (IRCM-CM), and Electronic Combat Range - Dynamic Moving Target Simulator (ECR-DMTS). Also included is continued funding of SETA support necessary to implement planned Air Force test processes and infrastructure for I&M capabilities, support tri-service monitoring and analysis teams established to identify emerging joint investment needs and requirements development, and assist in the management and monitoring of I&M program elements and activities.			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> The FY23 to FY24 decrease of \$10.3M reflects DAF reprogramming for higher priorities during the FY23 budget cycle.			
Accomplishments/Planned Programs Subtotals	36.198	16.125	5.819

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 06 0605807F: <i>Test and Evaluation Support</i>	811.032	841.854	913.213	-	913.213	892.125	1,005.821	1,063.898	1,116.911	0.000	6,644.854

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0604256F / Threat Simulator Development	Project (Number/Name) 663321 / Electronic Warfare Ground Test Resources
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTE 06 0605976F: <i>Facilities Restoration and Modernization - Test and Evaluation Support</i>	70.788	133.420	87.889	-	87.889	94.662	217.566	202.455	209.540	0.000	1,016.320
• RDTE 06 0605978F: <i>Facilities Sustainment - Test and Evaluation Support</i>	30.057	31.561	35.065	-	35.065	41.225	54.342	53.420	55.290	0.000	300.960
• RDTE 06 0604759F: <i>Major T&E Investment</i>	128.708	171.314	31.143	-	31.143	74.096	208.545	480.460	497.846	0.000	1,592.112
• RDTE 06 0606398F: <i>Management HQ - T&E</i>	7.263	6.285	7.453	-	7.453	7.481	7.639	7.801	8.159	0.000	52.081

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0604256F / Threat Simulator Development				Project (Number/Name) 667500 / Foreign Materiel Acquisition/Analysis			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
667500: Foreign Materiel Acquisition/Analysis	-	7.534	2.141	7.944	0.000	7.944	8.293	8.501	8.675	8.989	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project's specific purpose is to support USAF Foreign Materiel Program requirements through the acquisition and analysis of foreign materiel. Items considered for these Foreign Materiel Acquisition (FMA) funds are included in the prioritized Air Force FMA Top 20 list established each year. Each Major Command (MAJCOM) prepares and approves a Foreign Materiel - Mission Requirements Statement for each requirement. Annually, the MAJCOM commanders establish a list of their top 20 requirements. The MAJCOMs' requirements lists are integrated and prioritized into a classified Air Force requirement list. Each MAJCOM then approves the FMA Top 20 List and final validation comes from the Air Force Vice Chief of Staff. System analyses are based on and driven by acquisitions. The USAF provides assessments and data for threat systems to all DoD components.

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

	FY 2022	FY 2023	FY 2024
Title: FMP	7.534	2.141	7.944
Description: Supports USAF Foreign Materiel Program (FMP) Requirements through the acquisition and analysis of foreign materiel.			
FY 2023 Plans: Continue to fund acquisition of available Foreign Materiel in accordance with the prioritized Air Force Foreign Materiel List; analysis of acquired Foreign Materiel; and operations and maintenance of the specialized Foreign Materiel assets.			
FY 2024 Plans: Continue to fund acquisition of available Foreign Materiel in accordance with the prioritized Air Force Foreign Materiel List; analysis of acquired Foreign Materiel; and operations and maintenance of the specialized Foreign Materiel assets.			
FY 2023 to FY 2024 Increase/Decrease Statement: The increase from FY23 to FY24 of \$5.8 million is due to a return to the typical program baseline of \$7.9 million. The FY23 funding request was reduced in error and will be corrected upon enactment.			
Accomplishments/Planned Programs Subtotals	7.534	2.141	7.944

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0604256F / <i>Threat Simulator Development</i>	Project (Number/Name) 667500 / <i>Foreign Materiel Acquisition/ Analysis</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 06 0605807F: <i>Test and Evaluation Support</i>	811.032	841.854	913.213	-	913.213	892.125	1,005.821	1,063.898	1,116.911	Continuing	Continuing
• RDTE 06 0605976F: <i>Facilities Restoration and Modernization - Test and Evaluation Support</i>	70.788	133.420	87.889	-	87.889	94.662	217.566	202.455	209.540	Continuing	Continuing
• RDTE 06 0605978F: <i>Facilities Sustainment - Test and Evaluation Support</i>	30.057	31.561	35.065	-	35.065	41.225	54.342	53.420	55.290	Continuing	Continuing
• RDTE 06 0604759F: <i>Major T&E Investment</i>	128.708	171.314	31.143	-	31.143	74.096	208.545	480.460	497.846	Continuing	Continuing
• RDTE 06 0606398F: <i>Management HQ - T&E</i>	7.263	6.285	7.453	-	7.453	7.481	7.639	7.801	8.159	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0604759F / <i>Major T&E Investment</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	128.708	171.314	31.143	0.000	31.143	74.096	208.545	480.460	497.846	Continuing	Continuing
664597: <i>AF Test Investments</i>	-	128.708	171.314	31.143	0.000	31.143	74.096	208.545	480.460	497.846	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This PE provides planning, improvements, and modernization for test capabilities within Air Force Test Center (AFTC) Major Range and Test Facility Base organizations: 96 Test Wing at Eglin AFB FL, the 412 Test Wing at Edwards AFB CA, and Arnold Engineering Development Complex (AEDC) at Arnold AFB TN. The 704th Test Group at Holloman AFB NM and the McKinley Climatic Lab at Eglin AFB are aligned under AEDC as part of the management consolidation of Ground test capabilities. Finally, in FY20 and FY21 this PE provided funds to Air Force Space Command (AFSPC) now United States Space Force (USSF) for space threat testing. In FY22, Space threat funding was transferred to USSF.

The improvement and modernization (I&M) requirements are defined through the AF Test Investment Planning & Programming (TIPP) Process. All projects have been reviewed through the Tri-Service Reliance Process (to communicate AF efforts to the other services and avoid unwarranted duplication of effort) and are documented in the Technology Development Acquisition Program (TDAP) database. Each project has its own planning, development, equipment acquisition, equipment installation, and checkout phases which often require significant differences in funding from one year to the next. As such, the changes in category funding from year to year does not necessarily indicate program growth, but rather a planned phasing of I&M efforts. The test capabilities at these locations enable testing through all phases of weapon system acquisition, from system concept exploration through component and full-scale integrated weapon system test to operational test.

The 96 TW, at Eglin AFB FL, conducts and supports Developmental Test and Evaluation (DT&E) of non-nuclear air armaments; Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR) systems; target acquisition and weapon delivery systems; determines target/test item spectral signatures; and provides cyber testing capabilities as part of the Avionics Cyber Range (ACR).

The 412 Test Wing, at Edwards AFB CA, conducts and supports DT&E and Operational Test and Evaluation (OT&E) of aircraft and aircraft systems, aerospace research vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery/systems, and cargo handling systems.

AEDC, at Arnold AFB TN, provides pre-flight reliability environmental test support for DoD aeropropulsion, flight systems, and space and missile programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missiles, and space systems; testing of large and full-scale satellites, sensors, and space vehicles in a simulated space environment; altitude environmental testing for aircraft, missile, and spacecraft propulsion systems; testing of large-scale models such as space boosters together with their propulsion systems. This capability includes the world's largest climatic laboratory, the McKinley Climatic Laboratory at Eglin AFB, which provides controlled all-weather condition testing of full scale systems. The 704th TG at Holloman AFB, NM provides flight test and test support for joint, international and commercial customers in advanced avionics and weapons, inertial navigation systems, Global Positioning System (GPS) and other integrated aircraft and missile navigation systems. They test subsonic through hypersonic ground performance of aircraft and missiles in a flight-representative, highly instrumented

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0604759F / <i>Major T&E Investment</i>	
<p>environment while also coordinating and scheduling all US Air Force test operations at White Sands Missile Range. The 704 TG OL-AC at Wright-Patterson AFB, OH provides independent developmental T&E in support of aircraft survivability and evaluation of full-scale aircraft landing gear, tires and brakes. They also provide an independent capability for component qualification.</p> <p>In order to align the strategic capability goals set forth in the 2018 National Defense Strategy and the mission of the AFTC, program element funding has been assigned to these six mission area categories: T&E Range Asset Modernization, Hypersonics, Directed Energy, Cyberspace and Avionics Cyber, Autonomy, and Space Test Infrastructure.</p> <p>1) T&E Range and Test Asset Modernization refers to those capabilities required to acquire the ability to test long range, high-speed, highly-instrumented, high-data rate weapons in a crowded and restricted spectrum, while operating at multiple classification and cybersecurity levels. Also included in this mission area is the ability to collect, analyze and store big data and the ability to do multi-domain testing across the enterprise with realistic threat scenarios at multiple classification level up to Special Access Program (SAP).</p> <p>2) Hypersonics refers to the ability to test and evaluate flight-representative hypersonic engines, materials, warheads and fuzes in all portions of the employment envelope and conduct flight testing both in simulation and open-air ranges with sufficient space, telemetry, photo-optics and Time Space Position Information (TSPI) to appropriately inform decision-makers fielding such systems.</p> <p>3) Directed Energy/Electronic Combat acquires the ability to characterize irradiance and beam properties on aircraft, small UAVs and ground targets and create realistic environments to simulate adversary air defense capabilities in the year 2030. Enables 5th-6th generation weapon testing/tactics development in a threat-realistic Anti-Access Area Denial (A2AD) environment using a combination of indoor and open-air ranges.</p> <p>4) Cyberspace and Avionics Cyber is the advancement of cybersecurity/resiliency test capability for network, C4ISR, and airborne weapon platforms and includes development of tools, techniques and hardware-in-the-loop capabilities focused on cybersecurity and cyber-resiliency.</p> <p>5) Autonomy refers to the ability to test autonomous aerial and ground systems with hundreds of independent vehicles. Must be able to monitor system-under-test locations and states with the ability for soft and hard termination. Must develop techniques and processes to test systems with artificial intelligence.</p> <p>This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0604759F / <i>Major T&E Investment</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	130.766	44.714	76.815	0.000	76.815
Current President's Budget	128.708	171.314	31.143	0.000	31.143
Total Adjustments	-2.058	126.600	-45.672	0.000	-45.672
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	126.600			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-1.100	0.000			
• SBIR/STTR Transfer	-0.958	0.000			
• Other Adjustments	0.000	0.000	-45.672	0.000	-45.672

Change Summary Explanation

FY22: \$2.1 million decrease due to \$1.1 million below threshold reprogramming to PE 66398F and ~\$1 million reduction for SBIR.

FY23: Increase of \$126.6 million due to FY23 Congressional add for hypersonic test infrastructure at Eglin and AEDC.

FY24: Decrease of \$45.7 million due to \$13 million decrease for DAF rephasing of test modernization funds and a \$32.7 million reduction to account for account for the availability of prior year execution balances.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: T&E Range and Test Asset Modernization	51.215	26.283	17.313
Description: Description: T&E Range and Test Asset Modernization refers to those capabilities required to acquire the ability to test long range, high-speed, highly-instrumented, high-data rate weapons in a crowded and restricted spectrum, while operating at multiple classification and cybersecurity levels. Ability to collect, analyze and store big data and ability to do multi-domain testing across the enterprise with realistic threat scenarios at multiple classification level up to Special Access Program (SAP).			
FY 2023 Plans: Close Out CRIIS Production, Voice Communication System Upgrade (VCSU), Next Generation Turbine Engine Test Capability (NGTETC), High Pressure Air Additional Capacity (HPAAC) and High-speed Small Engine Test Capability (HSETC) (previously ASMEC-II). Due to INV-001 and INV-011 reductions off-ramp (shut down) Network Telemetry Integration Program (NTIP) (formerly iSIS), Common Airborne Network Instrumentation System (CANIS), and Improved Data Link HITLS - Gen 4 & 5. Reduce funding for Modular Mission Control Room Upgrade (MMCRU) and finish out planning for Cooling Water Capacity (CWC) \$20M MILCON. Continue planning/execution for Gulf Range Enhancement (GRE), Next Generation Thrust Management			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>		R-1 Program Element (Number/Name) PE 0604759F / <i>Major T&E Investment</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>(NGTM), and Improve Plant Reliability and Efficiency/Transonic Aero Test Capability (IMTPC), Improve Large Model Supersonic Aerodynamic Ground T&E Capability (ILMSC) [formerly Tunnel 16S Reactivation]. Start Planning for a Low Observability (RCS) Engine Test Stand.</p> <p>FY 2024 Plans: Reduce funding for Modular Mission Control Room Upgrade (MMCRU). Continue planning/execution for Gulf Range Enhancement (GRE), Next Generation Thrust Management (NGTM), and the Low Observability (RCS) Engine Test Stand. Start planning/executing 6th Gen Datalink Test Capability. Close out Improve Plant Reliability and Efficiency/Transonic Aero Test Capability (IMTPC), Improve Large Model Supersonic Aerodynamic Ground T&E Capability (ILMSC) [formerly Tunnel 16S Reactivation].</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY23 to FY24 decrease of \$8.4 million due to Rephase Test Modernization and to account for account for the availability of prior year execution balances.</p>				
<p>Title: Hypersonics</p> <p>Description: Hypersonics refers to the ability to T&E flight-representative hypersonic engines, materials, warheads and fuzes in all portions of the employment envelope and conduct flight testing both in simulation and open-air ranges with sufficient space, telemetry, photo-optics and Time Space Position Information (TSPI) to appropriately inform decision-makers fielding such systems.</p> <p>The Department of Defense Test Resource Management Center (TRMC) oversees and manages all hypersonic test investment.</p> <p>FY 2023 Plans: Hypersonic related investments utilizing UPL funding: Security Upgrades for future Advanced Programs, M4/5/6 Large Scale/ High Dynamics Pressure Nozzle for Clear Air Facility, Improved Small Scale Hypersonics Impact T&E, Advanced Optical T&E for Super/Hypersonic Wind Tunnels, Tunnel 16S Restoration, M6/8 Nozzels for Tunnel B, VKF High Pressure Air Dryer Replacement, High Pressure Air Addition, VKF Compressor Cooler Replacement, M12 Nozzle for Tunnel C, Mach 12 Tunnel C Facility Modification.</p> <p>FY 2024 Plans: Start Planning and Executing the Non-Cooperative Tracking/Multi-Object Tracking phase I (NCT-1) project at the 412TW.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>		1.338	134.639	1.500

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>		R-1 Program Element (Number/Name) PE 0604759F / <i>Major T&E Investment</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
FY23 to FY24 decrease is due to multiple factors. The first is a \$126.6 million Congressional add to FY23 for hypersonic test infrastructure. In FY24, there are reductions to rephase Test Modernization and to account for the availability of prior year execution balances.				
<p>Title: Directed Energy/Electronic Combat</p> <p>Description: Directed Energy/Electronic Combat acquires the ability to characterize irradiance and beam properties on aircraft, small Unmanned Aerial Vehicles (UAV) and ground targets and create realistic environments to simulate adversary air defense capabilities in the year 2030. Enables 5th-6th generation weapon testing/tactics development in a threat-realistic Anti-Access Area Denial (A2AD) environment using a combination of indoor and open-air ranges.</p> <p>FY 2023 Plans: Continue Planning/Executing of the Advanced Multispectral Development - Phase I (AMD-I), JSE. Start new projects such as the Electronic Combat Range Early Warning Radar (ECR-EWR) at the 96TW. Continue the plan for Next Generation Engineering Targets (OPTICAMS).</p> <p>FY 2024 Plans: Continue Planning/Executing of the Advanced Multispectral Development - Phase I (AMD-I), JSE. Start new projects such as the Electronic Combat Range Early Warning Radar (ECR-EWR) at the 96TW. Continue the plan for Next Generation Engineering Targets (OPTICAMS).</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY23 to FY24 increase of \$3.3 million due to reprioritization of investment projects.</p>		63.450	0.700	4.000
<p>Title: Cyberspace and Avionics Cyber</p> <p>Description: Cyberspace and Avionics Cyber is the advancement of cybersecurity/resiliency test capability for network, C41SR and airborne weapon platforms and includes development of tools, techniques and hardware in the loop capabilities focused on cybersecurity and cyber-resiliency.</p> <p>FY 2023 Plans: Equip the cyberspace facility and continue the planning and execution of the Weapon System Cybersecurity (WSCS) Program tool development; Advanced Battle Management System Test Capability (ABMS)/Joint All Domain C2 (JADC2) Test Capability; Enterprise Cross Platform Data Center, Multi-Level Security - Joint Collaborative Environment (MLS-JCE). Close out Cyber Defense Test Capability (CDTC).</p> <p>FY 2024 Plans:</p>		12.505	9.492	6.830

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0604759F / <i>Major T&E Investment</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Equip the cyberspace facility and continue the planning and execution of the Weapon System Cybersecurity (WSCS) Program tool development; Advanced Battle Management System Test Capability (ABMS)/Joint All Domain C2 (JADC2) Test Capability; Enterprise Cross Platform Data Center, Multi-Level Security - Joint Collaborative Environment (MLS-JCE). <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> FY23 to FY24 decrease of \$2.7 million due to Rephase Test Modernization and to account for account for the availability of prior year execution balances.			
<i>Title:</i> Autonomy <i>Description:</i> Autonomy refers to the ability to test autonomous aerial and ground systems with hundreds of independent vehicles. Must be able to monitor system-under-test locations and states with the ability for soft and hard termination. Must develop techniques and processes to test systems with artificial intelligence. <i>FY 2023 Plans:</i> No planned projects but limited funding is available should an opportunity arise. <i>FY 2024 Plans:</i> Start Planning and Executing the Non-Cooperative Tracking/Multi-Object Tracking phase I (NCT-1) project at the 412TW. <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> FY23 to FY24 increase of \$1.3 million due to planning and executing of Non-Cooperative Tracking/Multi-Object Tracking Phase 1 (NCT-1) projects.	0.200	0.200	1.500
Accomplishments/Planned Programs Subtotals	128.708	171.314	31.143

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 06 0605807F: <i>Test and Evaluation Support</i>	811.032	841.854	913.213	-	913.213	892.125	1,005.821	1,063.898	1,116.911	Continuing	Continuing
• RDTE 06 0605976F: <i>Facilities Restoration and Modernization - Test and Evaluation Support</i>	70.788	133.420	87.889	-	87.889	94.662	217.566	202.455	209.540	Continuing	Continuing
• RDTE 06 0605978F: <i>Facilities Sustainment - Test and Evaluation Support</i>	30.057	31.561	35.065	-	35.065	41.225	54.342	53.420	55.290	Continuing	Continuing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0604759F / <i>Major T&E Investment</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 06 0604256F: <i>Threat Simulator Development</i>	46.393	21.067	16.626	-	16.626	20.391	42.980	49.100	50.876	Continuing	Continuing
• RDTE 06 0606398F: <i>Management HQ - T&E</i>	7.263	6.285	7.453	-	7.453	7.481	7.639	7.801	8.159	Continuing	Continuing

Remarks

E. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605101F / <i>RAND Project Air Force</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	34.698	32.767	38.398	0.000	38.398	39.650	40.644	41.475	42.976	Continuing	Continuing
661110: <i>Project Air Force</i>	-	34.698	32.767	38.398	0.000	38.398	39.650	40.644	41.475	42.976	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program provides for continuing analytical research across a broad spectrum of aerospace issues and concerns. The Project AIR FORCE (PAF) research agenda is focused primarily on mid to long-term problems; in addition, PAF provides quick response assistance for senior Air Force officials on high priority, near term issues. Within these areas, PAF addresses difficult and complex, far-reaching and inter-related questions linked to future strategies, approaches and policies, in order to enhance Air Force senior leadership's deliberations and decisionmaking on major issues. The Air Force Steering Group, chaired by the Vice Chief of Staff, reviews, monitors, and approves PAF annual research efforts. Each project is initiated, processed, and approved in accordance with PAF Sponsoring Agreement which requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis.

PAF is organized in four primary research program areas: strategy and doctrine; force modernization employment; manpower, personnel and training; and resource management. Integrative research projects are also conducted at the division level with direct support provided through the most applicable program. Research programs address organizational crosscutting issues as defined by specific research themes approved by the Air Force Steering Group. These research themes encompass a wide spectrum of topics including external challenges to national security; terrorism and homeland defense; joint and coalition operations; integrated roadmap for ISR capabilities; enhancing, tailoring and reducing infrastructure to meet new force requirements; potential changes to the Active/Reserve/National Guard/Civilian/Contractor manpower mix; and improved weapon system costing.

The research program will continue to build upon research foundations, examining the evolving security environment, emerging threats, national and military strategy, transformation approaches including investment strategies to provide capabilities within changing Defense budgets, operational concepts to meet evolving and increasingly joint missions, exploiting advanced technologies, increasing the effectiveness and efficiency of combat support, and developing the total force (Active/Reserve/National Guard/Civilian/Contractor). These efforts will continue to inform and support the senior Air Force leadership regarding personnel management and training; improving logistical efficiencies and force sustainment; ongoing conflicts and joint operations; force structure capabilities, limitations, and operational concepts; and making force structure tradeoffs within resource constraints to meet future national security and Air Force needs.

Future research will build upon earlier work to continue to help the Air Force to rapidly and appropriately adapt to the changing world environment and emerging threats; continue to modernize and employ its force structure to provide capabilities within changing DoD budgets; assess lessons learned from recent and ongoing conflicts; develop and utilize its total force; and enhance the support of our aerospace forces, ranging from sustainment of the force structure to agile combat support.

PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias thereby providing perspectives and insights to senior Air Force leaders free from parochial influences not necessarily in the best interest of the Air Force at large. Benefits of

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605101F / <i>RAND Project Air Force</i>
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independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and are deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial-sector individuals and activities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 \$0M was expended for civilian pay expenses in this program element, and in FY23 \$0M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	36.017	37.921	38.698	0.000	38.698
Current President's Budget	34.698	32.767	38.398	0.000	38.398
Total Adjustments	-1.319	-5.154	-0.300	0.000	-0.300
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-5.154			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.319	0.000			
• Other Adjustments	0.000	0.000	-0.300	0.000	-0.300

Change Summary Explanation

FY2023 was reduced by \$5.154 million for FFRDC.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Strategy & Doctrine	7.295	7.758	9.139
Description: Provides for continuing analytical research across a broad spectrum of aerospace issues and concerns--strategy and doctrine.			
FY 2023 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>		R-1 Program Element (Number/Name) PE 0605101F / <i>RAND Project Air Force</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
Will conduct analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support FY 2024 Plans: Will conduct analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support FY 2023 to FY 2024 Increase/Decrease Statement: Increased for inflation				
Title: Force Development Description: Provides analytical research across a broad spectrum of aerospace issues and concerns--force development employment. FY 2023 Plans: Conducting analytical research across a broad spectrum of aerospace issues and concerns--force development employment. FY 2024 Plans: Will conduct analytical research across a broad spectrum of aerospace issues and concerns--force development employment. FY 2023 to FY 2024 Increase/Decrease Statement: Increased for inflation		8.201	7.444	8.800
Title: Manpower, Personnel & Training Description: Provides analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training. FY 2023 Plans: Conducting analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training. FY 2024 Plans: Will conduct analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training. FY 2023 to FY 2024 Increase/Decrease Statement: Increased for inflation		8.623	7.774	9.364
Title: Resource Management Description: Provides analytical research across a broad spectrum of aerospace issues and concerns--resource management. FY 2023 Plans:		8.580	7.659	8.955

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Conducting analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training. FY 2024 Plans: Will conduct analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training. FY 2023 to FY 2024 Increase/Decrease Statement: Increased for inflation			
Title: Integrative Research/Direct Support Description: Provides for continuing analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support. FY 2023 Plans: Conducting analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support. FY 2024 Plans: Will conduct analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support. FY 2023 to FY 2024 Increase/Decrease Statement: Increased for inflation	1.999	2.132	2.140
Accomplishments/Planned Programs Subtotals	34.698	32.767	38.398

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

N/A

Remarks

E. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605502F / <i>Small Business Innovation Research</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	780.381	0.000	1.466	0.000	1.466	2.425	2.506	2.725	10.417	Continuing	Continuing
663005: <i>Small Business Innovation Research</i>	-	780.381	0.000	1.466	0.000	1.466	2.425	2.506	2.725	10.417	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) program implements 15 U.S.C Section 638 to maximize the creative, innovative, and entrepreneurial spirit of small businesses to solve technological problems. AFWERX administers the DAF SBIR/STTR program. AFWERX's mission is to transition agile, affordable, and accelerated capabilities by teaming commercial technology developers with Airmen and Guardian talent. AFWERX will accomplish this mission through (i) connecting diverse, innovative industry, academia, and Government entities; (ii) creating capability options and prototype opportunities for the Air Force and Space Force; (iii) facilitating streamlined acquisition processes; and (iv) fostering a culture of innovation. Additionally, this Program Element (PE) has a direct tie to PE 0604317F (Technology Transfer) Project 646030 (AFWERX) and PE 0604009F (AFWERX) as this program improves Air Force capabilities by connecting innovators, simplifying technology transfer, and accelerating results.

Funding is spread across multiple focus areas and change from year to year based on known and emerging technology gaps, warfighting demand signals, and broader assessments of the military industrial base in light of its reliance on foundational commercial industries. Expected proportional execution of SBIR/STTR funds in each fiscal year's focus area, as well as a description of each of these areas, is provided below. Actuals may vary depending on allocation of actual funds received, timeliness of funds availability, or changes to strategic guidance or executive priorities.

The DAF SBIR/STTR program implements three different approaches to provide funding and opportunities to small businesses. Open Topic: The Open Topic Program uses a technology-agnostic solicitation which encourages commercial industry to submit dual-use technology solutions without having a known end-user. It is used to capture the best capabilities and emerging technologies and allows industry to bring novel solutions to the DAF. Specific Topic: The Specific Topic Program seeks innovative solutions for a particular problem set defined by a DAF end user or customer. Specific Topics have clearly-defined requirements and a known DAF customer built into the topic solicitation. STRATFI/TACFI: The STRATFI (Strategic Funding Increase) and TACFI (Tactical Funding Increase) Programs help to scale Phase II efforts to the level needed to achieve technology transitions. These program de-risk development through syndication with multiple transition-focused partners and leveraging outside investment.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605502F / <i>Small Business Innovation Research</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	0.086	0.118	0.000	0.118
Current President's Budget	780.381	0.000	1.466	0.000	1.466
Total Adjustments	780.381	-0.086	1.348	0.000	1.348
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	780.381	0.000			
• Other Adjustments	0.000	-0.086	1.348	0.000	1.348

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Small Business Innovation Research & Small Business Technology Transfer	780.381	0.000	1.466
<p>Description: The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) program implements 15 U.S.C Section 638 to maximize the creative, innovative, and entrepreneurial spirit of small businesses to solve technological problems. AFWERX's mission is to transition agile, affordable, and accelerated capabilities by teaming commercial technology developers with Airmen and Guardian talent.</p> <p>The DAF SBIR/STTR program implements three different approaches to provide funding and opportunities to small businesses. Open Topic: The Open Topic Program uses a technology-agnostic solicitation which encourages commercial industry to submit dual-use technology solutions without having a known end-user. It is used to capture the best capabilities and emerging technologies and allows industry to bring novel solutions to the DAF. Specific Topic: The Specific Topic Program seeks innovative solutions for a particular problem set defined by a DAF end user or customer. Specific Topics have clearly-defined requirements and a known DAF customer built into the topic solicitation. STRATFI/TACFI: The STRATFI (Strategic Funding Increase) and TACFI (Tactical Funding Increase) Programs help to scale Phase II efforts to the level needed to achieve technology transitions. These program de-risk development through syndication with multiple transition-focused partners and leveraging outside investment.</p> <p>FY 2023 Plans: FY 2023 SBIR/STTR funds are intended to be allocated as follows: Specific Topic: 38% Open Topic: 38% STRATFI/TACFI: 20%</p>			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605502F / <i>Small Business Innovation Research</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Administrative: 4%			
<i>FY 2024 Plans:</i> FY 2024 SBIR/STTR funds are intended to be allocated as follows: Specific Topic: 38% Open Topic: 38% STRATFI/TACFI: 20% Administrative: 4%			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> FY 2024 increased compared to FY 2023 by \$1.466 million due to a civilian pay raise assumption that should not be in this PE.			
Accomplishments/Planned Programs Subtotals	780.381	0.000	1.466

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

Remarks

E. Acquisition Strategy
Not applicable

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605712F / <i>Initial Operational Test & Evaluation</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	12.582	13.926	13.736	0.000	13.736	14.221	14.571	14.868	15.406	0.000	99.310
660191: <i>Initial Operational Test and Eval</i>	-	12.582	13.926	13.736	0.000	13.736	14.221	14.571	14.868	15.406	0.000	99.310
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The program element funds the Air Force Operational Test and Evaluation Center (AFOTEC) to conduct Congressionally mandated Initial Operational Test and Evaluation (IOT&E) to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone C, full rate production, fielding, and declaration of Initial Operational Capability (IOC). For Major Defense Acquisition Programs (MDAP), the law requires IOT&E be completed under realistic operating conditions before proceeding beyond LRIP. IOT&E is planned to answer all critical operational issues (COI) as thoroughly as possible. IOT&E is conducted to determine the operational effectiveness and suitability, and resolve overall mission capability, of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications, and other systems as directed. This PE also funds participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the full rate production decision. FOT&E answers specific questions about unresolved COIs and test issues or completes areas not finished during the IOT&E. The PE funds related OT&E activities such as conducting Continuous Operational Testing (COT), Early Influence, agile release tests, Integrated Test and Evaluation (IT&E), Operational Utility Evaluations (OUE), Early Operational Assessments (EOA), Operational Assessments (OA) and operationally realistic valuations of advanced technologies which informs military utility determination. These tests support releases and major milestones and decision points prior to Milestone C, full rate production, fielding, or declaration of IOC. IOT&E programs are identified in four system categories: Air; Weapons; Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR); and Combat Support. This program element is driven by Congressional and DoD acquisition mandated requirements for operational testing. AFOTEC schedules and executes tests according to the forecasted test readiness of the MDAP program offices.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605712F / <i>Initial Operational Test & Evaluation</i>
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B. Program Change Summary (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	12.582	13.926	13.873	0.000	13.873
Current President's Budget	12.582	13.926	13.736	0.000	13.736
Total Adjustments	0.000	0.000	-0.137	0.000	-0.137
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.137	0.000	-0.137

C. Accomplishments/Planned Programs (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>
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Title: Air Systems OT&E	6.985	9.169	5.457
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Description: Plan, execute and report OT&E for Air Systems

FY 2023 Plans:

- B-52 Commercial Engine Replacement Program (B-52 CERP): Conduct OUE
- B-52 Radar Modernization Program (B-52 RMP): Conduct OA
- F-15 Eagle Passive and Active Warning and Survivability System (F-15 EPAWSS): Conduct IT&E
- F-15EX: Conduct IT&E
- F-22 Capability Pipeline: Conduct agile release tests
- Global Hawk Ground Segment Modernization Program GH GSMP): Complete IOT&E
- KC-46A: Conduct IOT&E
- MH-139: Conduct IOT&E
- T-7A: Complete OA
- VC-25B: Conduct IT&E
- Conduct other planning and operational testing for new air system programs as the requirement becomes known to AFOTEC

FY 2024 Plans:

- B-2 Military Global Positioning System User Equipment (B-2 MGUE): Conduct OT ISO 4 TES
- E-7A: Conduct Attack Path EX, CVI
- T-6A ARP: Attack Path EX FY24, FY24-1, CVI, CVI-1, CVPA, CVPA-1

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>		R-1 Program Element (Number/Name) PE 0605712F / <i>Initial Operational Test & Evaluation</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
-Conduct other planning and operational testing for new air system programs as the requirement becomes known to AFOTEC FY 2023 to FY 2024 Increase/Decrease Statement: Decrease in IOT&E system category Air due to the impact of the revised Department of Defense Manual 65-605V1 which requires that funding of operational test costs that are in excess of \$2 million dollars are to be funded by the acquisition program office not AFOTEC program element 65712F.				
Title: Weapons Systems OT&E Description: Plan, execute and report OT&E for Weapons Systems FY 2023 Plans: -Air Launched Rapid Response Weapon (ARRW): Conduct agile release tests -JDAM M-Code: Conduct agile release tests -Conduct other planning and operational testing for new weapons system programs as the requirement becomes known to AFOTEC FY 2024 Plans: -Joint Air-to-Surface Standoff Missile - Weapons Data Link (JASSM-WDL): Conduct AA, CVPA, IOT&E, MRAP-C, OA -Unified Platform (UP): Conduct agile release tests, AA, CVPA -Conduct other planning and operational testing for new weapons system programs as the requirement becomes known to AFOTEC FY 2023 to FY 2024 Increase/Decrease Statement: JASSM-WDL planned testing within FY24 included in budget year estimates		0.453	0.406	1.569
Title: C4ISR Systems OT&E Description: Plan, execute and report OT&E for C4ISR Systems FY 2023 Plans: -Air Force Integrated Personnel and Pay System (AFIPPS): Conduct IOT&E 2 -Distributed Common Ground System (DCGS): Conduct OUE -Global Aircrew Strategic Network Terminal (ASNT) Inc 2: Conduct COT -Integrated Strategic Planning and Analysis Network Increment 5 (ISPAN Inc 5): Conduct OA -Joint Cyber Command and Control (JCC2): Conduct agile release tests -Nuclear Planning and Execution System Recapitalization (NPES): Conduct OA 2 -Survivable Airborne Operations Center (SAOC): Conduct agile release tests		4.159	3.457	4.847

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>		R-1 Program Element (Number/Name) PE 0605712F / <i>Initial Operational Test & Evaluation</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> -Three Dimensional Expeditionary Long Range Radar (3DELRR): Conduct early involvement -Unified Platform (UP): Conduct agile release tests -Conduct other planning and operational testing for new C4ISR programs as the requirement becomes known to AFOTEC <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> -Three-Dimensional Expeditionary Long Range Radar (3DELRR): Conduct AA 1 & CVPA TYQ-23 A Interface, AA 2 & CVPA Army IFCN Interface, RF Cyber -Global Aircrew Strategic Network Terminal (ASNT) Inc 2: Conduct Phase 2 OPS DEMO -Joint Cyber Command and Control (JCC2): Conduct AA, CVPA -Survivable Airborne Operations Center (SAOC): Conduct MRAP-C -Conduct other planning and operational testing for new C4ISR programs as the requirement becomes known to AFOTEC <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY23 to FY24 due to continuing existing efforts.</p>				
<p>Title: Combat Support OT&E</p> <p>Description: Plan, execute and report OT&E for Combat Support OT&E</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> -Common Munitions Built-In Test Reprogramming Equipment Service Life Extension Program (CMBRE SLEP): Conduct OUE -Deliberate and Crisis Action Planning and Execution Segments Increment 2B (DCAPES Inc 2B): Conduct agile release tests -Military GPS User Equipment Inc 2 Handheld (MGUE Inc 2 HH): Conduct early involvement -Maintenance, Repair, and Overhaul Initiative (MROI): Conduct FOT&E -Conduct other planning and operational testing for new combat support programs as the requirement becomes known to AFOTEC <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> -Air Force Integrated Personnel and Pay System (AFIPPS): Conduct IOT&E -Deliberate and Crisis Action Planning and Execution Segments Increment 2B (DCAPES Inc 2B): Conduct IOT&E -Maintenance, Repair, and Overhaul Initiative (MROI): Conduct AA 1, CVPA 1 & 2, OUE -Next Generation Chemical Detection Proximity Chemical Agent Detection (NGCD PCAD): Early Involvement, FA/HIS Testing, DT Chamber Testing -Military GPS User Equipment Inc 2 Handheld (MGUE Inc 2 HH): Conduct early involvement 		0.985	0.894	1.863

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605712F / <i>Initial Operational Test & Evaluation</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
-Conduct other planning and operational testing for new combat support programs as the requirement becomes known to AFOTEC			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase from FY23 to FY24 due to planned early involvement associated with NGCD PCAD.			
Accomplishments/Planned Programs Subtotals	12.582	13.926	13.736

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

Remarks

E. Acquisition Strategy
N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605807F / <i>Test and Evaluation Support</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	811.032	841.854	913.213	0.000	913.213	892.125	1,005.821	1,063.898	1,116.911	Continuing	Continuing
6606TG: <i>704th Test Group</i>	-	52.868	46.257	47.991	0.000	47.991	48.756	59.814	53.272	55.826	Continuing	Continuing
6606TS: <i>Test and Evaluation Support</i>	-	758.164	795.597	865.222	0.000	865.222	843.369	946.007	1,010.626	1,061.085	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides resources to operate the Air Force Test Center (AFTC) test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities include wind tunnels, rocket and jet engine test cells, hypersonic and subsonic testing, modeling and simulation, technology, limited space environmental simulation chambers, armament test ranges, hardware-in-the-loop test facilities, climatic test facilities, avionics test facilities, aircraft testbeds, dry lake bed landing sites, instrumented test ranges, and test aircraft maintenance, as well as USAF Test Pilot School.

Test and Evaluation (T&E) Support funds institutional test infrastructure activities including: Command and supervisory staffs; supply stocks; maintenance, repair, and replacement of worn or obsolete test equipment and facilities; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries; temporary duty travel; range operations and material support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds institutional test aircraft depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls.

Within AFTC there are three test wings. The first is Arnold Engineering and Development Complex (AEDC), located at Arnold Air Force Base (AFB), TN. The AEDC institutional test infrastructure supports operations of the largest complex of ground test facilities in the world (including transonic, supersonic, and hypersonic wind tunnels; rocket motor and turbine engine test cells; space environmental test chambers, hyper ballistic ranges; and other specialized facilities). AEDC also supports geographically separated facilities which include the National Full-Scale Aerodynamic Complex (NFAC) located at NASA's AMES Research Center, California, Tunnel 9 located at White Oak, Maryland, and the McKinley Climatic Lab located on Eglin AFB, Florida. The 412 Test Wing (TW) is located at Edwards AFB, CA. Its institutional test infrastructure supports weapons system development and operational test and evaluation for aircraft, aircraft subsystems and aircraft weapon systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, communications, information operations, and Electronic Warfare (EW) systems for DoD and allied forces. The 412TW mission also includes the USAF Test Pilot School. Lastly, the 96 TW, located at Eglin AFB, FL, is a joint test and training complex comprised of 724 square miles of land area, and approximately 123,000 square miles of water area. The 96TW provides the institutional test infrastructure required to conduct developmental and operational test and evaluation of non-nuclear air armaments (including aircraft guns, ammunition, and air-to-surface and air-to-air guided munitions); Command, Control, Communications, Computers and Intelligence/Surveillance/Reconnaissance (C4ISR) systems; target acquisition and weapon delivery systems; and special operations aircraft systems. 96TW provides a scientific test process that supports the development, production, sustainment, and enhancement of munitions systems that support tri-service digital weapons development. T&E support services contracts are awarded on the basis of full and open competition.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605807F / <i>Test and Evaluation Support</i>
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This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	811.032	826.854	863.012	0.000	863.012
Current President's Budget	811.032	841.854	913.213	0.000	913.213
Total Adjustments	0.000	15.000	50.201	0.000	50.201
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	15.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	50.201	0.000	50.201

Change Summary Explanation

FY 2023: Congressional add of \$15 million for flying hour and contract labor funding to address Hypersonics testing at Edwards, Eglin, and Arnold Air Force Bases

FY 2024: Net increase of \$50.2 million due to CivPay reprice, civ pay raise to 4% assumption level, fuel pricing, non-fuel inflation, and additional manpower for Project Venom.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605807F / <i>Test and Evaluation Support</i>				Project (Number/Name) 6606TG / <i>704th Test Group</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
6606TG: <i>704th Test Group</i>	-	52.868	46.257	47.991	0.000	47.991	48.756	59.814	53.272	55.826	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project infrastructure support is provided for the unique capabilities of the 704th Test Group (TG) facilities: Central Inertial and Global Positioning System (GPS) Test Facility (CIGTF/746th Test Squadron), the Holloman High Speed Test Track (HHSTT/846th Test Squadron) and the National Radar Cross Section (RCS) Test Facility (NRTF/704 TG Det 2), the 586th Flight Test Squadron including Detachment 1 (Det 1), 704 TG Operating Location (704 TG OL-AA) at Kirtland AFB, and 704 TG Operation Location (704 TG OL-AC) at Wright-Patterson AFB.

CIGTF provides independent test and evaluation of inertial, Global Positioning System, and integrated systems used for aircraft navigation and missile guidance systems, including vulnerability to electronic interference.

HHSTT capabilities include full-scale testing in flight representative environments, realistic live-fire simulations, test item and target fragment recovery, precision trajectory analysis and high speed photography.

NRTF provides radar cross section (RCS) monostatic and bistatic amplitude and phase measurements, antenna pattern measurements, glint and near field measurements for low observable targets.

The 586th Flight Test Squadron executes flight test and test support for advanced avionics and weapons development of joint, international and commercial test programs. Det 1 provides the liaison function for coordinating and scheduling all US Air Force test and training operations at White Sands Missile Range (WSMR). OL-AA provides test support for the Air Force Research Lab (AFRL) Directed Energy Division.

The 704 TG OL-AC includes the Landing Gear Test Facility (LGTF) with capabilities such as variable and fixed inertia dynamometers, compression/tension load applicators, 4 drop towers, a burst pit and a dynamic load simulator. The 704 TG OL-AC also includes the Air Vehicle Survivability Office that provides support for Air Force aircraft acquisition programs. The 704th TG support services contracts are awarded on the basis of full and open competition.

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

	FY 2022	FY 2023	FY 2024
Title: Civ Pay	31.207	25.380	30.893
Description: Provide civilian pay at the 704th Test Group (TG) to support testing of DoD, other Government Agencies, foreign military sales, and commercial weapon systems.			
FY 2023 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605807F / <i>Test and Evaluation Support</i>	Project (Number/Name) 6606TG / <i>704th Test Group</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Continue civilian pay at the 704th Test Group (TG) to support testing of DoD, other Government Agencies, foreign military sales, and commercial weapon systems.</p> <p>FY 2024 Plans: Continue civilian pay at the 704th Test Group (TG) to support testing of DoD, other Government Agencies, foreign military sales, and commercial weapon systems.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase of \$5.513 million due to a one year CivPay reprice at 155.32 average work year cost (AWC) for 194 manpower authorizations and CivPay Raise Assumption of 4%. This reprice corrects a mismatch between authorizations and CivPay funding that has existed in previous years.</p>				
<p>Title: Non Pay</p> <p>Description: Provide infrastructure at the 704th Test Group (TG) to support testing of DoD, other Government Agencies, foreign military sales, and commercial weapon systems.</p> <p>FY 2023 Plans: Resources provide operational support for AFTC test activates. Efforts include Civilian pay, Aircraft Ops, Flying Hour Program (FHP), contracted services, test equipment and supplies, general operations and maintenance, and utilities (list not all inclusive).</p> <p>FY 2024 Plans: Resources provide operational support for AFTC test activates. Efforts include Civilian pay, Aircraft Ops, Flying Hour Program (FHP), contracted services, test equipment and supplies, general operations and maintenance, and utilities (list not all inclusive).</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY23 to FY24 decrease of 3.779 million due to a 3.6 million previous cycle decrease to Dynamic Radar Cross Section (RCS) Range contractor support/sustainment funding and reduced funding request of 0.500 million to account for the availability of prior year execution balances.</p>		21.661	20.877	17.098
Accomplishments/Planned Programs Subtotals		52.868	46.257	47.991
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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605807F / <i>Test and Evaluation Support</i>	Project (Number/Name) 6606TS / <i>Test and Evaluation Support</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
6606TS: <i>Test and Evaluation Support</i>	-	758.164	795.597	865.222	0.000	865.222	843.369	946.007	1,010.626	1,061.085	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program activity provides resources to operate the Air Force Test Center (AFTC) test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities operated through this program include wind tunnels, rocket and jet engine test cells, hypersonic and subsonic testing, modeling and simulation, technology, limited space environmental simulation chambers, armament test ranges, hardware-in-the-loop test facilities, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, and test aircraft maintenance, as well as USAF Test Pilot School.

Test and Evaluation (T&E) Support funds institutional test infrastructure activities including: Command and supervisory staffs; supply stocks; maintenance, repair, and replacement of worn or obsolete test equipment and facilities; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries; temporary duty travel; range operations and material support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds institutional test aircraft depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls.

The AFTCs three test wings are supported by this project: (1) Arnold Engineering and Development Complex (AEDC), located at Arnold Air Force Base (AFB), TN, whose institutional test infrastructure supports operations of the largest complex of ground test facilities in the world (includes transonic, supersonic, and hypersonic wind tunnels; rocket motor and turbine engine test cells; space environmental test chambers, hyperballistic ranges; and other specialized facilities). Included are operations at the National Full-Scale Aerodynamic Complex (NFAC) located at NASA's AMES Research Center, California as well as operations at Tunnel 9 located at White Oak, Maryland.(2) 412 Test Wing (TW), located at Edwards AFB, CA, whose institutional test infrastructure supports weapons system development and operational test and evaluation for aircraft, aircraft subsystems and aircraft weapon systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, communications, information operations, and Electronic Warfare (EW) systems for DoD and allied forces. The 412TW mission includes the USAF Test Pilot School. (3) 96 TW, located at Eglin AFB, FL, is a joint test and training complex of 724 square miles of land area, and approximately 123,000 square miles of water area. 96TW provides the institutional test infrastructure required to conduct developmental and operational test and evaluation of non-nuclear air armaments (including aircraft guns, ammunition, and air-to-surface and air-to-air guided munitions); Command, Control, Communications, Computers and Intelligence/Surveillance/Reconnaissance (C4ISR) systems; target acquisition and weapon delivery systems; the McKinley Climatic Lab, multi-service climatic simulation capability, located at Eglin AFB, FL; and special operations aircraft systems. 96TW provides a scientific test process that supports the development, production, sustainment, and enhancement of munitions systems that support tri-service digital weapons development. T&E support services contracts are awarded on the basis of full and open competition.

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

	FY 2022	FY 2023	FY 2024
Title: Civ Pay	352.905	346.712	414.451

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605807F / <i>Test and Evaluation Support</i>	Project (Number/Name) 6606TS / <i>Test and Evaluation Support</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: Provide civ pay to support testing at Arnold Engineering and Development Complex (AEDC), the 412TW and USAF Test Pilot School at Edwards AFB, and the 96TW at Eglin AFB.</p> <p>FY 2023 Plans: Total consists of civilian pay to support testing at Arnold Engineering and Development Complex (AEDC), the 412TW and USAF Test Pilot School at Edwards AFB, and the 96TW at Eglin AFB.</p> <p>FY 2024 Plans: Total consists of civilian pay to support testing at Arnold Engineering and Development Complex (AEDC), the 412TW and USAF Test Pilot School at Edwards AFB, and the 96TW at Eglin AFB.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase of 67.739 million includes the following actions. Increase of 12.644 million for CivPay Raise assumption at 4% and a one year CivPay reprice (+46.743 million) at 143.70 average work year cost (AWC) for 2,738 manpower authorizations and includes 10 million increase for Special Salary Rate (SSR) for Edwards Air Force Base aircraft maintenance authorizations. This reprice corrects a mismatch between authorizations and CivPay funding that has existed in previous years. An increase of 8.352 million at 141.56 AWC for 118 manpower authorizations at Eglin Air Force Base in support F-16 Project Venom; FY24 adds half year CivPay funding.</p>			
<p>Title: Non Pay</p> <p>Description: Provide infrastructure to support testing at Arnold Engineering and Development Complex (AEDC), the 412TW and USAF Test Pilot School at Edwards AFB, and the 96TW at Eglin AFB.</p> <p>FY 2023 Plans: Resources provide operational support for AFTC test activates. Efforts include Civilian pay, Aircraft Ops, Flying Hour Program (FHP), Program Depot Maintenance (PDM), contracted services, test equipment and supplies, general operations and maintenance, utilities, and Test Pilot School (list not all inclusive).</p> <p>FY 2024 Plans: Resources provide operational support for AFTC test activities. Efforts include Civilian pay, Aircraft Ops, Flying Hour Program (FHP), Programmed Depot Maintenance (PDM), contracted services, test equipment and supplies, general operations and maintenance, utilities, and Test Pilot School (list not all inclusive). Additional operations funding will be utilized to add manpower required to meet the increased demand for ground test and evaluation in numerous facilities at AEDC. Transonic, supersonic, and hypersonic wind tunnels require additional manning to meet Major Defense Acquisition Program and technology maturation</p>	405.259	448.885	450.771

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605807F / <i>Test and Evaluation Support</i>	Project (Number/Name) 6606TS / <i>Test and Evaluation Support</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
project milestones. New facilities that will add scramjet test capability and high temperature material testing will be coming online and require manpower to operate and sustain those new facilities.			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> FY23 to FY24 net increase of 1.886 million is due to FY23 Congressional add of \$15 million for flying hour and contract labor funding to address Hypersonics testing at Edwards, Eglin, and Arnold Air Force Bases and 4.9 million for fuel pricing and non-fuel inflation.			
Accomplishments/Planned Programs Subtotals	758.164	795.597	865.222

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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605827F / <i>Acq Workforce- Global Vig & Combat Sys</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	271.819	283.995	317.901	0.000	317.901	297.156	303.551	309.972	354.660	Continuing	Continuing
665827: <i>Acq Workforce-Global Vig & Combat Sys</i>	-	271.819	283.995	317.901	0.000	317.901	297.156	303.551	309.972	354.660	Continuing	Continuing

Note

In FY 2022, PE 0605827F, Acq Workforce - Global Vig & Combat Sys, Project 664127, Acq Workforce - Direct, was transferred to PE 0605827F, Project 665827, Acq Workforce - Global Vig & Combat Sys.

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel.

This program element supports both civilian pay and non-pay support requirements. This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605827F / <i>Acq Workforce- Global Vig & Combat Sys</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	267.919	255.995	267.682	0.000	267.682
Current President's Budget	271.819	283.995	317.901	0.000	317.901
Total Adjustments	3.900	28.000	50.219	0.000	50.219
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	28.000			
• Reprogrammings	3.900	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	50.219	0.000	50.219

Change Summary Explanation

In FY 2022, the \$3.900M increase was part of a Below Threshold Reprogramming realigning funding between the Acquisition Workforce Program Elements within AFMC. The net transfer amount among the Acquisition Workforce Program Elements totaled net sum zero and was necessary to correct funds alignment for proper execution.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605827F / Acq Workforce- Global Vig & Combat Sys				Project (Number/Name) 665827 / Acq Workforce-Global Vig & Combat Sys			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
665827: Acq Workforce-Global Vig & Combat Sys	-	271.819	283.995	317.901	0.000	317.901	297.156	303.551	309.972	354.660	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. These program elements support both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Acquisition Workforce - Civilian Pay	271.719	283.895	317.801	-	317.801
Description: The acquisition and product support workforce civilian pay provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Global Vigilance and Combat Systems acquisition programs throughout their life cycle.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The FY23 PB funded 1,959 WYs at a budgeted AWYC of \$130,067. A \$28.000M technical adjustment was required in the FY23 Omnibus Appropriations Act to increase the FY23 funded AWYC \$14,851 per WY to \$144,918 due to the FY23 PB not fully funding the approved 1,959 authorizations. The FY24 PB funds 2,019 WYs at a budgeted AWYC of \$157,405. The \$33.906M FY23 (FY24 PB) to FY24 (FY24 PB) increase is due to					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605827F / Acq Workforce- Global Vig & Combat Sys	Project (Number/Name) 665827 / Acq Workforce-Global Vig & Combat Sys
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
60 additional WYs (\$8.695M) and an AWYC increase of \$12,487 per WY (\$25.211M). The additional 60 WYs are due to workload transitions within the Center.					
<p>Title: Acquisition Workforce - Non-Civilian Pay</p> <p>Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Global Vigilance and Combat Systems acquisition programs throughout their life cycle.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>	0.100	0.100	0.100	0.000	0.100
Accomplishments/Planned Programs Subtotals	271.819	283.995	317.901	0.000	317.901

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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605828F / <i>Acq Workforce- Global Reach</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	439.459	457.589	541.677	0.000	541.677	506.041	516.848	527.501	606.839	Continuing	Continuing
665826: <i>acq workforce-global power</i>	-	276.365	288.806	347.232	0.000	347.232	325.940	332.916	339.731	389.776	Continuing	Continuing
665828: <i>Acq Workforce-Global Reach</i>	-	163.094	168.783	194.445	0.000	194.445	180.101	183.932	187.770	217.063	0.000	1,295.188

Note
In FY 2022, PE 0605828F, Acq Workforce - Global Reach, Project 664127, Acq Workforce - Direct, was transferred to PE 0605828F, Project 665828, Acq Workforce - Global Reach. Additionally, PE 0605826F, Acq Workforce - Global Power, Project 664127, Acq Workforce - Direct, was transferred to PE 0605828F, Project 665826, Acq Workforce - Global Power.

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel.

This program element supports both civilian pay and non-pay support requirements. This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605828F / <i>Acq Workforce- Global Reach</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	429.659	457.589	477.129	0.000	477.129
Current President's Budget	439.459	457.589	541.677	0.000	541.677
Total Adjustments	9.800	0.000	64.548	0.000	64.548
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	9.800	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	64.548	0.000	64.548

Change Summary Explanation

In FY 2022, the \$9.800M increase was part of a Below Threshold Reprogramming realigning funding between the Acquisition Workforce Program Elements within AFMC. The net transfer amount among the Acquisition Workforce Program Elements totaled net sum zero and was necessary to correct funds alignment for proper execution.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605828F / Acq Workforce- Global Reach				Project (Number/Name) 665826 / acq workforce-global power			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
665826: acq workforce-global power	-	276.365	288.806	347.232	0.000	347.232	325.940	332.916	339.731	389.776	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. These program elements support both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Acquisition Workforce - Civilian Pay	270.914	283.355	341.781	-	341.781
Description: The acquisition and product support workforce civilian pay provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Global Power acquisition programs throughout their life cycle.					
FY 2023 Plans: N/A					
N/A					
FY 2024 Base Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The FY23 PB funded 1,933 WYs at a budgeted AWYC of \$146,588. The FY24 PB funds 1,898 WYs at a budgeted AWYC of \$180,047. The \$58.426M FY23 (FY24 PB) to FY24 (FY24 PB) increase is due to an AWYC increase of \$33,486 per WY (\$63.557M) which is offset by a decrease of 35 WYs (-\$5.131M). The decrease in WYs was due to workload transitions within the Center.					
Title: Acquisition Workforce - Non-Civilian Pay	5.451	5.451	5.451	0.000	5.451

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605828F / Acq Workforce- Global Reach	Project (Number/Name) 665826 / acq workforce-global power

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Global Power acquisition programs throughout their life cycle.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>					
Accomplishments/Planned Programs Subtotals	276.365	288.806	347.232	0.000	347.232

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 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605828F / Acq Workforce- Global Reach				Project (Number/Name) 665828 / Acq Workforce-Global Reach			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
665828: Acq Workforce-Global Reach	-	163.094	168.783	194.445	0.000	194.445	180.101	183.932	187.770	217.063	0.000	1,295.188
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. These program elements support both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Acquisition Workforce - Civilian Pay	162.994	168.683	194.345	0.000	194.345
Description: The acquisition and product support workforce civilian pay provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Global Reach acquisition programs throughout their life cycle.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The FY23 PB funded 1,178 WYs at a budgeted AWYC of \$143,194. The FY24 PB funds 1,182 WYs at a budgeted AWYC of \$164,420. The \$25.662M FY23 (FY24 PB) to FY24 (FY24 PB) increase is due to an AWYC increase of \$21,226 per WY (\$25.089M) as well as an additional 4 WYs (\$0.573M). The increase in WYs was due to workload transitions within the Center.					
Title: Acquisition Workforce Non-Civilian Pay	0.100	0.100	0.100	0.000	0.100

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605828F / Acq Workforce- Global Reach	Project (Number/Name) 665828 / Acq Workforce-Global Reach

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Global Reach acquisition programs throughout their life cycle.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>					
Accomplishments/Planned Programs Subtotals	163.094	168.783	194.445	0.000	194.445

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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0605829F I Acq Workforce- Cyber, Network, & Bus Sys
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	432.971	479.423	551.213	0.000	551.213	505.278	516.033	526.619	609.027	Continuing	Continuing
664127: Acq Workforce - Direct	-	0.000	7.257	16.978	0.000	16.978	15.490	15.816	15.816	18.403	Continuing	Continuing
665829: acq workforce-cyber network & bus sys	-	252.132	279.463	291.928	0.000	291.928	260.194	265.692	271.325	316.416	0.000	1,937.150
665830: Acq Workforce-Global Battle Mgmt	-	180.839	192.703	242.307	0.000	242.307	229.594	234.525	239.478	274.208	Continuing	Continuing

Note

In FY 2022, PE 0605829F, Acq Workforce - Cyber, Network, & Bus Sys, Project 664127, Acq Workforce - Direct, was transferred to PE 0605829F, Project 665829, Acq Workforce - Cyber, Network, & Bus Sys. Additionally, PE 0605830F, Acq Workforce - Global Battle Mgmt, Project 664127, Acq Workforce - Direct, was transferred to PE 0605829F, Project 665830, Acq Workforce - Global Battle Mgmt.

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel.

This program element supports both civilian pay and non-pay support requirements. This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605829F / <i>Acq Workforce- Cyber, Network, & Bus Sys</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	439.571	459.223	496.461	0.000	496.461
Current President's Budget	432.971	479.423	551.213	0.000	551.213
Total Adjustments	-6.600	20.200	54.752	0.000	54.752
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	20.200			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-6.600	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	54.752	0.000	54.752

Change Summary Explanation

In FY 2022, the \$6.600M decrease was part of a Below Threshold Reprogramming realigning funding between the Acquisition Workforce Program Elements within AFMC. The net transfer amount among the Acquisition Workforce Program Elements totaled net sum zero and was necessary to correct funds alignment for proper execution.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605829F / Acq Workforce- Cyber, Network, & Bus Sys	Project (Number/Name) 664127 / Acq Workforce - Direct
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
664127: Acq Workforce - Direct	-	0.000	7.257	16.978	0.000	16.978	15.490	15.816	15.816	18.403	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2022, PE 0605829F, Acq Workforce - Cyber, Network, & Bus Sys, Project 664127, Acq Workforce - Direct, was transferred to PE 0605829F, Project 665829, Acq Workforce - Cyber, Network, & Bus Sys. Additionally, PE 0605830F, Acq Workforce - Global Battle Mgmt, Project 664127, Acq Workforce - Direct, was transferred to PE 0605829F, Project 665830, Acq Workforce - Global Battle Mgmt.

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. These program elements support both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Acquisition Workforce - Civilian Pay	0.000	7.257	16.978	0.000	16.978
Description: The acquisition and product support workforce civilian pay provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Cyber, Network, and Business Systems acquisition programs throughout their life cycle.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605829F / Acq Workforce- Cyber, Network, & Bus Sys	Project (Number/Name) 664127 / Acq Workforce - Direct

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The FY23 PB funded 51 WYs at a budgeted AWYC of 142,294. The FY24 PB funds 77 WYs at a budgeted AWYC of 220,494. The 9.721M FY23 (FY24 PB) to FY24 (FY24 PB) increase is due to an AWYC increase of 78,199 per WY (6.021M) as well as an additional 26 WYs (3.700M). The increase in WYs provides additional manpower for the Chief of Staff of the Air Force Innovation program. The FY24 PB incorrectly aligns 16.978M in PE 0605829F, Project 664127, Acq Workforce - Direct; however, the WYs will be executed in the correct Project 665829 during FY24.					
Title: Acquisition Workforce - Non-Civilian Pay Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Cyber, Network, and Business Systems acquisition programs throughout their life cycle. FY 2023 Plans: N/A FY 2024 Base Plans: N/A FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: N/A	0.000	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	7.257	16.978	0.000	16.978

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 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605829F / Acq Workforce- Cyber, Network, & Bus Sys				Project (Number/Name) 665829 / acq workforce-cyber network & bus sys			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
665829: acq workforce-cyber network & bus sys	-	252.132	279.463	291.928	0.000	291.928	260.194	265.692	271.325	316.416	0.000	1,937.150
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. These program elements support both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Acquisition Workforce - Civilian Pay	240.013	267.344	279.809	0.000	279.809
Description: The acquisition and product support workforce civilian pay provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Cyber, Network, and Business Systems acquisition programs throughout their life cycle.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The FY23 PB funded 1,734 WYs at a budgeted AWYC of \$142,225. A \$20.000M technical adjustment was required in the FY23 Omnibus Appropriations Act to increase the FY23 funded AWYC \$11,952 per WY to \$154,178 due to the FY23 PB not fully funding the approved 1,734 authorizations. The FY24 PB funds 1,701 WYs at a budgeted AWYC of \$164,497. The \$12.465M FY23 (FY24 PB) to FY24 (FY24 PB) increase is due					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605829F / Acq Workforce- Cyber, Network, & Bus Sys	Project (Number/Name) 665829 / acq workforce-cyber network & bus sys

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
to an AWYC increase of \$10,319 per WY (\$17.553M) which is offset by a decrease of 33 WY (-\$5.088M). The decrease of 33 WYs is due to workload transitions within the Center.					
Title: Acquisition Workforce - Non-Civilian Pay	12.119	12.119	12.119	0.000	12.119
Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Global Power acquisition programs throughout their life cycle.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	252.132	279.463	291.928	0.000	291.928

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 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605829F / Acq Workforce- Cyber, Network, & Bus Sys				Project (Number/Name) 665830 / Acq Workforce-Global Battle Mgmt			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
665830: Acq Workforce-Global Battle Mgmt	-	180.839	192.703	242.307	0.000	242.307	229.594	234.525	239.478	274.208	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. These program elements support both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Acquisition Workforce - Civilian Pay	180.739	192.603	242.207	0.000	242.207
Description: The acquisition and product support workforce civilian pay provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Cyber, Network, and Business Systems acquisition programs throughout their life cycle.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The FY23 PB funded 1,305 WYs at a budgeted AWYC of \$147,589. The FY24 PBS funds 1,384 WYs at a budgeted AWYC of \$175,005. The FY23 (FY24 BES) to FY24 (FY24 BES) increase of \$49.604M is due to 79					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605829F / Acq Workforce- Cyber, Network, & Bus Sys	Project (Number/Name) 665830 / Acq Workforce-Global Battle Mgmt

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
additional WYs (\$11.659M) and an AWYC increase of \$27,417 per WY (\$37.945M). The additional 79 WYs are due to workload transitions within the Center.					
<p>Title: Acquisition Workforce - Non-Civilian Pay</p> <p>Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Cyber, Network, and Business Systems acquisition programs throughout their life cycle.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>	0.100	0.100	0.100	0.000	0.100
Accomplishments/Planned Programs Subtotals	180.839	192.703	242.307	0.000	242.307

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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605830F / <i>Acq Workforce- Global Battle Mgmt</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.000	3.696	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
664127: <i>Acq Workforce - Direct</i>	-	0.000	3.696	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2022, PE 0605830F, Acq Workforce - Global Battle Mgmt, Project 664127F, Acq Workforce - Direct, was transferred to PE 0605829F, Acq Workforce - Cyber, Network, & Bus Sys, Project 665830, Acq Workforce - Global Battle Mgmt.

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel.

This program element supports both civilian pay and non-pay support requirements. This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605830F / <i>Acq Workforce- Global Battle Mgmt</i>
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B. Program Change Summary (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	0.000	3.696	7.440	0.000	7.440
Current President's Budget	0.000	3.696	0.000	0.000	0.000
Total Adjustments	0.000	0.000	-7.440	0.000	-7.440
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-7.440	0.000	-7.440

C. Accomplishments/Planned Programs (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Title: Acquisition Workforce - Civilian Pay	0.000	3.696	0.000	0.000	0.000
Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Global Battle Management acquisition programs throughout their life cycle.					
FY 2023 Plans: N/A					
N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The FY23 PB (FY23) misaligned \$3.696M to PE 0605830F, Acq Workforce - Global Battle Mgmt, Project 664127, Acq Workforce - Direct. Likewise, \$7.7440M was misaligned in the FY23 PB (FY24). The FY24 PB correctly aligns the \$7.440M to PE 0605829F, Project 665830, Acquisition Workforce - Global Battle Mgt.					
Title: Acquisition Workforce - Non-Civilian Pay	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605830F / <i>Acq Workforce- Global Battle Mgmt</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Description: The acquisition & product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Global Battle Management acquisition programs throughout their life cycle.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>					
Accomplishments/Planned Programs Subtotals	0.000	3.696	0.000	0.000	0.000

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

Remarks
N/A

E. Acquisition Strategy
N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0605831F / Acq Workforce- Capability Integration
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	255.914	253.568	243.780	0.000	243.780	171.196	174.807	177.725	195.417	Continuing	Continuing
665829: acq workforce-cyber network & bus sys	-	2.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
665831: Acq Workforce - Capability Integration	-	253.005	253.568	243.780	0.000	243.780	171.196	174.807	177.725	195.417	0.000	1,469.498

Note

In FY 2022, PE 0605831F, Acq Workforce - Capability Integration, Acq Workforce - Direct, was transferred to PE 0605831F, Project 665831, Acq Workforce - Capability Integration.

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel.

This program element supports both civilian pay and non-pay support requirements. This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605831F / <i>Acq Workforce- Capability Integration</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	263.014	229.610	205.095	0.000	205.095
Current President's Budget	255.914	253.568	243.780	0.000	243.780
Total Adjustments	-7.100	23.958	38.685	0.000	38.685
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	23.958			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-7.100	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	38.685	0.000	38.685

Change Summary Explanation

In FY 2022, the \$7.100M decrease was part of a Below Threshold Reprogramming realigning funding between the Acquisition Workforce Program Elements within AFMC. The net transfer amount among the Acquisition Workforce Program Elements totaled net sum zero and was necessary to correct funds alignment for proper execution.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605831F / Acq Workforce- Capability In tegration			Project (Number/Name) 665829 / acq workforce-cyber network & bus sys				
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
665829: acq workforce-cyber network & bus sys	-	2.909	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2022, PE 0605831F, Acq Workforce - Capability Integration, Acq Workforce - Direct, was transferred to PE 0605831F, Project 665831, Acq Workforce - Capability Integration.

A. Mission Description and Budget Item Justification

This program element funds the AFLCMC civilian workforce in the Business and Enterprise Systems Program Executive Office and the Command, Control, Communications, and Intelligence Program Executive Office. AFLCMC equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this project will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. This project supports both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Acquisition Workforce - Civilian Pay	0.000	0.000	0.000	0.000	0.000
Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical business capabilities needed to oversee Cyber, Network, and Business System acquisition programs throughout their life cycle.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605831F / Acq Workforce- Capability In tegration	Project (Number/Name) 665829 / acq workforce-cyber network & bus sys

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
Title: Acquisition Workforce - Non-Civilian Pay Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical business capabilities needed to oversee Cyber, Network, and Business System acquisition programs throughout their life cycle. This requirement supports non-civilian pay efforts. FY 2023 Plans: N/A FY 2024 Base Plans: N/A FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: N/A	2.909	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	2.909	0.000	0.000	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-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605831F / Acq Workforce- Capability In tegration				Project (Number/Name) 665831 / Acq Workforce - Capability Integration			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
665831: Acq Workforce - Capability Integration	-	253.005	253.568	243.780	0.000	243.780	171.196	174.807	177.725	195.417	0.000	1,469.498
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2022, PE 0605831F, Acq Workforce - Capability Integration, Acq Workforce - Direct, was transferred to PE 0605831F, Project 665831, Acq Workforce - Capability Integration.

A. Mission Description and Budget Item Justification

This program element funds the AFLCMC civilian workforce in cross-cutting and mission support organizations such as Plans & Programs, Engineering, Contracting, Financial Management, Logistics, Program Management, Test, Intelligence, Safety, Personnel, Small Business, Inspector General, and Staff Judge Advocate. In addition, this program element funds the AFLCMC civilian workforce directly executing programs such as the Rapid Sustainment Office and the Cyber Resiliency Office for Weapon Systems. The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. These program elements support both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Acquisition Workforce - Civilian Pay	235.092	235.655	225.867	0.000	225.867
Description: The acquisition and product support workforce civilian pay provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Capability Integration acquisition programs throughout their life cycle.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605831F / Acq Workforce- Capability In tegration	Project (Number/Name) 665831 / Acq Workforce - Capability Integration

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> The FY23 PB funded 1,476 WYs at a budgeted AWYC of \$142,852. A \$24.000M technical adjustment was required in the FY23 Omnibus Appropriations Act to increase the FY23 funded AWYC \$16,806 per WY to \$159,658 due to the FY23 PB not fully funding the approved 1,476 authorizations. The FY24 PB funds 1,466 WYs at a budgeted AWYC of \$154,070. The \$9.7886M FY23 (FY24 PB) to FY24 (FY24 PB) decrease is due to a decrease of 10 WYs (-\$1.597M) and an AWYC decrease of \$5,558 per WY (-8.191M). The decrease of 10 WYs is due to workload transitions within the Center.					
<i>Title:</i> Acquisition Workforce - Non-Civilian Pay <i>Description:</i> The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Capability Integration acquisition programs throughout their life cycle. <i>FY 2023 Plans:</i> N/A <i>FY 2024 Base Plans:</i> N/A <i>FY 2024 OCO Plans:</i> N/A	17.913	17.913	17.913	0.000	17.913
Accomplishments/Planned Programs Subtotals	253.005	253.568	243.780	0.000	243.780

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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>					R-1 Program Element (Number/Name) PE 0605832F / <i>Acq Workforce- Advanced Prgm Technology</i>							
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	61.648	67.361	109.030	0.000	109.030	100.217	102.364	104.519	120.742	Continuing	Continuing
665832: <i>Acq Workfoce- Advanced Prgm Technology</i>	-	61.648	67.361	109.030	0.000	109.030	100.217	102.364	104.519	120.742	Continuing	Continuing

Note

In FY 2022, PE 0605832F, Acq Workforce - Advanced Prgm Technology, Project 664127, Acq Workforce - Direct, was transferred to PE 0605832F, Project 665832, Acq Workforce - Advanced Prgm Technology.

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel.

This program element supports both civilian pay and non-pay support requirements.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	62.755	92.648	95.464	0.000	95.464
Current President's Budget	61.648	67.361	109.030	0.000	109.030
Total Adjustments	-1.107	-25.287	13.566	0.000	13.566
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	-25.287			
• Reprogrammings	-1.107	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	13.566	0.000	13.566

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity
3600: *Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support*

R-1 Program Element (Number/Name)
PE 0605832F / *Acq Workforce- Advanced Prgm Technology*

Change Summary Explanation

In FY 2022, the \$1.107M decrease was part of a Below Threshold Reprogramming realigning funding between the Acquisition Workforce Program Elements within AFMC. The net transfer amount among the Acquisition Workforce Program Elements totaled net sum zero and was necessary to correct funds alignment for proper execution.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605832F / <i>Acq Workforce- Advanced Prgm Technology</i>				Project (Number/Name) 665832 / <i>Acq Workfoce-Advanced Prgm Technology</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
665832: <i>Acq Workfoce-Advanced Prgm Technology</i>	-	61.648	67.361	109.030	0.000	109.030	100.217	102.364	104.519	120.742	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. These program elements support both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Acquisition Workforce - Civilian Pay	61.548	67.361	109.030	0.000	109.030
Description: The acquisition and product support workforce civilian pay provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Advanced Program Technology acquisition programs throughout their life cycle.					
FY 2023 Plans: Continue to fund the Advanced Program Technology acquisition and product support workforce.					
FY 2024 Base Plans: Continue to fund the Advanced Program Technology acquisition and product support workforce.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The FY23 PB funded 427 WYs at a budgeted AWYC of \$216,974. A -\$25.287M technical adjustment was required in the FY23 Omnibus Appropriations Act to decrease the FY23 funded AWYC \$59,220 per WY to \$157,754 due to the FY23 PB over funding the approved 427 authorizations. Another similar technical adjustment will be required in FY24. The FY24 PB funds 426 WYs at a budgeted AWYC of \$255,939. The					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605832F / <i>Acq Workforce- Advanced Prgm Technology</i>	Project (Number/Name) 665832 / <i>Acq Workfoce-Advanced Prgm Technology</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
\$41.699M FY23 (FY24 PB) to FY24 (FY24 PB) increase is due to an AWYC increase of \$98,185 per WY (\$41.827M) slightly offset by a decrease of 1 WY (-\$0.158M).					
Title: Acquisition Workforce - Non-Civilian Pay Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Advanced Program Technology acquisition programs throughout their life cycle. FY 2023 Plans: N/A FY 2024 Base Plans: N/A FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: N/A	0.100	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	61.648	67.361	109.030	0.000	109.030

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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605833F / <i>Acq Workforce- Nuclear Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	227.425	236.382	336.788	0.000	336.788	362.944	370.808	378.608	433.972	Continuing	Continuing
665833: <i>Acq Workforce - Nuclear Systems</i>	-	227.425	236.382	336.788	0.000	336.788	362.944	370.808	378.608	433.972	Continuing	Continuing

Note

In FY 2022, PE 0605833F, Acquisition Workforce - Nuclear Systems, Project 664127, (ACQ Workforce - Direct) efforts were transferred to Project 665833 (Acq Workforce - Nuclear Systems) in order to better provide transparency to congress on acquisition workforce execution.

A. Mission Description and Budget Item Justification

This program element directly funds the Air Force Nuclear Weapons Center (AFNWC) and Air Force Life Cycle Management Center (AFLCMC) nuclear acquisition workforce.

AFNWC and AFLCMC equip U.S. forces with operational nuclear weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, technical and business capabilities needed to oversee Nuclear Systems acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. These program elements support both civilian pay and non-pay support requirements.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605833F / <i>Acq Workforce- Nuclear Systems</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	227.425	241.226	288.534	0.000	288.534
Current President's Budget	227.425	236.382	336.788	0.000	336.788
Total Adjustments	0.000	-4.844	48.254	0.000	48.254
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-4.844	48.254	0.000	48.254

Change Summary Explanation

FY23 4.84M reduction reflects AF requested adjustment.

The FY (24) PB provides (1973) authorizations. The FY (24) budgeted Average Work Year Cost (AWYC) is 148,592. The 89.091M FY23 (FY (CY) PB) to FY24 (FY (BY) PB) increase is due to 314 additional authorizations (46.658M), a budgeted AWYC increase (0.003M). The increase of 314 authorizations in this program element is due to 1) projected workforce growth to support and address the nuclear enterprise recapitalization and sustainment efforts and 2) multiple incremental workload transitions within the Center.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605833F / Acq Workforce- Nuclear Sys tems				Project (Number/Name) 665833 / Acq Workforce - Nuclear Systems			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
665833: Acq Workforce - Nuclear Systems	-	227.425	236.382	336.788	0.000	336.788	362.944	370.808	378.608	433.972	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2022, PE 0605833F, Acquisition Workforce - Nuclear Systems, Project 664127, (ACQ Workforce - Direct) efforts were transferred to Project 665833 (Acq Workforce - Nuclear Systems) in order to better provide transparency to congress on acquisition workforce execution.

A. Mission Description and Budget Item Justification

This program element directly funds the Air Force Nuclear Weapons Center (AFNWC) and Air Force Life Cycle Management Center (AFLCMC) nuclear acquisition workforce.

AFNWC and AFLCMC equip U.S. forces with operational nuclear weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, technical and business capabilities needed to oversee Nuclear Systems acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. These program elements support both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024
Title: Acquisition Workforce	218.225	230.003	330.316
Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee Nuclear Systems acquisition programs throughout their life cycle.			
FY 2023 Plans: Fund the Nuclear Systems acquisition and product support workforce.			
FY 2024 Plans: Continue to fund the Nuclear Systems acquisition and product support workforce.			
FY 2023 to FY 2024 Increase/Decrease Statement: The FY24 PB provides 1973 authorizations. The FY24 budgeted Average Work Year Cost (AWYC) is \$168K. The \$89.090M FY23 (CY) to FY24 (BY) PB increase is due to 314 additional authorizations (\$52.58M), a budgeted AWYC increase (\$0.014M) totaling			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605833F / <i>Acq Workforce- Nuclear Sys tems</i>	Project (Number/Name) 665833 / <i>Acq Workforce - Nuclear Systems</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
(\$330.383M total authorizations). The increase of 314 authorizations in this program element is due to 1) PBD 700 projected growth, and 2) multiple incremental workload transitions and re-structure within the center increasing grades in critical nuclear programs.				
Title: AFNWC Headquarters (HQ) Management Support		9.200	6.379	6.472
Description: Provides resources for non-pay AFNWC HQ Management Support providing continuous cutting edge nuclear weapon systems, sustainment capabilities, management, tools, and technical and business capabilities needed to over see Nuclear Weapons acquisition programs throughout their life cycle.				
FY 2023 Plans: Provide day-to-day operations support for AFNWC HQ Staff such as IT support, A&AS contract support, travel, supplies, temporary duty travel, operations and material support contract costs for nuclear system engineering and maintenance.				
FY 2024 Plans: Continue to provide day-to-day operations support for AFNWC HQ Staff such as IT support, A&AS contract support, travel, supplies, temporary duty travel, operations and material support contract costs for nuclear system engineering and maintenance.				
FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased to meet inflationary growth of costs within the AFNWC HQ Staff Portfolio.				
Accomplishments/Planned Programs Subtotals		227.425	236.382	336.788
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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605898F / <i>Management HQ - R&D</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	6.644	5.624	5.005	0.000	5.005	4.539	4.632	4.728	5.480	Continuing	Continuing
665898: <i>Management HQ-R&D</i>	-	6.644	5.624	5.005	0.000	5.005	4.539	4.632	4.728	5.480	Continuing	Continuing

Note

In FY 2022, PE 0605898F, Management HQ - R&D, Project 664127, Acq Workforce - Direct, was transferred to PE 0605898F, Project 665898, Management HQ - R&D.

A. Mission Description and Budget Item Justification

The Management Headquarters program element 0605898F includes management headquarters personnel for Air Force Life Cycle Management Center.

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. This program element supports both civilian pay and non-pay support requirements.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	5.537	4.347	4.535	0.000	4.535
Current President's Budget	6.644	5.624	5.005	0.000	5.005
Total Adjustments	1.107	1.277	0.470	0.000	0.470
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	1.277			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	1.107	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.470	0.000	0.470

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force Date: March 2023

Appropriation/Budget Activity
3600: *Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support*

R-1 Program Element (Number/Name)
PE 0605898F / *Management HQ - R&D*

Change Summary Explanation

In FY 2022, the \$1.107M increase was part of a Below Threshold Reprogramming realigning funding between the Acquisition Workforce Program Elements within AFMC. The net transfer amount among the Acquisition Workforce Program Elements totaled \$0.00M and was necessary to correct funds alignment for proper execution.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605898F / Management HQ - R&D			Project (Number/Name) 665898 / Management HQ-R&D				
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
665898: Management HQ-R&D	-	6.644	5.624	5.005	0.000	5.005	4.539	4.632	4.728	5.480	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2022, PE 0605898F, Management HQ - R&D, Project 664127, Acq Workforce - Direct, was transferred to PE 0605898F, Project 665898, Management HQ - R&D.

A. Mission Description and Budget Item Justification

The Management Headquarters program element 0605898F includes management headquarters personnel for Air Force Life Cycle management Center.

The Air Force Life Cycle Management Center (AFLCMC) equips U.S. and allied forces with operational weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The direct funded acquisition workforce funded in this program element will support all phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support. This funding does not include costs for base operating support civilian personnel. This program element supports both civilian pay and non-pay support requirements.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Acquisition Workforce - Civilian Pay	6.544	5.624	5.005	0.000	5.005
Description: Life Cycle Management Center management headquarters civilian pay.					
FY 2023 Plans: civilian pay					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The FY23 PB funded 38 WYs at a budgeted AWYC of \$114,395. A \$1.277M technical adjustment was required in the FY23 Omnibus Appropriations Act to increase the FY23 funded AWYC \$33,605 per WY to \$148,000 due to the FY23 PB not fully funding the approved 38 authorizations. Another similar technical adjustment will be required in FY24. The FY24 PB funds 37 WYs at a budgeted AWYC of \$135,270. The \$0.619M FY23 (FY24					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605898F / Management HQ - R&D	Project (Number/Name) 665898 / Management HQ-R&D
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
PB) to FY24 (FY24 PB) decrease is due to the loss of 1 WY (-\$0.148M) and an AWYC decrease of \$12,730 per WY (-0.471M).					
Title: Acquisition Workforce - Non-Civilian Pay	0.100	0.000	0.000	0.000	0.000
Description: Life Cycle Management Center management headquarters non-civilian pay.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	6.644	5.624	5.005	0.000	5.005

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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605976F / <i>Facilities Restoration and Modernization - Test and Evaluation Support</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	70.788	133.420	87.889	0.000	87.889	94.662	217.566	202.455	209.540	Continuing	Continuing
6606MC: <i>Facility Restoration and Modernization - T&E</i>	-	70.788	133.420	87.889	0.000	87.889	94.662	217.566	202.455	209.540	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Restoration includes repair and replacement work to restore damaged facilities due to accident or failure attributable to inadequate sustainment, excessive age, or other causes. Modernization includes alteration of facilities to implement a new, higher standard (including regulatory changes), to accommodate new functions, or to replace building components that typically last more than 50 years (such as foundations and structural components). Other tasks associated with facilities operations (such as custodial services, grass cutting, and the provision of central utilities) are not included. These restoration/modernization funds support the following Air Force test organizations and their associated test and evaluation facilities, including: remote locations, the 96th Test Wing (TW) at Eglin AFB, FL, Arnold Engineering and Development Complex (AEDC) at Arnold AFB, TN, including AEDC's 704th Test Group (TG) at Holloman AFB, NM, 704 TG Landing Gear Test Facility (LGTF) at Wright-Patterson AFB, OH, AEDC's Hypersonic Wind Tunnel 9 at White Oak, MD, AEDC's National Full-Scale Aerodynamics Complex (NFAC) at Moffett Field, CA, AEDC's McKinley Climatic Lab (MCL) at Eglin AFB, FL, and the 412th TW at Edwards AFB, CA.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	70.788	77.820	93.723	0.000	93.723
Current President's Budget	70.788	133.420	87.889	0.000	87.889
Total Adjustments	0.000	55.600	-5.834	0.000	-5.834
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	55.600			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-5.834	0.000	-5.834

Change Summary Explanation

FY 2024: The FY 2024 funding request was reduced by \$5.834 million to account for the availability of prior year execution balances.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605976F / <i>Facilities Restoration and Modernization - Test and Evaluation Support</i>
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FY 2023: Congressional add of \$55.600 million in support of Hypersonic test infrastructure at Arnold Air Force Base.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Title: Facility restoration and modernization at the 96 TW</p> <p>Description: Facility restoration and modernization at the 96th TW.</p> <p>FY 2023 Plans: Continue Restoration and Modernization (R&M) efforts across the range complex including Heating, Ventilation and Air Conditioning (HVAC) systems, repair/replace lightning protection systems, repair/replace fire protection systems and corrosion control. Close capability gaps for Hypersonics intercept, reusable vehicles, boost glide and store separation.</p> <p>FY 2024 Plans: Continue Restoration and Modernization (R&M) efforts across the range complex including Heating, Ventilation and Air Conditioning (HVAC) systems, repair/replace lightning protection systems, repair/replace fire protection systems and corrosion control.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>	7.686	8.309	8.482
<p>Title: Facility restoration and modernization at AEDC</p> <p>Description: Facility restoration and modernization at AEDC.</p> <p>FY 2023 Plans: Repair and replacement of AEDC's aging electrical and plumbing systems critical to test execution and installation and improvement of safety features such as fire suppression and warning systems.</p> <p>FY 2024 Plans: With the additional restoration and modernization funding targeting hypersonic test capabilities, AEDC will start several multi-year restoration efforts to include: Propulsion Wind Tunnel 16S Compressor Modernization and facility restoration, developing a common solid rocket motor cradle to reduce cost and schedule delays, and improve and modernize optical test systems in supersonic and hypersonic wind tunnels.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY23 to FY24: Decrease of \$45.9 million due to one time FY23 Congressional add for hypersonic test infrastructure coupled with a FY24 \$10 million increase for hypersonic restoration and modernization as a result of the FY23 and FY24 budget cycles.</p>	54.578	115.562	69.660
<p>Title: Facility restoration and modernization at 412 TW</p>	8.524	9.549	9.747

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605976F / <i>Facilities Restoration and Modernization - Test and Evaluation Support</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: Facility restoration and modernization at the 412 TW.</p> <p>FY 2023 Plans: Continuation of the upgrade and restoration of T&E facilities. Areas of effort include repair and modernization of electrical system components, address fire safety deficiencies, continue seismic upgrades, and address other restoration and modernization needs throughout the test wing.</p> <p>FY 2024 Plans: Continuation of the upgrade and restoration of T&E facilities. Areas of effort include repair and modernization of electrical system components, address fire safety deficiencies, continue seismic upgrades, and address other restoration and modernization needs throughout the test wing. AEDC will start several multi-year restoration efforts to enhance hypersonic test capabilities.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to non-pay, non-fuel inflation</p>			
Accomplishments/Planned Programs Subtotals	70.788	133.420	87.889

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
			Base	OCO	Total						
• RDTE 06 0606398F: <i>Management HQ - T&E</i>	7.263	6.285	7.453	-	7.453	7.481	7.639	7.801	8.159	Continuing	Continuing
• RDTE 06 0605807F: <i>Test and Evaluation Support</i>	811.032	841.854	913.213	-	913.213	892.125	1,005.821	1,063.898	1,116.911	Continuing	Continuing
• RDTE 06 0605978F: <i>Facilities Sustainment - Test and Evaluation Support</i>	30.057	31.561	35.065	-	35.065	41.225	54.342	53.420	55.290	Continuing	Continuing
• RDTE 06 0604256F: <i>Threat Simulator Development</i>	46.393	21.067	16.626	-	16.626	20.391	42.980	49.100	50.876	Continuing	Continuing
• RDTE 06 0604759F: <i>Major T&E Investment</i>	128.708	44.714	31.143	-	31.143	74.096	208.545	480.460	497.846	Continuing	Continuing

Remarks

E. Acquisition Strategy
N/A.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605978F / <i>Facilities Sustainment - Test and Evaluation Support</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	30.057	31.561	35.065	0.000	35.065	41.225	54.342	53.420	55.290	Continuing	Continuing
6606MR: <i>Facility Sustainment-T&E Support</i>	-	30.057	31.561	35.065	0.000	35.065	41.225	54.342	53.420	55.290	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Provides resources for sustainment activities required for an inventory of Air Force Materiel Command (AFMC) Test and Evaluation (T&E) facilities. Facility sustainment includes regularly scheduled adjustments and inspections, preventative maintenance tasks, and emergency response and service calls for minor repairs. It also includes major repairs or replacement of facility components that have exceeded their useful life. In addition to standard facility sustainment, such as roof replacement, refinishing of wall and floor surfaces, and repairing and replacing of heating and cooling systems, funding in this program element allows for inspections and repairs of heavy plant machinery. Examples of the maintenance work performed are inspection and repair of high-power electrical switching gear, hydraulic, lubrication, forced-air and fluid cooling systems, high pressure vessel health monitoring, facility control and remote monitoring systems, liquid oxygen systems, steam systems, test instrumentation, and fire detection and suppression systems. Other tasks associated with facilities operations (such as custodial services, grass cutting, and landscaping, waste disposal, and the provision of central utilities) are not included. These sustainment funds support the following Air Force organizations and their associated test and evaluation facilities, including: remote locations, the 96th Test Wing (TW) at Eglin AFB, FL, Arnold Engineering and Development Complex (AEDC) at Arnold AFB, TN, AEDC's 704th Test Group (TG) at Holloman AFB, NM, AEDC's 704 TG Landing Gear Test Facility (LGTf) at Wright-Patterson AFB, OH, AEDC's Hypersonic Wind Tunnel 9 at White Oak, MD, AEDC's National Full-Scale Aerodynamics Complex (NFAC) at Moffett Field, CA, AEDC's McKinley Climatic Laboratory (MCL) at Eglin AFB, FL and the 412 Test Wing (TW) at Edwards AFB, CA.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605978F / <i>Facilities Sustainment - Test and Evaluation Support</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	30.057	31.561	35.065	0.000	35.065
Current President's Budget	30.057	31.561	35.065	0.000	35.065
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Title: Facility sustainment at the 96 TW.</p> <p>Description: Facility sustainment at the 96 TW.</p> <p>FY 2023 Plans: Continue to work through Direct Scheduled Work Orders (DSWs) within the test infrastructure.</p> <p>FY 2024 Plans: Continue to work through Direct Scheduled Work Orders (DSWs) within the test infrastructure.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to non-pay non-fuel inflation</p>	1.011	1.079	1.102
<p>Title: Facility sustainment at the AEDC.</p> <p>Description: Facility sustainment at the AEDC.</p> <p>FY 2023 Plans: Continue to perform calendar based scheduled preventative maintenance on Engine Test Facility Plant and associated engine test cells, Propulsion Wind Tunnel Plant and associated wind tunnels, Von Karman Facility (VKF) Plant Core and associated test cells, arc heaters, rocket test facility, space chambers, and hypersonic engine test facilities, along with associated infrastructure that supports all test operations. Sustainment project includes painting buildings, carpet replacement, heating, ventilation, air conditioning (HVAC) repairs and roof repairs throughout the 704 TG.</p> <p>FY 2024 Plans:</p>	26.328	27.581	31.001

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605978F / <i>Facilities Sustainment - Test and Evaluation Support</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>AEDC will continue to perform calendar based scheduled preventative maintenance on Engine Test Facility Plant and associated engine test cells, Propulsion Wind Tunnel Plant and associated wind tunnels, Von Karman Facility (VKF) Plant Core and associated test cells, arc heaters, rocket test facility, space chambers, and hypersonic engine test facilities, along with associated infrastructure that supports all test operations. Sustainment project includes painting buildings, carpet replacement, heating, ventilation, air conditioning (HVAC) repairs and roof repairs throughout the 704 TG.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase of \$2.75 million for hypersonics infrastructure facility sustainment particularly the 16S facility at AEDC as well as non-pay non-fuel inflation.</p> <p>Title: Facility sustainment at the 412 TW.</p> <p>Description: Facility sustainment at the 412 TW.</p> <p>FY 2023 Plans: Continue sustainment of test unique infrastructure in 412 TW Electronic Warfare, Range, and other T&E facilities located at Edwards AFB, CA.</p> <p>FY 2024 Plans: Continue sustainment of test unique infrastructure in 412 TW Electronic Warfare, Range, and other T&E facilities located at Edwards AFB, CA.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to non-pay non-fuel inflation</p>	2.718	2.901	2.962
Accomplishments/Planned Programs Subtotals	30.057	31.561	35.065

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2024</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• RDTE 06 0606398F: <i>Management HQ - T&E</i>	7.263	6.285	7.453	-	7.453	7.481	7.639	7.801	8.159	Continuing	Continuing
• RDTE 06 0605807F: <i>Test and Evaluation Support</i>	811.032	841.854	913.213	-	913.213	892.125	1,005.821	1,063.898	1,116.911	Continuing	Continuing
• RDTE 06 0605976F: <i>Facilities Restoration and Modernization - Test and Evaluation Support</i>	70.788	133.420	87.889	-	87.889	94.662	217.556	202.455	209.540	Continuing	Continuing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605978F / <i>Facilities Sustainment - Test and Evaluation Support</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 06 0604256F: <i>Threat Simulator Development</i>	46.393	21.067	16.262	-	16.262	20.391	42.980	49.100	50.876	Continuing	Continuing
• RDTE 06 0604759F: <i>Major T&E Investment</i>	128.708	1,713.140	31.143	-	31.143	74.096	208.545	480.460	497.846	Continuing	Continuing

Remarks

E. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	88.259	109.513	89.956	0.000	89.956	53.974	44.458	45.319	46.668	Continuing	Continuing
666157: <i>Development Planning</i>	-	22.177	13.446	14.065	0.000	14.065	14.271	14.582	14.839	15.092	Continuing	Continuing
666158: <i>INTEGRATED SIMULATION AND ANALYSIS</i>	-	66.082	96.067	75.891	0.000	75.891	39.703	29.876	30.480	31.576	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Requirements Analysis and Maturation (RAM) program funds development planning (DP) to include early systems engineering and integrated simulation and analysis. These activities include requirements analysis, capability decomposition and trade space characterization, concept development (joint and cross-Service, family of systems, system of systems, air, space, and cyber), architecture design, cost analysis, modeling and simulation of representative or prototype systems, model validation, analytical tool development, and focused capability risk reduction. Outcomes of development planning activities include: technologically informed requirements; mature concepts that are technically feasible, operationally relevant, and militarily useful; and recommendations for science and technology (S&T) investment to reduce technical risks. Development planning activities provide the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy (DOTMLPF-P) analytic basis for cost and capability trades driving non-materiel and/or materiel solutions. Early-phase systems engineering and technical planning activities funded by this program provide the foundation for informed investment decisions leading to successful acquisition programs. Development planning efforts arise from engagements with industry and academia, from intersections of technology improvements with Air Force missions, from emerging operational requirements, and from vetted future-fight concepts.

This program element may include necessary and emergent civilian pay expenses required to manage, execute, and deliver Requirements Analysis and Maturation capability for both Projects. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0604858F.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Integrated Simulation and Analysis for emergent or unanticipated weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	90.799	101.844	106.577	0.000	106.577
Current President's Budget	88.259	109.513	89.956	0.000	89.956
Total Adjustments	-2.540	7.669	-16.621	0.000	-16.621
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	8.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-2.540	0.000			
• Other Adjustments	0.000	-0.331	-16.621	0.000	-16.621

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

Project: 666157: *Development Planning*

Congressional Add: *Program increase - nuclear modernization analytics*

Congressional Add Subtotals for Project: 666157

Project: 666158: *INTEGRATED SIMULATION AND ANALYSIS*

Congressional Add: *Digital Modernization*

Congressional Add Subtotals for Project: 666158

Congressional Add Totals for all Projects

	FY 2022	FY 2023
Congressional Add Subtotals for Project: 666157	9.720	0.000
Congressional Add Subtotals for Project: 666158	0.000	8.000
Congressional Add Totals for all Projects	9.720	8.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>	Project (Number/Name) 666157 / <i>Development Planning</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
<i>666157: Development Planning</i>	-	22.177	13.446	14.065	0.000	14.065	14.271	14.582	14.839	15.092	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Development Planning (DP) project funds activities that analyze Air Force capability needs and requirements to identify potential shortfalls and opportunities; formulate candidate concepts and solution options addressing identified capability needs and shortfalls; obtain specific evidence to confirm and refute capability bounds; and conduct coordinated early systems engineering to derive key capability trades, technology needs, and cost and schedule implications. Emphasis is placed on activities informing strategic planning and operational experimentation, analyzing multi-domain capabilities that look first at non-materiel solutions before generating materiel needs and requirements.

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

	FY 2022	FY 2023	FY 2024
Title: Future Capability Analyses	5.137	6.262	6.279
Description: Conduct capability analyses that decompose long-term warfighter capability goals and requirements into pertinent materiel and non-materiel elements. Identify opportunities and potential shortfalls between planned investments and long-term capability needs. Engage technology base and test communities to inform capability employment and constraints. Reduce analytical uncertainties through focused investments yielding specific capability information.			
FY 2023 Plans: Continue to assess capabilities derived from future Air Force constructs, collaborating within and across Service analysis organizations as subject-matter expertise requires. Develop operational mission concepts paired with analytically supported capability concepts, with increased emphasis on support systems and logistics.			
FY 2024 Plans: Continue to assess capabilities derived from future Air Force constructs, collaborating within and across Service analysis organizations as subject-matter expertise requires. Conduct capabilities-based assessments scoped in a manner consistent with Department of the Air Force operational imperatives. Document mission impact statements and their corresponding materiel and non-materiel gaps. Derive capability gaps from operational mission definitions and estimates of current-inventory performance and technical state of the art. Engage Federally Funded Research and Development Centers and policy research institutes on appropriate operational imperatives. Develop mission impact and gap findings into initial capability visions and early capability concepts consistent with relevant time horizons.			
FY 2023 to FY 2024 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>	Project (Number/Name) 666157 / <i>Development Planning</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
FY 2024 funding increased compared to FY 2023 by \$0.017 million. Funding increased due to a slightly larger number of expected operational imperative capabilities requiring early investigatory analysis.				
<p>Title: Concept Development</p> <p>Description: Develop operationally consistent and technologically informed capability concepts delivering military utility and informing strategic investment decisions. Validate materiel and non-materiel capability elements through rigorous problem decomposition, engagement with warfighters and with industry, and access to operationally relevant evidence to include suitability considerations. Discern critical dependencies among capability concept elements, including operational mission assets and technology investments. Distinguish developmental capability concept elements from materiel and non-materiel elements currently available. Develop capability tailored measures of performance and measures of effectiveness, which may include necessary digital tools. Identify key drivers for technical risk, cost risk, and schedule risk. Verify suitability of analysis baseline for capabilities being investigated, communicating limitations to stakeholders and proposing mitigation strategies as appropriate. Revisit previously developed capability concepts as needed, update concept elements and operational employment to reflect emerging mission needs and maturing technology alternatives.</p> <p>FY 2023 Plans: Continue to develop advanced capability concepts with project-appropriate partners and stakeholders, including Air Force Futures, Air Force Lifecycle Management Center (AFLCMC), Air Force Materiel Command (AFMC), Air Combat Command (ACC), Air Mobility Command (AMC), Air Force Global Strike Command (AFGSC), Pacific Air Forces (PACAF), U.S. Air Forces in Europe (USAFE), and Air Forces Northern (AFNORTH). Increase focus on efforts related to non-weapon systems and support requirements, including those associated with information aggregation and decision support.</p> <p>FY 2024 Plans: Continue to develop advanced capability concepts with appropriate partners and stakeholders. Conduct market research and engage industry elements with historical experience consistent with Air Force operational imperatives. Develop early capability concepts into industry-informed, operationally impactful, technically viable concept characterizations that inform investment priorities and acquisition decisions.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 funding increased compared to FY 2023 by \$0.637 million. Funding increased due to a modest increase in the number of operational imperative capability visions warranting maturation into developed concepts.</p>		4.780	4.639	5.276
<p>Title: Capability Development Strategies</p> <p>Description: Conduct strategic planning activities that translate capability concepts into candidate courses of action suitable for informing future acquisition and future research and development. Identify critical decisions, milestones, and operational</p>		2.540	2.545	2.510

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>	Project (Number/Name) 666157 / <i>Development Planning</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>employment factors influencing capability courses of action. Identify technology alternatives, potential materiel/non-materiel mixes, and order-of-magnitude cost estimates within candidate courses of action. Develop recommendations for materiel and non-materiel investments providing key capability enablers. Develop capability risk mitigation approaches and conduct focused risk reduction. Refine capability cost and schedule drivers as additional information is obtained. Estimate system-of-system, system, sub-system, component, and/or contributing technology performance needed to achieve warfighter-driven thresholds on capability performance and effectiveness. Develop recommendations for time-phased and performance-gated capability delivery, including incremental system and sub-system capabilities where appropriate.</p> <p>FY 2023 Plans: Continue to perform pre-systems acquisition planning activities including refinement of concepts into risk-informed preliminary designs and development of recommendations for science and technology investments.</p> <p>FY 2024 Plans: Continue to perform pre-systems acquisition planning activities including refinement of concepts into risk-informed, industry-informed preliminary designs and including development of recommendations for science and technology investments.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 funding decreased compared to FY 2023 by \$0.035 million. Funding decreased due to a slight reduction in the number of expected capability concepts ready for acquisition-path development.</p>			
Accomplishments/Planned Programs Subtotals	12.457	13.446	14.065

	FY 2022	FY 2023
Congressional Add: Program increase - nuclear modernization analytics	9.720	0.000
FY 2022 Accomplishments: Conduct Congressionally - Directed Efforts		
FY 2023 Plans: N/A		
Congressional Adds Subtotals	9.720	0.000

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

Remarks

D. Acquisition Strategy
Not Applicable

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>				Project (Number/Name) 666158 / <i>INTEGRATED SIMULATION AND ANALYSIS</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
666158: <i>INTEGRATED SIMULATION AND ANALYSIS</i>	-	66.082	96.067	75.891	0.000	75.891	39.703	29.876	30.480	31.576	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Integrated Simulation and Analysis project provides a collaborative cross-organizational, multi-domain, holistic enterprise system-of-systems perspective in synthetic environments for modeling, simulation, analysis, and experimentation of systems, systems-of-systems, and concepts under assessment while enabling exploration of innovative materiel and non-materiel alternatives. This effort produces system performance representations/models, environments, architectures, data, and tools that underpin variable fidelity, stand-alone, interactive, and distributed simulations; and virtual prototyping using an adaptive ecosystem comprised of organizations and capabilities aligned with purpose and linkages to Model Based Systems Engineering/Digital Engineering processes. Integrated Simulation and Analysis combines real-time and constructive simulations, operators-in-the-loop, Modeling and Simulation powered war-gaming, experimental and operational software and hardware engineered in synthesized environments to conduct rapid air, space, cyber, and multi-domain warfighting capabilities assessments in support of development planning, experimentation, developmental and operational testing, and training requirements. This ecosystem is a component of a larger Department of the Air Force level Modeling and Simulation infrastructure, and serves as a template to identify, roadmap, and support the broader Modeling and Simulation infrastructure supporting the Modeling and Simulation centric portions of the acquisition lifecycle and operational warfighters.

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

	FY 2022	FY 2023	FY 2024
Title: Modeling, Simulation, Analysis, and Experimentation Ecosystem	15.449	16.689	19.168
Description: Develop enterprise capable, cross-domain system-of-systems modeling, simulation, and analysis capabilities to support development planning, capabilities assessment, and acquisition decisions.			
FY 2023 Plans: Continue to evolve and implement the design template for the broader Department of the Air Force level capability development Modeling and Simulation enterprise ecosystem. Integration of United States Space Force Modeling and Simulation capabilities into the ecosystem supporting both system and broad system-of-system, multi-domain level capability development concepts, pre-systems planning, and other relevant strategic development planning activities. Continue to evolve a modeling, simulation and analysis infrastructure containing extensive software models and software tools consistent with Air Force and Joint enterprise needs, including digital engineering and model-based systems engineering. Continue to enable Modeling and Simulation powered wargaming, support secure data management and sharing, maintain a skilled cadre of analysts, and develop advanced analytical methods required for tailored fidelity of battlespace environments. Continue to make available and enhance composable models and common frameworks that can be used to support robust development planning and experimentation for Air Force leadership. This activity will be leveraged to scale up for the broader Department of the Air Force level Modeling and Simulation enterprise			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>	Project (Number/Name) 666158 / <i>INTEGRATED SIMULATION AND ANALYSIS</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>and identify Modeling and Simulation synergies between analytic, experimentation, test, training, and planning activities in support of enterprise infrastructure.</p> <p>FY 2024 Plans: Continue to evolve and implement the design template for the broader Department of the Air Force level capability development Modeling and Simulation enterprise ecosystem. Continued integration of United States Space Force Modeling and Simulation capabilities into the ecosystem supporting both system and broad system-of-system, multi-domain level capability development concepts, pre-systems planning, and other relevant strategic development planning activities. Evolve and integrate a modeling, simulation and analysis infrastructure containing extensive software models and software tools consistent with Air Force and Joint enterprise needs, including digital engineering and model-based systems engineering. Continue to enhance tools and enable Modeling and Simulation powered wargaming, support secure data management and sharing, maintain a skilled cadre of analysts, and develop advanced analytical methods required for tailored fidelity of battlespace environments. Continue to make available and enhance composable models and common frameworks that can be used to support robust development planning and experimentation for Air Force leadership. This activity will be leveraged to scale up for the broader Department of the Air Force level Modeling and Simulation enterprise and identify Modeling and Simulation synergies for reusability, commonality, and interoperability between analytic, experimentation, test, training, and planning activities in support of enterprise infrastructure.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY2024 funding increased compared to FY2023 by \$2.479 million due to increase in scope of ecosystem, increasing capacity and capability, and integration costs in support of Department of the Air Force Modeling and Simulation Ecosystem and tools.</p>			
<p>Title: Common Synthetic Training Environment (CSTE)</p> <p>Description: Develop a Government-owned synthetic training capability suitable for distributed training scenarios in a single shared environment across multiple warfighting and security domains. This effort is required to address capability gaps highlighted in the Joint Tactical Air Analysis of Alternatives study, to include systemic deficiencies for both live and synthetic training and an expanding gap between warfighter needs and training infrastructure capabilities.</p> <p>FY 2023 Plans: Continue programmatic efforts for the Common Synthetic Training Environment project; Common Synthetic Training Environment development; attribute definition, interface development, and prototype/pathfinder efforts to lay the foundation of the Common Synthetic Training Environment; begin minimal targeted development and integration of environment products to include Multiple Level Security (MLS) network elements.</p> <p>FY 2024 Plans: Requirement for a synthetic training environment will be met by the Joint Simulation Environment effort. Funding in FY22, FY23 and FY24 will be used to further the development of JSE test and training capabilities to Initial Operational Capability, enabling</p>	23.859	55.168	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>	Project (Number/Name) 666158 / <i>INTEGRATED SIMULATION AND ANALYSIS</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>future training applications. Activities include continued JSE development of synthetic test and training capabilities, as well as the application of new technologies (Multi-Level Security, distributed operations, etc.) and capabilities to the JSE architecture. Costs include hardware, software, facilities, and personnel needed to develop JSE.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY2024 funding decreased by \$55.168 million. Funding decreased due to \$39.374M being realigned from CSTE to JSE. Additionally, funds were reduced by \$15.8M.</p>				
<p>Title: Joint Simulation Environment (JSE)</p> <p>Description: Develops a government-owned and operated modeling and simulation capability that enables multi-platform, multi-domain integration and interoperability. This capability is required to support developmental and operational testing, tactics development, and advanced training for 5th-generation platforms and other future capabilities that are critical for force development.</p> <p>FY 2023 Plans: Continue to support Virtual Air Threats (VATs) and Multi Mission Test Platform (MMTPs) which are designed to be enable test and experimentation with JSE. Continue developing, testing, documenting and delivering aircraft threat models using the Threat Modeling and Analysis Program (TMAP).</p> <p>FY 2024 Plans: Continue activities to develop JSE capabilities enabling further test, integration and training. Efforts include continued Virtual Air Threats (VATs) development and Multi Mission Test Platform (MMTPs) refinement. Continue developing, testing, documenting and delivering aircraft threat models using the Threat Modeling and Analysis Program (TMAP), and continued platform/capability integration within JSE. Costs include (but are not limited to) establishing equipment, personnel, processes, contracts, etc. to support JSE product development for the Air Force.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY2024 funding increased compared to FY2023 by \$39.374 million. Funding increased due to CSTE funds being realigned to JSE.</p>		23.372	12.858	52.232
<p>Title: Simulation and Analysis Facility Support</p> <p>Description: Develops high-fidelity, live-virtual-constructive modeling, simulation, and analysis capability to evaluate warfighting capabilities, strategies, concepts of operation, tactics, emerging technologies, and human system interfaces to support and enable acquisition, test, and training.</p> <p>FY 2023 Plans:</p>		3.402	3.352	4.491

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>	Project (Number/Name) 666158 / <i>INTEGRATED SIMULATION AND ANALYSIS</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Continue to perform pre-systems acquisition planning activities. Continue to develop capability concepts into high-level initial designs supporting dependency analysis, performance estimation, risk identification, and additional concept refinement in coordination with Air Force leadership. Develop prioritized recommendations for science and technology investments in the critical path of key capability enablers. These funds may cover hardware, software, personnel and other costs needed to accomplish the mission to include agile software programming capabilities.</p> <p>FY 2024 Plans: Continue to perform pre-systems acquisition planning activities. Continue to develop capability concepts into high-level initial designs supporting dependency analysis, performance estimation, risk identification, and additional concept refinement in coordination with Air Force leadership. Develop prioritized recommendations for science and technology investments in the critical path of key capability enablers. Expand agile software programming capabilities. These funds may cover hardware, software, personnel and other costs needed to accomplish the mission.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY2024 funding increased compared to FY2023 by \$1.139 million. Funding increased due to increased scope and costs.</p>			
Accomplishments/Planned Programs Subtotals	66.082	88.067	75.891

	FY 2022	FY 2023
Congressional Add: Digital Modernization	0.000	8.000
FY 2022 Accomplishments: N/A		
FY 2023 Plans: Conduct Congressionally Directed Activities		
Congressional Adds Subtotals	0.000	8.000

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

N/A

Remarks

D. Acquisition Strategy

Not Applicable

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0606398F / <i>Management HQ - T&E</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	7.263	6.285	7.453	0.000	7.453	7.481	7.639	7.801	8.159	Continuing	Continuing
6606TS: <i>Test and Evaluation Support</i>	-	7.263	6.285	7.453	0.000	7.453	7.481	7.639	7.801	8.159	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program element funds civilian salaries of Air Force Test Center (AFTC) management headquarters personnel who lead, guide and direct the operation of AFTC test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	6.163	6.285	6.449	0.000	6.449
Current President's Budget	7.263	6.285	7.453	0.000	7.453
Total Adjustments	1.100	0.000	1.004	0.000	1.004
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	1.100	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	1.004	0.000	1.004

Change Summary Explanation

FY 2022: \$1.1 million below threshold reprogramming for civilian pay shortfall to address disconnect between authorizations and PE funding.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Air Force Test Center Civilian Pay	7.263	6.285	7.453
Description: Air Force Test Center management headquarters civilian pay			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0606398F / <i>Management HQ - T&E</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p><i>FY 2023 Plans:</i> Air Force Test Center management headquarters civilian pay.</p> <p><i>FY 2024 Plans:</i> Air Force Test Center management headquarters civilian pay.</p> <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase from FY23 to FY24 of 1.2M is due to a funding shortfall for the 41 authorizations that will be corrected in the year of execution, FY23, with a below threshold reprogramming. This shortfall is an artifact associated with the funding transfer from PE 65898F to create PE 66398F.</p>			
Accomplishments/Planned Programs Subtotals	7.263	6.285	7.453

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

N/A

Remarks

E. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0303166F / <i>Support to Information Operations (IO) Capabilities</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.537	0.556	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.093
666158: <i>INTEGRATED SIMULATION AND ANALYSIS</i>	-	0.537	0.556	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.093
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

In FY 2023, Project 666158, (Integrated Simulation and Analysis) was completed.

In FY 2022, PE 0303166JCY, Support to Information Operations (IO) Capabilities, Joint Information Operations Range efforts were transferred to PE 0303166F (Joint Information Operations Range), Project 666158 (Integrated Simulation and Analysis) in order to fulfill transfer to Air Force as Lead Command.

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 with 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.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0303166F / <i>Support to Information Operations (IO) Capabilities</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.537	0.556	0.558	0.000	0.558
Current President's Budget	0.537	0.556	0.000	0.000	0.000
Total Adjustments	0.000	0.000	-0.558	0.000	-0.558
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.558	0.000	-0.558

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Joint Information Operations Range	0.537	0.556	0.000
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 2023 Plans:			
- Test and evaluate new, cutting-edge technologies to advance JIOR capabilities			
- Deploy equipment to support and expand the JIOR connectivity portfolio			
- Improve network automation strategy			
FY 2024 Plans:			
N/A			
FY 2023 to FY 2024 Increase/Decrease Statement:			
Funding decreased due to completion of RDT&E activity in FY 2023.			
Accomplishments/Planned Programs Subtotals	0.537	0.556	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0303166F / <i>Support to Information Operations (IO) Capabilities</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 834320: C3 Countermeasures	1.226	1.160	1.178	-	1.178	1.252	1.278	1.322	1.350	Continuing	Continuing

Remarks

E. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0303255F <i>I Command, Control, Communication, and Computers (C4) - STRATCOM</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	35.340	29.092	20.871	0.000	20.871	19.573	19.936	20.221	20.930	Continuing	Continuing
664620: <i>NC3 Enterprise Center</i>	-	35.340	29.092	20.871	0.000	20.871	19.573	19.936	20.221	20.930	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

FY 2022 was the last year USSTRATCOM received funding to develop or modify Modeling and Simulation and Enterprise Data Environment Development.

USSTRATCOM received a 10.0 million dollar Congressional add to establish and maintain a collaborative network capability in support of the NC3 Enterprise Center (NEC) Research Engineering and Architecture Collaboration Hub (REACH) in FY 2022 and FY 2023.

USSTRATCOM also received a 5.0 million dollar Congressional add in FY 2023 to conduct an NC3 network sensor demonstration.

A. Mission Description and Budget Item Justification

Secretary of Defense tasked USSTRATCOM Nuclear Command, Control and Communications (NC3) Enterprise Center (NEC) to oversee and monitor operations and security of the enterprise and develops tools to assist in monitoring the readiness of the NC3 architecture and capture the operational risks as adversaries develop the ability to disrupt our capabilities from multiple threat vectors. This effort will fund systems engineering and assessment activities previously accomplished by DISA in support of the NC3 Enterprise. The NEC will capture and integrate process and system data to assess operational risk, characterize multi-domain threats, and explore operational trade space associated with next generation NC3 architectures. The NEC will work with the Services to explore new technologies and develop innovative solutions in a virtual environment, and capture metrics that identify system problems and readiness issues before they impact operations. The NEC will also develop digital engineering capabilities to help support governance responsibilities of NC3.

The USSTRATCOM Mission Assurance Defense Critical Infrastructure Program (DCIP) is a risk management program that seeks to ensure the availability of networked assets critical to USSTRATCOM and other DoD missions. Critical infrastructure assets can include installations, facilities, antennas, vehicles, computing systems, and communications links. DCIP is directed by the Office of the Assistant Secretary of Defense (Homeland Defense & Americas' Security Affairs) [OASD (HD&ASA)]. DCIP manages the identification, prioritization, assessment, and assurance of critical infrastructure as a comprehensive program that includes the development of adaptive plans and procedures to mitigate risk, restore capability in the event of loss or degradation, support incident management, and protect defense critical infrastructure.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0303255F <i>I Command, Control, Communication, and Computers (C4) - STRATCOM</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	35.340	15.559	20.869	0.000	20.869
Current President's Budget	35.340	29.092	20.871	0.000	20.871
Total Adjustments	0.000	13.533	0.002	0.000	0.002
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-1.467			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	15.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.002	0.000	0.002

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

Project: 664620: *NC3 Enterprise Center*

Congressional Add: *NC3 Enterprise Center REACH*

Congressional Add: *NC3 Network Sensor Demonstration*

Congressional Add Subtotals for Project: 664620

Congressional Add Totals for all Projects

	FY 2022	FY 2023
	10.000	10.000
	-	5.000
	10.000	15.000
	10.000	15.000

Change Summary Explanation

FY23: Federally Funded Research and Development Center (FFRDC) reduction -1.467M

Congressional Add 15.0M

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

Title:	FY 2022	FY 2023	FY 2024
Title: NC3 Systems Engineering and Assessments	12.252	13.059	19.823
Description: Maintain NC3 Systems Engineering and Assessment Capability			
FY 2023 Plans:			
- Continue oversight and configuration control of the National Leadership Command and Control (NLCC) functional baseline to include NC3			
- Continue to identify NLCC capability gaps			
- Develop engineering courses of action to close those gaps			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>		R-1 Program Element (Number/Name) PE 0303255F <i>I Command, Control, Communication, and Computers (C4) - STRATCOM</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Continue to recommend plans for future NLCC capabilities - Perform end-to-end testing of fielded capabilities - Perform operational assessments of current capabilities to provide quantitative measures of ongoing system performance and operational efficiency - Continue to develop the NLCC Reference Architecture, its associated NLCC Roadmap, and the technical architecture patterns that will guide future solution architecture development - Demonstrate ability to capture the communication flows in the NC3 system and allow data engineers the ability to identify and work through ideas to improve the reliability and availability of NC3 - Interoperability development to support trade space analysis and mission engineering support for the NC3 Enterprise Center - Development measures of performance and effectiveness to serve as a basis for assessing gaps and issues and analyzing options and trades - Develop enterprise level standards, plans and best practices to evolve the NC3 systems - Develop NC3 Enterprise Ontology data source to support data interoperability and interface to support data exchange between the NC3 Enterprise Center and its mission partners - Continue to improve and enhance previous model development, with subsequent delivery to the cloud-based digital engineering environment. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue oversight and configuration control of the NLCC functional baseline to include NC3 - Continue to identify NLCC capability gaps - Continue to recommend plans for future NLCC capabilities - Continue to develop the NLCC Reference Architecture, its associated NLCC Roadmap, and the technical architecture patterns that will guide future solution architecture development - Demonstrate ability to capture the communication flows in the NC3 system and allow data engineers the ability to identify and work through ideas to improve the reliability and availability of NC3 - Interoperability development to support trade space analysis and mission engineering support for the NC3 Enterprise Center - Development measures of performance and effectiveness to serve as a basis for assessing gaps and issues and analyzing options and trades - Develop enterprise level standards, plans and best practices to evolve the NC3 systems <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 will support the following:</p> <ul style="list-style-type: none"> - Continue to improve and enhance previous model development, with subsequent delivery to the cloud-based digital engineering environment. NC3 Digital and Mission Engineering Environment (NDMEE). - Deliver the Digital Engineering pipeline to support Enterprise Architecture, Mission engineering analysis and model capability. 				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>		R-1 Program Element (Number/Name) PE 0303255F <i>I Command, Control, Communication, and Computers (C4) - STRATCOM</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Improve the visualization and simulation capability, implementing digital engineering capabilities for rapid systems analysis capability for NC3 Enterprise Center and its mission partners. - Deliver cloud-based model, simulation and engineering capability to allow for a shared data platform to support deliverable requirements as defined by the NC3 Enterprise Center mission. - Develop NC3 Enterprise Ontology data source to support data interoperability and interface to support data exchange between the NC3 Enterprise Center and its mission partners. - Conduct mission engineering analysis studies to support the validation and engineering assessment for NC3 Enterprise performances gaps and required capabilities. - Support NC3 engineering analysis and technical standard development to support modernization capability of the NC3 Enterprise. 				
<p>Title: Modeling and Simulation and Enterprise Data Environment Development</p> <p>Description: Develop or modify modeling and simulation capability and field the NC3 Enterprise Data Environment</p> <p>FY 2023 Plans: N/A; STRATCOM has no funding in FY23 for this requirement.</p> <p>FY 2024 Plans: N/A; STRATCOM has no funding in FY24 for this requirement.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A; STRATCOM has no funding in FY23 or FY24 for this requirement.</p>		12.098	0.000	0.000
<p>Title: Mission Assurance Defense Critical Infrastructure Program (DCIP)</p> <p>Description: Supports 1) systems engineering analysis for the decomposition of mission systems and assets, and supporting networks and infrastructure that execute USSTRATCOM missions, 2) research, studies, analysis, and operational assessment of mission system capabilities, methodologies, and tactics to identify critical assets and dependency relationships, and 3) evaluation of mission risk through research, studies, analysis and assessment of threats and hazards paired with exploitable vulnerabilities.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Continue to provide analysis, studies and research of critical infrastructure assets and dependencies supporting all USSTRATCOM assigned missions, to include focusing efforts of future critical infrastructure vulnerability assessments and researching the various sources to perform threats and hazard assessments. - Develop link-node display of systems connecting tasked missions and operational plans to mission essential tasks and critical infrastructure assets. 		0.990	1.033	1.048

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>		R-1 Program Element (Number/Name) PE 0303255F <i>I Command, Control, Communication, and Computers (C4) - STRATCOM</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Identify vulnerabilities, and participate in risk management process for remediation and mitigation. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to provide analysis, studies and research of critical infrastructure assets and dependencies supporting all USSTRATCOM assigned missions, to include focusing efforts of future critical infrastructure vulnerability assessments and researching the various sources to perform threats and hazard assessments. - Develop link-node display of systems connecting tasked missions and operational plans to mission essential tasks and critical infrastructure assets. - Identify vulnerabilities, and participate in risk management process for remediation and mitigation. <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase is due to inflation.</p>				
Accomplishments/Planned Programs Subtotals		25.340	14.092	20.871
		FY 2022	FY 2023	
Congressional Add: NC3 Enterprise Center REACH		10.000	10.000	
<p>FY 2022 Accomplishments: - Establish and maintain a collaborative network capability in support of the NC3 Enterprise Center (NEC) Research Engineering and Architecture Collaboration Hub (REACH).</p> <ul style="list-style-type: none"> - Enable federated connectivity between REACH and mission partners. - Create a secure environment for technology evaluation, assessment, demonstration, experimentation, and development. <p>FY 2023 Plans: - Support secure hosting and collaboration environment for test, demonstration, and prototyping in support of the NC3 Enterprise Center (NEC) Research Engineering and Architecture Collaboration Hub (REACH).</p> <ul style="list-style-type: none"> - Enhance and sustain REACH collaborative network extending capability to mission partners. - Inform future architectures through technology evaluation, assessment, demonstration, experimentation, or development in a secure environment. 				
Congressional Add: NC3 Network Sensor Demonstration		-	5.000	
<p>FY 2023 Plans: - Enable a demonstration to facilitate and conduct pre-emptive network security visibility on NC3 networks</p> <ul style="list-style-type: none"> - Determine effectiveness of networks security sensors, and network traffic data analysis tools, within current network traffic flow 				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0303255F <i>I Command, Control, Communication, and Computers (C4) - STRATCOM</i>
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	FY 2022	FY 2023
- Validate an enterprise network modeling tool that will map out a given NC3 network and enable more effective sensor suite placement		
- Verify NC3 network traffic data collected, and its integrity, within DoD's core for defensive cyber operations and cyber surveillance, Unified Platform		
Congressional Adds Subtotals	10.000	15.000

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 0303255F: <i>STRATCOM C4</i>	4.226	4.282	4.436	-	4.436	4.795	4.893	5.064	5.171	Continuing	Continuing

Remarks

E. Acquisition Strategy

The Digital Engineering effort is led by the NC3 Enterprise Center (NEC) under USSTRATCOM and will utilize existing contracts to purchase equipment and software, in particular, requesting and funding additional capability development from on-going Service software efforts to model NC3 activities.

Projects funded through DCIP will be awarded using competitive contracts to the maximum extent possible.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0308602F / <i>ENTEPRISE INFORMATION SERVICES (EIS)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	26.004	73.100	100.357	0.000	100.357	103.949	107.842	112.165	133.849	Continuing	Continuing
6622P1: <i>Platform One</i>	-	0.000	0.000	91.449	0.000	91.449	94.728	98.369	102.440	123.642	Continuing	Continuing
66ACS1: <i>ACQ and Command Support Integration</i>	-	26.004	73.100	8.908	0.000	8.908	9.221	9.473	9.725	10.207	Continuing	Continuing

Note

In FY 2022, Platform One efforts transferred from PE 0208099F (Unified Platform) to PE 0308602F (Enterprise Information Services) in order to enable program visibility for all parties.

In FY 2024 Platform One efforts will transition from BPAC 66ASC1 to BPAC 6622P1 in order to provide better visibility into the funding delineation between the two programs in PE 0308602F.

A. Mission Description and Budget Item Justification

Enterprise Information Services (EIS) is a portfolio of integrated programs/technologies/services that enables and sustains Air Force Information Management, Knowledge Operations and Development, Security and Operations (DevSecOps) initiatives. EIS provides Air Force personnel access to, and management of, timely, accurate, and trusted mission data, information, and knowledge supporting information/decision superiority. EIS utilizes the services provided by Platform One and Enterprise Resource Planning Common Services (ERP CS).

Platform One and ERP CS provide common platforms, common application support services, data center migration strategy, and security services for hosting AF mission applications. Platform One provides access to existing, accredited and supported DevSecOps infrastructure, to accelerate widespread adoption of DevSecOps methodology IAW DoD Digital Modernization strategy. ERP CS provides the AF target environments for AF ERP mission applications. This acquisition is critical for multiple hosting environments leveraging DoD Joint Information Environment (JIE) Core Data Centers (CDC), commercial cloud capabilities and DISA brokered cloud capabilities in compliance with the Air Force Information Technology (AF IT) baselines. This effort also provides technical expertise, programmatic guidance, and policy navigation that supports AF approved application rationalization processes to multiple hosting environments and enterprise IT Lifecycle Capabilities Integration Environment (CIE) testing of services.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605829F. In FY22 0.0M and in FY23 2.040M is expected for civilian pay expenses in this program element.

This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0308602F / <i>ENTEPRISE INFORMATION SERVICES (EIS)</i>
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This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	26.720	83.231	86.530	0.000	86.530
Current President's Budget	26.004	73.100	100.357	0.000	100.357
Total Adjustments	-0.716	-10.131	13.827	0.000	13.827
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-10.131			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.716	0.000			
• Other Adjustments	0.000	0.000	13.827	0.000	13.827

Change Summary Explanation

FY24 increase due to accelerated delivery of Platform One capabilities needed to support DoD CIO and SecAF priorities including OI-7. FY24 also includes increase in Joint Artificial Intelligence Center (JAIC) funding to advance Platform One impact levels.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0308602F / ENTEPRISE INFORMATION SERVICES (EIS)	Project (Number/Name) 6622P1 / Platform One
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
6622P1: Platform One	-	0.000	0.000	91.449	0.000	91.449	94.728	98.369	102.440	123.642	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2024 Platform One efforts will transition from BPAC 66ASC1 to BPAC 6622P1 in order to provide better visibility into the funding delineation between the two programs in PE 0308602F.

A. Mission Description and Budget Item Justification

Platform One is the first DoD-wide approved Development/Security/Operations (DevSecOps) managed services at enterprise scale. It greatly accelerates delivery of software and digital AF transformation by providing a secure centralized software development and delivery platform, tools and training for Department of the Air Force (DAF) and its DoD programs.

Platform One provides access to existing, accredited and supported DevSecOps infrastructure, via four key products (value streams) including Iron Bank, Big Bang, Party Bus, and Cloud Native Access Point (CNAP) to accelerate widespread adoption of DevSecOps methodology IAW DoD Digital Modernization strategy.

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

	FY 2022	FY 2023	FY 2024
Title: Platform One	-	-	91.449
Description: Platform One is the DoD CIO's preferred DevSecOps enterprise solution delivering full stack automation tools, services, and standards as-a-service. Platform One allows programs developing and/or delivering software to focus on building flexible and interoperable mission capability rapidly and securely.			
FY 2024 Plans: FY24 centrally funds core services, including but not limited to: software hardening pipeline and repository dedicated to software Supply Chain Risk Management (SCRM) and Software Bill of Materials (SBOM) for Commercial and Open Source software at multiple commercial cloud impact levels (IL-2, IL-4, IL-5, and IL-6); Infrastructure as Code (IaC) tailorable to a program's needs and deployable to unclassified and classified cloud, on-premise environments, disconnected systems in a denied, degraded, intermittent, and limited (DDIL) operational environments, and exploring embedded systems common in many weapon systems. This infrastructure comes with a continuous-Authority to Operate/Field (c-ATO/F) addressing the Risk Management Framework (RMF). Platform One capability enables continuous delivery of software capabilities through the use of secure, tailorable and agile software factory services, tools and standards.			
- Will continue enabling DevSecOps efforts at the warfighting edge supporting DoD CIO priorities, especially to support expanded Joint All-Domain Command and Control (JADC2) and coalition capabilities.			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0308602F / ENTEPRISE INFORMATION SERVICES (EIS)	Project (Number/Name) 6622P1 / Platform One

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Will continue development and delivery of DevSecOps tools and services supporting enterprise transform of software capabilities to match the speed of technology and threats. - Will continue integration and evolution of enterprise zero trust architecture to provide secure and resilient DevSecOps from development to edge employment. - Will expand container hardening capability to higher impact levels and enhance supply chain risk mitigation of commercial and open source products. <p>FY 2023 to FY 2024 Increase/Decrease Statement: In FY 2024 Platform One efforts will transition from BPAC 66ASC1 to BPAC 6622P1.</p> <p>Funding increase to expand enterprise software development capabilities, advance DevSecOps toolsets, and scale to support growing enterprise DevSecOps demand. FYDP funding increase provides foundation to support the SECAF operational imperatives and to increase supply chain security as outlined in the Improving the Nation's Cybersecurity Presidential Executive Order (#14028).</p>			
Accomplishments/Planned Programs Subtotals	-	-	91.449

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 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0308602F / ENTEPRISE INFORMATIO N SERVICES (EIS)			Project (Number/Name) 66ACS1 / ACQ and Command Support Integration				
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
66ACS1: ACQ and Command Support Integration	-	26.004	73.100	8.908	0.000	8.908	9.221	9.473	9.725	10.207	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Platform One efforts are included in BPAC 66ASC1 until FY24. In FY 2024 Platform One efforts will transition from BPAC 66ASC1 to BPAC 6622P1 in order to provide better visibility into the funding delineation between the two programs in PE 0308602F.

A. Mission Description and Budget Item Justification

Platform One and ERP CS provide common platforms, common application support services, data center migration strategy, and security services for hosting AF mission applications. Platform One provides access to existing, accredited and supported DevSecOps infrastructure, to accelerate widespread adoption of DevSecOps methodology IAW DoD Digital Modernization strategy. ERP CS provides the AF target environments for AF ERP mission applications. This acquisition is critical for multiple hosting environments leveraging DoD Joint Information Environment (JIE) Core Data Centers (CDC), commercial cloud capabilities and DISA brokered cloud capabilities in compliance with the Air Force Information Technology (AF IT) baselines. This effort also provides technical expertise, programmatic guidance, and policy navigation that supports AF approved application rationalization processes to multiple hosting environments and enterprise IT Lifecycle Capabilities Integration Environment (CIE) testing of services.

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

	FY 2022	FY 2023	FY 2024
Title: Platform One	17.505	63.687	0.000
Description: Platform One is the DoD CIO's preferred DevSecOps enterprise solution delivering full stack automation tools, services, and standards as-a-service. Platform One allows programs developing and/or delivering software to focus on building flexible and interoperable mission capability rapidly and securely.			
FY 2023 Plans: FY23 centrally funds core services, including but not limited to: ZeroTrust Cloud Native Access Point for development, test and production enclaves; software hardening pipeline and repository dedicated to software Supply Chain Risk Reduction (SCRM) and Software Bill of Materials (SBOM) for Commercial and Open Source software; Infrastructure as Code (IaC) tailorable to a program's needs and deployable to unclassified and classified cloud or on-premise environments. This infrastructure comes with a continuous-Authority to Operate/Field (c-ATO/F) addressing the Risk Management Framework (RMF). Platform One capability enables continuous delivery of software capabilities through the use of secure, tailorable and agile software factory services, tools and standards.			
- Enable DevSecOps efforts supporting DoD CIO priorities.			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0308602F / ENTEPRISE INFORMATIO N SERVICES (EIS)	Project (Number/Name) 66ACS1 / ACQ and Command Support Integration

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Develop and deliver DevSecOps tools and services supporting enterprise transformation of software capabilities to match the speed of technology and threats. - Integrate and revolutionize enterprise zero trust architecture to provide secure and resilient DevSecOps from development to edge employment. - Expand container hardening capability to higher impact levels and enhance supply chain risk mitigation of commercial and open source products. <p>FY 2024 Plans: N/A, In FY 2024 Platform One efforts will transition from BPAC 66ASC1 to BPAC 6622P1.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: In FY 2024 Platform One efforts will transition from BPAC 66ASC1 to BPAC 6622P1.</p>			
<p>Title: Enterprise Resource Planning Common Services</p> <p>Description: The portfolio aims to provide Joint Information Environment compliant enterprise and/or local application and data hosting. ERP CS costs consist of subject matter expert support, A&AS support, license costs, PMA directorate assessments, cyber security tools/services, system implementer, studies, Platform One costs, independent test services and other miscellaneous costs to successfully manage the program. This effort will design, develop and deliver consolidated common services for ERP applications in a cloud environment under Platform One. Environments targeted for consolidation are development, test, production and disaster recovery across at least two geographically separated locations. This effort includes completing cybersecurity requirements and acquisition of supporting cloud infrastructure, software and management resources.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Provide access to modernized, standard, secure, and resilient IT infrastructure and platforms to support application workload and data storage. - Provide access to commercial cloud offerings, and IT service support maximizing use of shared services and industry best practices. - Improve Systems Agility, deliver Shared Services, increase Speed of Delivery, and improve Security. - Baseline and plan for refactoring ERPs to move to an IaaS and SaaS cloud environment. - Continue plan with ERPs to promote standardization and chart a path to use out-of-the-box software solutions. - Continue providing common tools and services for the ERPs. - Continue cloud studies and cloud development for the three ERP programs: DEAMS, AFIPPS, and MROi. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Will continue providing access to modernized, standard, secure, and resilient IT infrastructure and platforms to support application workload and data storage for the Air Force ERPs supporting DoD CIO priorities. 	8.499	9.413	8.908

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0308602F / ENTEPRISE INFORMATIO N SERVICES (EIS)	Project (Number/Name) 66ACS1 / ACQ and Command Support Integration

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
- Will continue agile development and delivery of updates to the established DevSecOps infrastructure, tools, and services to meet the requirements of the ERPs and applications migrating to ERP CS environments in Cloud One Oracle Cloud Infrastructure (OCI). - Will provide support for the migration/deployment of the MROi, DEAMS and AFIPPS Production instances to the ERP CS-developed environments in Cloud One OCI. <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding decrease aligns fiscal requirements to program schedule.			
Accomplishments/Planned Programs Subtotals	26.004	73.100	8.908

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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>					R-1 Program Element (Number/Name) PE 0702806F / <i>Acquisition and Management Support</i>							
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	36.317	49.152	20.478	0.000	20.478	21.603	21.645	21.528	21.728	0.000	192.451
66ACSI: <i>ACQ and Command Support Integration</i>	-	36.317	49.152	20.478	0.000	20.478	21.603	21.645	21.528	21.728	0.000	192.451

A. Mission Description and Budget Item Justification

The program funds efforts to meet the Defense Acquisition Workforce Improvement Act (DAWIA), as well as Congressional, SECDEF, and SECAF mandates to provide program management execution tools, systems integration and architectural analysis, information technology infrastructure development, and technical workforce management. Funding also provides the framework for Air Force business and acquisition transformation in developing capabilities-based architectures, re-engineering and enabling technologies, integrating robust systems engineering into early acquisition processes, acquisition process improvement analysis, and developing and managing a technical workforce with the expertise to uniformly implement OSD and Air Force engineering guidance and policies. These efforts provide stability in Air Force Acquisition by integrating major processes to reverse trends toward unpredictable program cost, schedule, and performance to facilitate quick response to urgent operational needs from across the entire spectrum of potential conflicts. These integrated capabilities will provide OSD and AF acquisition leadership insights needed to effectively manage a complex portfolio of acquisition programs through more timely and reliable access to authoritative acquisition data.

The Air Force is refocusing a number of science and technology concept explorations in artificial intelligence (AI) across command, control, communications, sensor, and intelligence areas within PE 0602788F, Dominant Information Sciences and Methods, and PE 0602204F, Aerospace Sensors, to improve and accelerate the delivery of artificial intelligence warfighting capabilities under the direction of both the Vice Chief of Staff of the Air Force and the Assistant Secretary of the Air Force (Acquisition, Technology & Logistics) and exercised through the Air Force Capability Development Council. The Air Force will now perform these science and technology concept explorations under this Program Element as the Air Force continues to respond to and reflect 1) the vision outlined for Artificial Intelligence in the 2018 National Defense Strategy, 2) expectations outlined by the February 2019 White House Executive Order on Artificial Intelligence and the United States Department of Defense (DoD) Artificial Intelligence Strategy, 3) initiatives by other Armed Services to create AI-centric organizations, 4) Senior Air Force leadership goals to develop Artificial Intelligence applications for the United States Air Force in the near term, and 5) senior Department of Defense leadership objectives to enrich and strengthen the broader Air Force and Department Artificial Intelligence ecosystem to impact national security.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 \$0M was expended for civilian pay expenses in this program element, and in FY23 \$0M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0702806F / <i>Acquisition and Management Support</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	37.211	24.306	25.736	0.000	25.736
Current President's Budget	36.317	49.152	20.478	0.000	20.478
Total Adjustments	-0.894	24.846	-5.258	0.000	-5.258
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-0.754			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	25.600			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.894	0.000			
• Other Adjustments	0.000	0.000	-5.258	0.000	-5.258

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

Project: 66ACSI: *ACQ and Command Support Integration*

Congressional Add: *Digital Transformation Office (DTO)*

Congressional Add: *Document Generation Platform*

Congressional Add: *Digital Ecosystem Development*

Congressional Add Subtotals for Project: 66ACSI

Congressional Add Totals for all Projects

	FY 2022	FY 2023
	3.886	-
	-	15.000
	-	10.600
Congressional Add Subtotals for Project: 66ACSI	3.886	25.600
Congressional Add Totals for all Projects	3.886	25.600

Change Summary Explanation

FY2024 funding reduced by \$5.258 million to support other higher Air Force requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0702806F / <i>Acquisition and Management Support</i>				Project (Number/Name) 66ACSI / <i>ACQ and Command Support Integration</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
66ACSI: <i>ACQ and Command Support Integration</i>	-	36.317	49.152	20.478	0.000	20.478	21.603	21.645	21.528	21.728	0.000	192.451
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The program funds efforts to meet the Defense Acquisition Workforce Improvement Act (DAWIA), as well as Congressional, SECDEF, and SECAF mandates to provide program management execution tools, systems integration and architectural analysis, information technology infrastructure development, and technical workforce management. Funding also provides the framework for Air Force business and acquisition transformation in developing capabilities-based architectures, re-engineering and enabling technologies, integrating robust systems engineering into early acquisition processes, acquisition process improvement analysis, and developing and managing a technical workforce with the expertise to uniformly implement OSD and Air Force engineering guidance and policies. These efforts provide stability in Air Force Acquisition by integrating major processes to reverse trends toward unpredictable program cost, schedule, and performance to facilitate quick response to urgent operational needs from across the entire spectrum of potential conflicts. These integrated capabilities will provide OSD and AF acquisition leadership insights needed to effectively manage a complex portfolio of acquisition programs through more timely and reliable access to authoritative acquisition data.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: Acquisition Mandates	3.110	1.246	1.864
Description: Supporting Congressional, SECDEF, and SECAF mandates. Program funding provides the framework for Air Force business and acquisition.			
FY 2023 Plans: Continue program management and resources management oversight.			
FY 2024 Plans: Continue program management and resources management oversight.			
FY 2023 to FY 2024 Increase/Decrease Statement: Increased requirement.			
Title: Technical and Analytical Support	1.849	1.732	2.270

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0702806F / <i>Acquisition and Management Support</i>	Project (Number/Name) 66ACSI / <i>ACQ and Command Support Integration</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Description: Supports Acquisition Domain-level effort to integrate existing acquisition business systems/services, data, and processes supporting key Acquisition capabilities at the enterprise level (via the Acquisition Domain Capabilities Integration (ADCI) activities). This support entails analysis required to architect an integrated environment on multiple hosting platforms to support the portfolio of acquisition business systems by solving problems across/outside of individual system boundaries with the goal of reducing redundancy, improving systems operations, and improving management of data resulting in dramatically improved transparency, efficiency, and effective management of the Acquisition process. This support also helps implement standards for data management and service-oriented design methodology to facilitate efficiency and interoperability as well as providing some business intelligence services. The creation and support of domain-level requirements and governance processes as well as the creation of domain-wide data standards are additional support items provided. In addition, includes support for Artificial Intelligence/Machine Learning (AI/ML) pilots, experimentation associated with business analytics, acquisition program performance measures, and predictive analytics in support of decision-making and workforce training for the acquisition enterprise.</p> <p>FY 2023 Plans: Continue supporting the automation of key Life Cycle Management Center (LCMC) and Space & Missile Systems Center (SMC) acquisition processes and onboarding of new capabilities across the Acquisition Domain. Supports refinement of CIO portfolio Artificial Intelligence (AI)/Machine Learning (ML) vision and incorporating functionalities built as part of AI/ML pilots, experimentation associated with business analytics, acquisition program performance measures, and predictive analytics in support of decision-making and workforce training for the acquisition enterprise.</p> <p>FY 2024 Plans: Continue supporting the automation of key Life Cycle Management Center (LCMC) and Space & Missile Systems Center (SMC) acquisition processes and onboarding of new capabilities across the Acquisition Domain. Supports refinement of CIO portfolio Artificial Intelligence (AI)/Machine Learning (ML) vision and incorporating functionalities built as part of AI/ML pilots, experimentation associated with business analytics, acquisition program performance measures, and predictive analytics in support of decision-making and workforce training for the acquisition enterprise.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increased requirement.</p>				
<p>Title: Associated Tool Development</p> <p>Description: Upgrade the enterprise tools that assist PMs and acquisition professionals with the day-to-day program management tasks throughout an Acquisition program's lifecycle.</p> <p>FY 2023 Plans:</p>		0.788	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0702806F / <i>Acquisition and Management Support</i>	Project (Number/Name) 66ACSI / <i>ACQ and Command Support Integration</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
N/A				
<p>FY 2024 Plans: Upgrade the enterprise tools that assist PMs and acquisition professionals with the day-to-day program management tasks throughout an Acquisition program's lifecycle.</p>				
<p>Title: Project Management Resource Tools (PMRT)</p> <p>Description: Upgrade enterprise PMRT tools that provide program/project resource management support to the Acquisition community.</p> <p>FY 2023 Plans: Continue enhancement of PMRT to allow increased visibility to acquisition programmatic and financial information for all AF Acquisition investment programs. Continued expansion of critical PMRT interfaces via Acquisition Data Service Broker (ADSB) and enhance PMRT native apps. Increase PMRT refactoring and migration to the Cloud for the incorporation of Artificial Intelligence (AI), Machine Learning (ML), and Predictive Analysis.</p> <p>FY 2024 Plans: Continue enhancement of PMRT to allow increased visibility to acquisition programmatic and financial information for all AF Acquisition investment programs. Continued expansion of critical PMRT interfaces via Acquisition Data Service Broker (ADSB) and enhance PMRT native apps. Increase PMRT refactoring and migration to the Cloud for the incorporation of Artificial Intelligence (AI), Machine Learning (ML), and Predictive Analysis.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decreased requirement.</p>		8.677	5.713	3.692
<p>Title: Capabilities Integration Environment (CIE)</p> <p>Description: CIE is an Infrastructure as a Service (IaaS) provider that enables application proofs-of-concept, development, integration, and test activities in accredited on-premises government cloud and third-party commercial cloud environments.</p> <p>FY 2023 Plans: Continue support for secure, scalable environment for R&D, DT/OT, integration, exercises, experimentation, acquisition development and direct Warfighter support.</p> <p>FY 2024 Plans:</p>		0.938	1.147	1.349

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0702806F / <i>Acquisition and Management Support</i>	Project (Number/Name) 66ACSI / <i>ACQ and Command Support Integration</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
Continue support for secure, scalable environment for R&D, DT/OT, integration, exercises, experimentation, acquisition development and direct Warfighter support. FY 2023 to FY 2024 Increase/Decrease Statement: Increased requirement.				
Title: USAF Artificial Intelligence Accelerator at MIT Description: Establish the first phase of a state-of-the-art, end-to-end, sustainable ecosystem of AI technology from basic research to transformed data sets ready for use in developing artificial intelligence algorithms and operational prototypes. This effort creates an environment where integrated teams of MIT researchers and USAF Airmen develop Challenge Problems in AI and invites the academic and commercial communities to propose solutions to those Challenge Problems. FY 2023 Plans: Continue to perform each of the following activities: Guardian Autonomy for Safe Decision Making; Fast AI; Transferring Multi-Robot Learning through Virtual and Augmented Reality for Rapid Disaster Response; Conversational Interaction for Unstructured Information Access and Language Learning; Multimodal Vision for Synthetic Aperture Radar; AI-Assisted Optimization of Training Schedules; The Earth Intelligence Engine; Robust Neural Differential Models for Navigation and Beyond; Objective Performance Prediction & Optimization using Physiological and Cognitive Metrics; AI-Enhanced Spectral Awareness and Interference Rejection; Application of Evolutionary Algorithms for DoD Complex Enterprises; AI Education Research: Know, Apply and Lead; and Automation in Space Domain Awareness. FY 2024 Plans: Continue to perform each of the following activities: Guardian Autonomy for Safe Decision Making; Fast AI; Transferring Multi-Robot Learning through Virtual and Augmented Reality for Rapid Disaster Response; Conversational Interaction for Unstructured Information Access and Language Learning; Multimodal Vision for Synthetic Aperture Radar; AI-Assisted Optimization of Training Schedules; The Earth Intelligence Engine; Robust Neural Differential Models for Navigation and Beyond; Objective Performance Prediction & Optimization using Physiological and Cognitive Metrics; AI-Enhanced Spectral Awareness and Interference Rejection; Application of Evolutionary Algorithms for DoD Complex Enterprises; AI Education Research: Know, Apply and Lead; and Automation in Space Domain Awareness. FY 2023 to FY 2024 Increase/Decrease Statement: Decreased requirement.		15.000	13.514	11.103
Title: Development and Retention Description: Supports activities to develop, manage and retain the acquisition workforce.		2.069	0.200	0.200

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0702806F / <i>Acquisition and Management Support</i>	Project (Number/Name) 66ACSI / <i>ACQ and Command Support Integration</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p><i>FY 2023 Plans:</i> Continue to perform activities to develop, manage, and retain the acquisition workforce by providing training on enhanced business and engineering processes.</p> <p><i>FY 2024 Plans:</i> Continue to perform activities to develop, manage, and retain the acquisition workforce by providing training on enhanced business and engineering processes.</p>			
Accomplishments/Planned Programs Subtotals	32.431	23.552	20.478

	FY 2022	FY 2023
<i>Congressional Add:</i> Digital Transformation Office (DTO)	3.886	-
<i>FY 2022 Accomplishments:</i> Digital Transformation Office (DTO) - Demonstrate a secure document technology that showed success via the SIBR/STTR program via both Phase I and Phase II contracts. Phase 3 SBIR/STTR issued direct to Inkit that builds out a federal use for its document security technology. (\$3.886M)		
<i>Congressional Add:</i> Document Generation Platform	-	15.000
<i>FY 2023 Plans:</i> Doc generation Platform - Creating a file wrapper that enable secure documents at the document level that are geo fenced, open count controlled, time stamp corruptible, etc. (\$15.M)		
<i>Congressional Add:</i> Digital Ecosystem Development	-	10.600
<i>FY 2023 Plans:</i> Digital First Ecosystem - Building out connectivity between digital doers, digital needs, and digital solutions both inside and outside of the government. Leveraging NetworkOS, facilitated workshops, and culture to enable digital. (\$10.6M)		
Congressional Adds Subtotals	3.886	25.600

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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0804731F / <i>General Skill Training</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	1.506	0.871	0.796	0.000	0.796	1.659	1.700	1.734	1.770	Continuing	Continuing
665297: <i>Technical Training Information Systems</i>	-	1.506	0.871	0.796	0.000	0.796	1.659	1.700	1.734	1.770	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

TECHNICAL TRAINING MANAGEMENT SYSTEM [TTMS]: TTMS provides AETC organizations with a world class commercial-off-the-shelf [COTS] / government-off-the-shelf [GOTS] learning management system which supports six functions: course design and development; student evaluation; instructor management; student management; data analysis; and resource administration. TTMS is a centralized web-based system which provides productivity enhancements and higher degree of efficiency to AETC. The primary requirement objectives currently under development are: 1] Integration of Basic Training Management System [BTMS] capabilities and student records into the TTMS.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	1.506	0.871	1.620	0.000	1.620
Current President's Budget	1.506	0.871	0.796	0.000	0.796
Total Adjustments	0.000	0.000	-0.824	0.000	-0.824
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.824	0.000	-0.824

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

	FY 2022	FY 2023	FY 2024
Title: Technical Training Management System [TTMS]	1.506	0.871	0.796
Description: Provided TTMS productivity enhancements and higher degree of efficiency to AETC [i.e., Military Training Leader and Basic Training Management System].			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0804731F / <i>General Skill Training</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<i>FY 2023 Plans:</i> Continue TTMS development <i>FY 2024 Plans:</i> Continue TTMS development <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increased requirement			
Accomplishments/Planned Programs Subtotals	1.506	0.871	0.796

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

N/A

Remarks

E. Acquisition Strategy

Not applicable

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0804772F / <i>Training Developments</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	2.957	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.957
665898: <i>Management HQ-R&D</i>	-	2.957	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.957
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Develop effective training approaches. New technologies will be studied and validated. Results will be used increase training effectiveness, and streamline training programs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)

	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	2.957	0.000	0.000	0.000	0.000
Current President's Budget	2.957	0.000	0.000	0.000	0.000
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0804772F / <i>Training Developments</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Training Development Description: Develop training technologies, procedures, and processes to increase training effectiveness. FY 2023 Plans: No funding requested. FY 2024 Plans: N/A	2.957	0.000	0.000
Accomplishments/Planned Programs Subtotals	2.957	0.000	0.000

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

N/A

Remarks

E. Acquisition Strategy

Program Office(s) will select their own acquisition strategies based on Air Education and Training Command's innovation unit (Detachment 24) requirements.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0909999F I Financing for Cancelled Account Adjustments
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	17.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.055
664277: Financing for Canceled Account Adj	-	17.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.055
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Financing for Cancelled Account Adjustment.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)

	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	17.055	0.000	0.000	0.000	0.000
Total Adjustments	17.055	0.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	17.055	0.000	0.000	0.000	0.000

Change Summary Explanation

Funds were required for payment of cancelled year validated invoices

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

	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>
Title: Financing for Cancelled Account Adjustment	17.055	0.000	-
Description: Funds were required for payment of cancelled year validated invoices.			
FY 2023 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0909999F / <i>Financing for Cancelled Account Adjustments</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
No funding in FY23.			
Accomplishments/Planned Programs Subtotals	17.055	0.000	-

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

N/A

Remarks

E. Acquisition Strategy

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 1001004F / <i>International Activities</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	2.420	2.593	3.917	0.000	3.917	4.582	4.697	4.793	4.894	Continuing	Continuing
664645: <i>International Cooperative Research & Development</i>	-	2.420	2.593	3.917	0.000	3.917	4.582	4.697	4.793	4.894	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The mission of this program is to establish, sustain, expand, and enhance mutually beneficial international partnerships through the implementation of air, space, and cyber international armament cooperation (IAC) agreements thereby supporting DAF and DoD goals and objectives. These International Agreements (IAs) will: significantly improve US and allied conventional defense capacity and capabilities; accelerate the availability of defense systems; realize solutions to meet capability gaps; acquire, upgrade, sustain, and/or support common or interoperable equipment with our allies; create cooperative acquisition, production, or logistic partnerships; promote mutual and equitable sharing of effort, cost, information, and risk; provide access to remote or operational test sites; leverage economies of scale; and promote interoperability and commonality with our allies.

The DAF is party to more than 650 air, space, and cyber bilateral and multilateral IAs to solve common US and allied military capability gaps, develop materiel solutions, harmonize requirements, and build interoperability with our international partners. This program element funds the DAF to identify, develop, process, negotiate, conclude, implement, and manage IAs in compliance with statutory provisions, legal authorities, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, equitability criteria, industrial base factors, political-military interests, and the National Defense Strategy (NDS). Included in this budget are: air, space, and cyber IAC and IA activities; technology assessments; specialized working groups; Air Senior National Representative (ASNR) activities; IA program and project reviews; technology assessments; bilateral and multilateral agreement development; Engineering and Scientist Exchange Program (ESEP); and Administrative and Professional Exchange Program (APEP).

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force				Date: March 2023	
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>		R-1 Program Element (Number/Name) PE 1001004F / <i>International Activities</i>			
B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	2.420	2.593	4.472	0.000	4.472
Current President's Budget	2.420	2.593	3.917	0.000	3.917
Total Adjustments	0.000	0.000	-0.555	0.000	-0.555
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.555	0.000	-0.555
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: International Partnership Activities	0.621	0.694	0.800	0.000	0.800
Description: Advocate, develop, and support DAF activities, goals, and objectives to build global partnerships in support of national security objectives and the NDS through IAC agreements. Funds DAF participation in NATO forums to promote harmonization and interoperability. Funds DAF support and participation in OSD bi-lateral IAC forums. Funds technical assessments and discussions that support technology development activities and interoperability. Funds DAF efforts to enhance existing relationships with Australia, Belgium, Canada, Denmark, France, Germany, Israel, Italy, Japan, NATO, Netherlands, New Zealand, Norway, South Korea, Singapore, Spain, Sweden, and UK. Funds DAF efforts to strengthen/build IAC relationships with the Czech Republic, Estonia, Finland, Hungary, India, Luxembourg, Poland, and Turkey. Funds DAF efforts to establish IAC relationships with Brazil, Chile, Columbia, Peru, South Africa, Taiwan, and other emerging partners IAW the NDS.					
FY 2023 Plans: Advocate, develop, and support DAF goals and objectives to establish, sustain, expand and enhance mutually beneficial partnerships between the US and coalition partners to meet current and emerging global strategic challenges through optimization of interoperability, integration, and interdependence between coalition forces. Efforts will have an enhanced focus on mutually beneficial partnerships IAW the NDS.					
FY 2024 Base Plans:					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 1001004F / <i>International Activities</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase efforts to advocate, develop, and support of IAC goals and objectives to establish, sustain, expand and enhance mutually beneficial partnerships between the US and coalition partners to meet current and emerging global strategic challenges through optimization of interoperability, integration, and interdependence between coalition forces. Efforts will have an enhanced focus on mutually beneficial partnerships IAW the NDS. FY 2024 OCO Plans: \$0 are planned for FY 2024 OCO Plan. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to high expenditure rates in FY 2022, will return Program to normal funding level, ensuring the DAF can increase International Partnership Activity efforts to meet national security objectives.					
Title: International Armaments Cooperation (IAC) Agreement Activities Description: Identify, develop, process, negotiate, conclude, and implement RDT&E and acquisition bilateral and multilateral IAC Agreements that meet the goals, objectives, and mission of the DAF and DoD. IAC activities provide the DAF access to: critical geography; remote test ranges; challenged environments; operational environments; threat scenarios; new capabilities; world class R&D facilities; personnel; cost sharing; economies of scale; critical information systems; and launch vehicles. IAC activities will meet warfighter needs and enhance interoperability by cooperating with our partners in the areas of: secure communications; positioning, navigation, and timing; situational awareness; materials and composites; human effectiveness; space domain awareness; robotics; nanomaterial; pilot performance; missile warning; satellite communications; quantum communication; coalition information sharing; biometrics; munitions design; hypersonics; alternative energy; improvised explosive devices defeat; weapons of mass destruction defeat; responsive space; ground and space based radars; sensors; autonomous control; distributed missions; training systems; synthetic aviation fuels; lasers; weapon systems; weapon delivery; unmanned aerial systems; armaments interface; swarming; intelligence, surveillance and reconnaissance; sustainment; gap analysis; simulators; combined logistics; mission planning systems; world-wide flight requirements; electronic warfare; safety; aging aircraft; airlift; tankers; trainers; directed energy; weapon stores; systems acquisition; interoperability; and system development, updates, upgrades, and modifications. FY 2023 Plans: Identify, develop, process, negotiate, conclude, implement, and manage RDT&E/Acquisition bilateral and multilateral IAs that meet the goals, objectives, and mission of the DAF and DoD in the air, space, and cyber	1.499	1.599	2.817	0.000	2.817

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 1001004F / <i>International Activities</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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domains. Development and negotiations will continue on IAs not concluded in FY 2022. New air, space and cyber IAs are being pursued IAW DAF and OSD goals and objectives.

FY 2024 Base Plans:
Increase efforts to identify, develop, process, negotiate, conclude, implement, and manage RDT&E/Acquisition bilateral and multilateral IAs that meet the goals, objectives, and mission of the DAF and DoD in the air, space, and cyber domains. Development and negotiations will continue on IAs not concluded in FY 2023. New IAs will be pursued IAW DAF and OSD goals and objectives.

FY 2024 OCO Plans:
\$0 are planned for FY 2024 OCO Plan.

FY 2023 to FY 2024 Increase/Decrease Statement:
Funding increased due to above average expenditure rates in FY2022, will return Program to normal funding level, ensuring the DAF can increase IAC Agreement Activities to meet national security objectives.

Title: Engineer and Scientist Exchange Program/Administrative and Professional Exchange Program (ESEP/APEP)	0.300	0.300	0.300	0.000	0.300
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Description: Oversight and program execution of ESEP and APEP Agreements with partner governments. Military and civilian personnel from DAF Command, Product Centers, Test Centers, and Logistic Centers for 2 year tours at selected allied partner government laboratories and facilities. Partner government military and civilian personnel are placed in DAF RDT&E facilities.

FY 2023 Plans:
Execute and support DAF execution of the ESEP and APEP personnel placed in foreign partner or DAF facilities.

FY 2024 Base Plans:
Continue to execute and support DAF execution of the ESEP and APEP personnel placed in foreign partner or DAF facilities.

FY 2024 OCO Plans:
\$0 are planned for FY 2024 OCO Plan.

FY 2023 to FY 2024 Increase/Decrease Statement:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 1001004F / <i>International Activities</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
Accomplishments/Planned Programs Subtotals	2.420	2.593	3.917	0.000	3.917

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTE 06 1001004F: <i>International Activities</i>	0.000	0.000	0.000	0.000	0.000	-	-	-	-	0.000	0.000

Remarks
There is no other program funding for the activities pursued under 1001004F International Activities.

E. Acquisition Strategy
This program element is the only source of DAF funds to identify, develop, process, negotiate, conclude, implement, and manage IAC opportunities to: (a) acquire, develop, upgrade, sustain, and support common or interoperable equipment with our allies; (b) leverage USAF resources through cost sharing and economies of scale with our partners; (c) exploit the best US and allied technologies for equipping coalition forces; and (d) foster interoperability and commonality with our allies. We obtain these benefits only after IAC opportunities are identified, explored, assessed, developed and IAs are developed, negotiated and concluded. This PE provides funds to execute up-front IAC responsibilities, realize cooperative opportunities, assess allied technologies and generate sound, cost-effective cooperative programs between the DAF and our international partners in the areas of air, space and cyberspace. Once IAs are concluded they are transferred to the appropriate technology or system program office and are then funded by the program office.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 6: <i>RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 1206864F / <i>Space Test Program (STP)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
662617: <i>Free-Flyer Spacecraft Missions</i>	-	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
Note: The \$0.003M entry in FY 2022 is a database error. All funding after FY 2020 for the Space Test Program (STP) resides in PE 1206864SF, in the 3620 Research, Development, Test & Evaluation, Space Force appropriation.

A. Mission Description and Budget Item Justification

The Space Test Program (STP) conducts space test missions for the purpose of accelerating DoD space technology transformation while lowering developmental risk. The program integrates, launches, and operates an optimally selected number of DoD-sponsored experiments consistent with Space Experiments Review Board (SERB) priority, opportunity, and funding. STP missions provide a cost-effective way to flight test new militarily relevant space system technologies, concepts, and designs, providing a way to:

- Support the acquisition block development approach
- Demonstrate and develop responsive research and development (R&D) space capabilities
- Provide early operational capabilities to quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Develop, integrate, test, and acquire advanced payload support hardware for launch vehicles (LV), commercial launch services, and human-rated spaceflight vehicles
- Expand and leverage international opportunities to further access for the US and its allies' R&D payloads

The Deputy Secretary of Defense Space Test Program Management & Funding Policy, issued in July 2002, reaffirmed STP as the primary provider of spaceflight for the DoD space research community. The July 2002 policy statement also reaffirmed STP's role as the single manager for all DoD payloads on the International Space Station (ISS).

Space acquisition must respond with speed and agility to emerging adversary threats. Space and Missile Systems Center (SMC) is transforming the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified /classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanism to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new, or repurpose capabilities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 1206864F / <i>Space Test Program (STP)</i>
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This program element may include necessary civilian pay expenses required to manage, execute, and deliver STP weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392F and 1206398F.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.003	0.000	0.000	0.000	0.000
Current President's Budget	0.002	0.000	0.000	0.000	0.000
Total Adjustments	-0.001	0.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.001	0.000	0.000	0.000	0.000

Change Summary Explanation

Database error

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Payload Integration Description: Continue STP-5 planning, integration and design activities (SIRI-III, PNTOC, and SCO-1 payloads). Continue STPSat-8 integration and design activities (STEP 2.0 (Space Test Experiment Platform)). Conduct payload integration of STP-H9, STP-H10, STP-28AR1, and STP-Sat7. Begin design for future ISS missions. Complete satellite acquisition and integration of STPSat-7 and its ground systems. Complete STP-H11 design activities and begin integration activities. Conduct STP-S29 technical analysis and payload integration rideshare. Initiate STP Small Launch STP-S30 (every 2 yrs) Mission Unique and Integration Costs. Collaborate on technical analysis and other future missions as required. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, etc.	0.002	-	-
Title: Launch Vehicle and Launch Services	0.000	-	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 1206864F / <i>Space Test Program (STP)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: Continue to Support spaceflight worthiness and "Do No Harm" Certification. Execute STP-S29A, S29B, STP S28B, S28C, and other small launch initiatives as required. Continue STP-5 medium launch initiative. Plan and complete technical analysis for commercial rideshare launch of DoD SERB experiments and International Space Access Review Board (ISARB) approved experiments. Conduct STPSat-7, STP-H10 and, and conduct other launch activities as required.</p> <p>Title: On Orbit Satellite Operations</p> <p>Description: Continue on-orbit operations for SPIRRAL (Space Power InfraRed Regulation and Analysis of Lifetime). Continue on-going operations for ISS payloads and DoD SERB payloads as requested. Complete Mission Operations for STP-H9, STP-S28A (RECURVE payload), STP-S28B (XVI payload), STP-S28C (EPIC Athena payload), STP-S28AR1, STP-27QJ ((Queen's Jubilee) (CIRCE and ECLIPSE payloads)). Prepare on-orbit operations for STP-H10, STP-S29A, WSCE-T, and STPSat-7.</p>	0.000	-	-
Accomplishments/Planned Programs Subtotals	0.002	-	-

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

Remarks
In FY2021, PE 1206864F, Space Test Program efforts were transferred to Appropriation 3620, Research, Development, Test & Evaluation, Space Force, PE 1206864SF Space Test Program from Appropriation 3600, Budget Activity 06 due to the creation of a new Appropriation for Space Force.

E. Acquisition Strategy
N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	8.333	17.267	41.464	0.000	41.464	37.182	7.357	7.504	3.001	Continuing	Continuing
674101: <i>Undergraduate Remotely Piloted Aircraft Training</i>	-	3.790	0.857	0.877	0.000	0.877	0.896	0.918	0.937	0.362	Continuing	Continuing
676035: <i>T-6 Operational System Development</i>	-	0.061	6.815	36.721	0.000	36.721	36.141	6.292	6.419	2.482	0.000	94.931
676037: <i>T-38 Operational System Development</i>	-	4.482	9.595	3.866	0.000	3.866	0.145	0.147	0.148	0.157	0.000	18.540

A. Mission Description and Budget Item Justification

Supports Air Education and Training Command's (AETC) implementation of Specialized Undergraduate Pilot Training and the Department of Defense initiative for joint pilot training.

Undergraduate Remotely Piloted Aircraft (RPA) Training (URT) continues development, test, and implementation activities for the new URT Fundamentals Training System. This program produces RPA pilots and Sensor Operators from accession sources to man RPA squadrons.

T-6 Operational System Development continues follow on development activities to the T-6 including but not limited to studies & development efforts, instructional courseware, and logistics support to include Diminishing Manufacturing Sources & Material Shortages (DMSMS) and development activities related to DMSMS. Included is development for the Next Generation On-Board Oxygen Generation System (OBOGS), Crash Survivable Recorder (CSR), Avionics Replacement Program (ARP) and associated upgrades. There are currently 443 aircraft in the Air Force inventory. Remaining service life is up to 39 years from the final delivery in May 2010.

The T-38 is a twin-engine, two-seat (tandem), supersonic jet trainer. The T-38C is used by AETC as an advanced trainer in Specialized Undergraduate Pilot Training and Introduction to Fighter Fundamentals, and by Air Force Materiel Command as a test bed for fighter-type aircraft capability. T-38A/B aircraft are used by Air Combat Command as a companion trainer for U-2 operational units and in Adversary Air (ADAIR) exercises supporting F-22 readiness, and by Air Force Global Strike Command as a companion trainer for B-2 operational units. There are currently 496 active T-38s in the Air Force inventory (53 T-38A, six AT-38B and 437 T-38C). T-38s first entered service in 1960 and average over 50 years old.

This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Specialized Undergraduate Pilot Training weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>
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0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.000 million was expended for civilian pay expenses in this program element, and in FY 2023 1.166 million is forecast for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	8.589	18.037	42.223	0.000	42.223
Current President's Budget	8.333	17.267	41.464	0.000	41.464
Total Adjustments	-0.256	-0.770	-0.759	0.000	-0.759
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-0.770			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-0.256	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-0.759	0.000	-0.759

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

Project: 674101: *Undergraduate Remotely Piloted Aircraft Training*

Congressional Add: *Undergraduate RPA Training Support (Congressional Add)*

Congressional Add Subtotals for Project: 674101

Congressional Add Totals for all Projects

	FY 2022	FY 2023
	2.976	-
	2.976	-
	2.976	-

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
674101: <i>Undergraduate Remotely Piloted Aircraft Training</i>	-	3.790	0.857	0.877	0.000	0.877	0.896	0.918	0.937	0.362	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This effort supports Air Education and Training Command's (AETC) implementation of Undergraduate Remotely Piloted Aircraft (RPA) Training (URT). URT produces RPA pilots and Sensor Operators from accession sources to man RPA squadrons.

Success of the program is heavily dependent on multiple training systems to prepare undergraduate students for entry in RPA Formal Training Units (FTU). 19AF/CC approved a significant system upgrade along with a change in software. This change allowed for a more flexible and adaptable training system that can carry URT into the future. Funding will be used to develop organic software capabilities, update obsolete equipment, and develop new training tools. The goal of these changes is to build a more capable set of training systems focused on reducing costs while ensuring RPA training is ready to support the National Defense Strategy from today into tomorrow.

Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues. Diminishing Manufacturing Sources efforts include removal of end-of-life software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient.

Implementation requirements and standards are defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Undergraduate RPA URT Training weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2023, \$0.150 million is forecast for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Undergraduate RPA Training Support	0.814	0.857	0.877	-	0.877
Description: Develop capabilities to support AETC's implementation of Undergraduate RPA Training to produce RPA pilots and Sensor Operators for RPA squadrons.					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p><i>FY 2023 Plans:</i> Continue development of new training simulation software to replace the current software utilized in the RPA Instrument Qualification Course to train RPA pilots. Continue effort to develop organic software capabilities and replace proprietary software. Move from small scale development into full scale implementation across both RPA Pilot and Sensor Operator training. Concurrently, software development will continue with feedback from small scale testing.</p> <p><i>FY 2024 Base Plans:</i> Continue development of new training simulation software to replace the current software utilized in the RPA Instrument Qualification Course to train RPA pilots. Continue effort to develop organic software capabilities and replace proprietary software. Move from small scale development into full scale implementation across both RPA Pilot and Sensor Operator training. Concurrently, software development will continue with feedback from small scale testing.</p> <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding increased due to economic adjustments.</p>					
Accomplishments/Planned Programs Subtotals	0.814	0.857	0.877	-	0.877

	FY 2022	FY 2023
<i>Congressional Add:</i> Undergraduate RPA Training Support (Congressional Add)	2.976	-
<i>FY 2022 Accomplishments:</i> Continue computer system upgrades to comply with DoD cyber security mandates.		
Congressional Adds Subtotals	2.976	-

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

N/A

Remarks

D. Acquisition Strategy

Transition from contractor support to organic sustainment at Oklahoma City Air Logistics Complex, Tinker AFB, OK.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0604233F / Specialized Undergraduate Flight Training				674101 / Undergraduate Remotely Piloted Aircraft Training							
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Undergraduate Remotely Piloted Aircraft Training Phased planning, design, and development of software updates	SS/FFP	555th SWES, Tinker ALC : Tinker AFB, OK	-	3.695	Mar 2022	0.603		0.446		-		0.446	Continuing	Continuing	-
Subtotal			-	3.695		0.603		0.446		-		0.446	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Direct Hire Civ Pay	TBD	Not specified. : TBD	-	0.000		0.150		0.000		-		0.000	Continuing	Continuing	-
Subtotal			-	0.000		0.150		0.000		-		0.000	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Undergraduate Remotely Piloted Aircraft Training PSC Other Government Cost and Contract Services	SS/CPFF	Program Office : WPAFB, OH	-	0.095	Oct 2021	0.104		0.431		-		0.431	Continuing	Continuing	-
Subtotal			-	0.095		0.104		0.431		-		0.431	Continuing	Continuing	N/A
Project Cost Totals			-	3.790		0.857		0.877		-		0.877	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Undergraduate RPA Training Support</i>				
URT Training System Design/Development	1	2022	2	2022
URT Training System Test Implementation	2	2022	4	2023
URT Training System Continued Design/Development	1	2023	4	2024
URT Training System Full Scale Implementation	4	2023	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
676035: <i>T-6 Operational System Development</i>	-	0.061	6.815	36.721	0.000	36.721	36.141	6.292	6.419	2.482	0.000	94.931
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

T-6 Operational System Development continues follow on development activities to Joint Primary Aircraft Training System (JPATS) including but not limited to studies and development efforts, instructional courseware, and logistics support to include Diminishing Manufacturing Sources (DMS) and development activities related to DMS. Included is development for the Next Generation On-Board Oxygen Generation System, Automatic Dependent Surveillance Broadcast Out (ADS-B Out), Crash Survivable Recorder, Avionics Replacement Program (ARP), Heads Up Display (HUD), Enhanced Mission Cockpit (EMC) and associated upgrades. There are currently 443 aircraft (442 AETC & one TA-D Test aircraft) in the Air Force inventory. Remaining service life is up to 39 years from the final delivery in May 2010.

Funding contained in this platform's documentation directly aids Air Education Training Command (AETC) flying training enterprise to continue its overall pilot production increase starting in FY2020 thus reducing the USAF Pilot Shortage.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Specialized Undergraduate T-6 Pilot Training weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2023 \$1.016 million is forecast for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: T-6A JPATS Studies and Analysis	0.061	0.000	0.150	-	0.150
Description: T-6A JPATS studies and development activities including but not limited to: Engine Preservation/ Upgrade Development, On-Board Oxygen Generation System (OBOGS) Characterization Study, Next Generation On-Board Oxygen Generation System Study, Supplemental Oxygen System Study, Cockpit Environmental Monitoring/Analysis, and Physiological Events (PE) Analysis, and HUD/EMC Study/Analysis. Includes engineering and contractor support/services and Program Support Costs (PSC).					
FY 2023 Plans: N/A					
FY 2024 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
ARP studies and analysis. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to ramp up of ARP studies and analysis activities.					
Title: T-6 Avionics Modernization (Avionics Replacement Program) Description: T-6A Avionics Replacement Program (ARP). Current T-6A avionics are comprised of analog and 1st generation digital components which are increasingly by DMSMS resulting in reduced Aircraft Availability (AA) and increased life-cycle sustainment costs. The current federated nature of the avionics suite compounds engineering and integration costs of replacement components. No less than 23 components impacts by DMSMS will be replaced by the ARP to improve reliability, availability and reduce system sustainment costs, via a modern, integrated, open-system avionics suite. The ARP will address DMSMS issues, current T-6A FAA compliance issues and fulfill outstanding safety recommendations. The solution will be incorporated into all 443 AETC aircraft and 80 Ground Based Trainers. FY 2023 Plans: Address DMSMS issues, current T-6A FAA compliance issues and fulfill outstanding safety recommendations. FY 2024 Base Plans: Contracting activities to award developmental contract for instrument panel integration; and other avionics suite engineering efforts. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase due to program ramp up of contracting activities and increased avionics suite engineering.	0.000	6.815	36.571	-	36.571
Accomplishments/Planned Programs Subtotals	0.061	6.815	36.721	-	36.721

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 06 Line Item 000999: <i>Initial Spares/Repair Parts</i>	0.000	0.000	0.000	-	0.000	11.047	10.280	10.547	10.822	0.000	42.696
• APAF 05 Line Item JPAT00: T-6	8.735	6.215	2.942	-	2.942	157.727	417.022	147.110	371.645	39.983	1,151.379
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>

D. Acquisition Strategy

The Air Force is lead service for the T-6 Operational Systems Development program and currently manages upgrades to the entire family of systems for both the Air Force and Navy. T-6 Operational Systems Development acquisition strategy for satisfying emerging software and hardware requirements is designed to enable competition and control cost. Developmental requirements resulting from Diminishing Manufacturing Sources and Material Shortages research and reporting will be evaluated and implemented incrementally to efficiently deliver required capabilities to AETC.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T-6 Avionics Modernization (Avionics Replacement Program)	C/FFP	Not specified. : TBD	-	-		4.728	Jul 2023	33.259	Nov 2023	-		33.259	Continuing	Continuing	-
Subtotal			-	-		4.728		33.259		-		33.259	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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/CPAF	Not specified. : Tinker, OK	-	0.061	May 2022	-		0.215	Mar 2024	-		0.215	Continuing	Continuing	-
Subtotal			-	0.061		-		0.215		-		0.215	Continuing	Continuing	N/A

Remarks
Continue Unknown Physiological Event's studies.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Cost [PSC] Contract Services	C/FFP	Not specified. : TBD	-	-		1.020	Feb 2023	1.172	Feb 2024	-		1.172	Continuing	Continuing	-
Direct Cite Civ Pay	C/TBD	Not specified. : TBD	-	-		1.016	Mar 2023	1.742	Oct 2023	-		1.742	Continuing	Continuing	-
PSC Other Government Costs	Various	Not specified. : TBD	-	-		0.051		0.333		-		0.333	Continuing	Continuing	-
Subtotal			-	-		2.087		3.247		-		3.247	Continuing	Continuing	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		-	0.061	6.815	36.721	-	36.721	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Joint Primary Aircraft Training System	
T-6 (JPATS) Studies	
Crew Systems Development	
T-6 Enhanced On-Board Oxygen Generation System	
Avionics Modernization	
T-6 Avionics Replacement Development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Joint Primary Aircraft Training System				
T-6 (JPATS) Studies	1	2022	4	2028
Crew Systems Development				
T-6 Enhanced On-Board Oxygen Generation System	1	2022	4	2022
Avionics Modernization				
T-6 Avionics Replacement Development	1	2023	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
676037: <i>T-38 Operational System Development</i>	-	4.482	9.595	3.866	0.000	3.866	0.145	0.147	0.148	0.157	0.000	18.540
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The T-38 RDT&E budget is focused on modifications needed to overcome part obsolescence, aging of critical components, emerging safety concerns, and cybersecurity risks. Operational Flight Program (OFP) block upgrades incorporate software improvements for the aircraft and aircrew training devices (ATDs) to address flight safety issues, and to comply with new capabilities mandated by Department of Defense, Federal Aviation Administration, or National Airspace System. RDT&E include but are not limited to the following:

RDT&E requirements for the T-38C fleet are summarized below in the Terminal Avionics Replacement Program (TARP). This effort includes both RDT&E and Procurement funding to replace aging and obsolete avionics components that can no longer be repaired. Planned components include, but are not limited to, the Electronic Engine Display (EED), Multi-Function Display (MFD), Video Data Transfer Unit (VDTU), and Head-Up Display Camera (HUDC). Failure to fund these efforts will result in fleet-wide T-38C non-serviceability starting in Apr 2026.

RDT&E requirements for the T-38A/B fleet are summarized below in the Low-cost Avionics Modernization Program (LAMP). LAMP addresses high failure rates in T-38A/B navigation system components, which are currently causing a safety risk to pilot spatial orientation. Flight restrictions associated with this risk are impacting F-22, U-2, and B-2 readiness. Planned component replacements include, but are not limited to, the Attitude Director Indicator and the Horizontal Situation Indicator. Failure to fund this effort will result in ongoing safety risk for the T-38A/B fleet, and increased impact to F-22, U-2, and B-2 readiness.

The T-38 Studies and Development effort captures ongoing and emerging RDT&E requirements, to include budget for flight test, OFP updates, and emerging obsolescence or safety issues. Additional revisions may occur under this effort. Failure to fund these efforts will prevent the T-38 program from rapidly responding to emerging RDT&E requirements. Current requirements in work include but are not limited to, Block 11, Speed Brake, and Canopy Open Warning.

This requirement for T-38 programs support performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D "Audits: audit of financial statements of Department of Defense components by independent external auditors."

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Specialized Undergraduate T-38 Pilot Training weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2023 \$0.000 million is forecast for civilian pay expenses in this program element.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: T-38C Terminal Avionics Replacement Program (TARP)</p> <p>Description: TARP develops replacements for four T-38C avionics components facing obsolescence. TARP includes, but is not limited to:</p> <p>1-2. Electronic Engine Display (EED) and Multi-Function Display (MFD) (T-38C Displays): Without a replacement, T-38C aircraft will be grounded once the repair contract for EED and MFD expires in Mar 2026.</p> <p>3-4. Video Data Transfer Unit (VDTU) and Heads-Up Display Camera (HUDC) (T-38C Recording Devices): Compact Flash Cards that record flight data are no longer procurable, with inventory depleted in FY24. Without a functioning VDTU, the T-38C will be unsuitable for training purposes, with no ability to record flight data. Without a replacement, the current HUDC will no longer function after the repair contract expires in Mar 2026. The HUDC is essential to the T-38C training mission, as a critical tool for student/instructor feedback.</p> <p>FY 2023 Plans: Continue development of EED, MFD; begin test for EED and MFD; begin development of VDTU and HUDC.</p> <p>FY 2024 Base Plans: Continue test for EED and MFD; continue development of VDTU and HUDC.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to reduced TARP developmental activities.</p>	0.000	7.683	3.539	0.000	3.539
<p>Title: T-38A/B Low-Cost Avionics Modification Program (LAMP)</p> <p>Description: LAMP will replace the current Attitude Director Indicator (ADI) and Horizontal Situation Indicator (HSI), which have low Mean Times Between Failure (MTBF). Ongoing LAMP activity may either refurbish or replace other navigation components, to include the Attitude Gyro Control Assembly, Rate Switching Gyro, Rate Gyro Transmitter, Servo-Amplifier, and Flight Director Computer.</p> <p>FY 2023 Plans: Integrate and test new primary flight references for the T-38A/B fleet.</p> <p>FY 2024 Base Plans:</p>	2.180	0.330	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force				Date: March 2023	
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>			
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to anticipated completion of LAMP efforts.					
Title: T-38 Studies and Development	2.302	1.582	0.327	0.000	0.327
Description: Studies and development (including flight test) to support: 1. Engineering Change Proposals (ECP) to overcome part obsolescence issues, maintain system currency, or address emerging safety concerns. 2. T-38C Operational Flight Program (OFP) block upgrades for aircraft and aircrew training devices (ATDs) to implement interface improvements, cybersecurity enhancements, airspace mandates, or other user requirements. FY 2023 Plans: Execute emergent engineering change proposals, to include investigation into a speed brake warning indicator and canopy open warning for T-38A/B aircraft, and other safety modifications FY 2024 Base Plans: Execute emergent engineering change proposals, to include investigation into a speed brake warning indicator and canopy open warning for T-38A/B aircraft, and other safety modifications FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to decrease of ECP requirements.					
Accomplishments/Planned Programs Subtotals	4.482	9.595	3.866	0.000	3.866

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item T03800: T-38	45.039	97.485	125.340	-	125.340	83.254	52.294	88.267	56.418	101.196	649.293

Remarks

D. Acquisition Strategy

The T-38 Platform Operations System Development acquisition strategy for satisfying emerging software and hardware requirements is designed to enable competition and cost control. Developmental requirements resulting from Diminishing Manufacturing Sources and Material Shortages research and reporting will be evaluated and implemented incrementally to efficiently deliver required capabilities to using commands. T-38C block upgrades will be required to maintain aircraft airworthiness and will be implemented based on Air Education and Training Command requirements. An appropriate level of technical data rights is required by all current support contracts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T-38 Studies and Development	C/FFP	The Boeing Company : St. Louis, MO	-	1.334	May 2022	1.200	Jul 2023	-		-		-	0.000	2.534	-
TARP	C/FFP	The Boeing Company : St. Louis, MO	-	0.000		7.258	Feb 2023	3.539	Nov 2023	-		3.539	Continuing	Continuing	-
LAMP	C/FFP	The Boeing Company : St. Louis, MO	-	2.180	Jul 2022	0.330	Jan 2023	-		-		-	Continuing	Continuing	-
Subtotal			-	3.514		8.788		3.539		-		3.539	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Flight Testing	PO	Not specified. : TBD	-	0.731		0.323		0.249		-		0.249	0.000	1.303	-
Subtotal			-	0.731		0.323		0.249		-		0.249	0.000	1.303	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PSC Contract Services	C/FFP	Not specified. : NV	-	0.199	Dec 2021	0.000	Dec 2022	0.060		-		0.060	Continuing	Continuing	-
PSC Other Government Costs	Various	Not specified. : NV	-	0.038	Dec 2021	0.484		0.018		-		0.018	Continuing	Continuing	-
Subtotal			-	0.237		0.484		0.078		-		0.078	Continuing	Continuing	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	4.482	9.595	3.866	-	3.866	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TARP T-38C																												
Displays Development																												
Displays Test																												
Recording Development																												
Recording Test																												
LAMP T-38 A/B																												
Development																												
Test																												
T-38 Studies & Development																												
Development/Test																												
Block 11 Development																												
Block 11 Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
TARP T-38C				
Displays Development	4	2022	1	2024
Displays Test	2	2023	3	2024
Recording Development	1	2023	3	2024
Recording Test	2	2024	4	2024
LAMP T-38 A/B				
Development	4	2022	1	2023
Test	1	2023	1	2023
T-38 Studies & Development				
Development/Test	1	2024	4	2028
Block 11 Development	4	2022	1	2024
Block 11 Test	3	2022	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604283F / <i>Battle Management Command and Control (BMC2) Sensor Development ARSR-4 Replacement - Hawaii</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	40.000	0.000	40.000	100.006	10.028	0.000	0.000	0.000	150.034
673587: <i>ARSR-4 Replacement - Hawaii</i>	-	0.000	0.000	40.000	0.000	40.000	100.006	10.028	0.000	0.000	0.000	150.034
Quantity of RDT&E Articles	-	-	-	-	-	-	1	-	-	-	-	

Note
 This program, BA 7, PE 0604283F, project 673587, ARSR-4 Replacement Hawaii (ARSR4R-HI), is a new start.

A. Mission Description and Budget Item Justification

This budget line item funds the replacement of the current Hawaii Air Route Surveillance Radar Version 4 (ARSR-4) to include prototype development, test, site preparation, and installation. The replacement radar will address DoD capability gaps driven by new threats and provide dual use for Hawaii for Air Traffic Control (ATC) and weather monitoring. The new system is designated the ARSR-4 Replacement Hawaii (ARSR4R-HI) Long Range Radar (LRR). It is a key component of the USAF's defense of Hawaii as a high priority mission for the DoD and supports NORAD/NORTHCOM and PACAF/INDOPACOM Deterrence Initiatives.

The ARSR4R-HI program develops an integrated Homeland Defense surveillance against air cruise missiles while maintaining the ATC capability required by both the Federal Aviation Administration (FAA) and the Department of Defense (DoD).

The ARSR4R-HI program is established to address the following surveillance shortfalls:

1. Lack of surveillance capabilities to meet today's mission needs such as inability to characterize and classify targets or cover all required airspace.
2. Inability to enhance current system capabilities to meet evolving needs for surveillance and tracking of modern aircraft and threats.
3. Obsolescence associated with 1980s era ARSR-4 equipment and infrastructure leading to excessive sustainment, operations, and maintenance costs.

To address these surveillance shortfalls, development of the ARSR4R-HI system will consist of improved detection performance for modern air threats, mitigate new interference sources, and utilize state of the art surveillance technologies and processing capabilities. The ARSR4R-HI effort will solidify the solution as a non-rotating, multi-panel, phased array radar system which provides persistent surveillance with improved accuracy and detection performance supporting an advanced engagement sequence to counter modern threats with target cueing and fire control quality data.

The FY2024 effort includes integration efforts between the Air Force and FAA systems including architecture development, requirements documents completion, acquisition strategy development, site surveys, requests to industry to identify mature systems data/availability, industry demonstration efforts and development of Request for Proposal.

The ARSR4R-HI consists of one ground based radar, tower, and ground based shelters, and other smaller Government Furnished Equipment (GFE) items. The FAA currently owns the site for the location of the installation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604283F / <i>Battle Management Command and Control (BMC2) Sensor Development ARSR-4 Replacement - Hawaii</i>
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This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$0.000M was expended for civilian pay expenses in this program element, and in FY23 \$0.000M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	40.000	0.000	40.000
Total Adjustments	0.000	0.000	40.000	0.000	40.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	40.000	0.000	40.000

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: ARSR-4 Replacement Hawaii (ARSR4R-HI)	-	-	40.000
Description: The FY2024 effort includes integration efforts between the AF and FAA systems including architecture development, requirements documents completion, acquisition strategy development, site surveys, requests to Industry to identify mature systems data/availability, industry demonstration efforts, development of Request for Proposal.			
FY 2024 Plans: Activities supported with FY24 funding include, but are not limited to the following: - Will identify DOD/FAA key internal/external stakeholders, and manpower requirements. - Will develop Memorandum of Agreement (MoA) with DOT FAA to codify program roles and responsibilities. - Will complete Requirements Document to include cyber security with key DoD/FAA stakeholders. - Will develop DoD Acquisition Strategy and documents to support the Milestone Decision Authority (MDA) requirements.			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604283F / <i>Battle Management Command and Control (BMC2) Sensor Development ARSR-4 Replacement - Hawaii</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Will conduct Model Based Systems Engineering to develop a Government Reference Architecture (GRA) to optimize open systems architecture of the system chosen. - Will initiate spectrum analysis/approval for this system's spectrum band w/DoD Spectrum Office - Will utilize the GRA to exercise use case scenarios, to determine capability performance in meeting Key Performance Parameters (KPPs) and Key System Attributes (KSAs). - Will initiate interaction with industry to determine mature, open systems architecture solutions that meet requirements. - Will support development of networking architecture approach for Multi Level Security (MLS) data transmissions. - Will define radar interfaces to DoD/FAA Command and Control (C2) Nodes. - Will perform site analysis to support site installation. - Will prepare/release request for information to industry for a mature system meeting requirements, schedule, and open systems architecture. - Will release Request for Proposal (RFP) to conduct a demo of off-the-shelf solutions for a potential fly-off, to include contract awards for demonstrations. - Will prepare Request for Proposal (based on the outcome of the demo flyoff) for development, procurement, testing and installation and check out of the new capability. - Will create and codify a Depot Source of Repair (DSOR) with DoD and FAA. <p>FY 2023 to FY 2024 Increase/Decrease Statement: Program New Start</p>			
Accomplishments/Planned Programs Subtotals	-	-	40.000

D. Other Program Funding Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTE 07 0604283F: <i>Battle Mgmt Com & Ctrl Sensor Development</i>	-	-	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Remarks

E. Acquisition Strategy

In order to meet the PACAF/INDOPACOM DoD/FAA urgent mission needs, a Middle Tier Acquisition Rapid Development strategy is planned for the ARSR4R-HI replacement system. The most likely acquisition strategy will include demonstration of two or more capable systems and down select to a single vendor.

Contract types may include, but are not limited to, Prototype Other Transaction Authority, FAR type contracting vehicles, and GSA vehicles. Other activities in support of this acquisition likely to be executed via Military Inter-Departmental Purchase Requests, and Project Orders with various organizations.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604283F / <i>Battle Management Command and Control (BMC2) Sensor Development ARSR-4 Replacement - Hawaii</i>
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This effort is being maintained in the office of Air Force Program Executive Officer (PEO) Digital. Program support, cost, contracts, logistics, and financial management support is managed by Air Force Life Cycle Management Center Aerospace Management Systems Division (AFLCMC/HBA).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604283F / <i>Battle Management Command and Control (BMC2) Sensor Development ARSR-4 Replacement - Hawaii</i>	Project (Number/Name) 673587 / <i>ARSR-4 Replacement - Hawaii</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ARSR-4 Replacement Hawaii Vendor Demonstration A	TBD	AFLCMC/HBA, HAFB, MA : TBD	-	-		-		12.150	Dec 2023	-		12.150	0.000	12.150	-
ARSR-4 Replacement Hawaii Vendor Demonstration B	TBD	AFLCMC/HBA, HAFB, MA : TBD	-	-		-		12.150	Dec 2023	-		12.150	0.000	12.150	-
ARSR-4 Replacement Hawaii Site Survey / Preparation	TBD	AFLCMC/HBA, HAFB, MA : TBD	-	-		-		8.209	Jan 2024	-		8.209	0.000	8.209	-
Subtotal			-	-		-		32.509		-		32.509	0.000	32.509	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	DOT FAA : Washington, DC	-	-		-		3.000	Nov 2023	-		3.000	0.000	3.000	-
Research/Analysis	MIPR	DOT FAA CAASD / MITRE : Washington, DC	-	-		-		1.200	Nov 2023	-		1.200	0.000	1.200	-
Civilian Direct Cite Authorization	Allot	AFLCMC/FZA : TBD : TBD	-	-		-		1.574	Oct 2023	-		1.574	0.000	1.574	-
Subtotal			-	-		-		5.774		-		5.774	0.000	5.774	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	PO	46 TS : Eglin AFB, FL : TBD	-	-		-		0.300	Oct 2023	-		0.300	0.000	0.300	-
Subtotal			-	-		-		0.300		-		0.300	0.000	0.300	N/A

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604283F / <i>Battle Management Command and Control (BMC2) Sensor Development ARSR-4 Replacement - Hawaii</i>	Project (Number/Name) 673587 / <i>ARSR-4 Replacement - Hawaii</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ARSR-4 Replacement Hawaii (ARSR4R-HI)				
ARSR-4 Replacement Hawaii (ARSR4R-HI)	2	2023	4	2026
Requirements Development	2	2023	4	2024
MDA Approval Acq Strategy	4	2023	4	2023
Industry Engagement	3	2023	4	2024
Demonstration RFP/Contract Award	1	2024	1	2024
-- Demonstrations	2	2024	3	2024
-- Down Select w/Prototype Proposal	4	2024	4	2024
-- Prototype Proposal Evaluation	1	2025	1	2025
Prototype Contract Award	1	2025	1	2025
-- Prototype NRE, Site Prep, Delivery, Install, Test	1	2025	4	2026
Capability Validation / Flight Check	1	2027	1	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	2.687	0.000	8.018	0.000	8.018	0.000	0.000	0.000	0.000	0.000	10.705
675899: <i>Wide Area Surveillance</i>	0.000	2.687	0.000	8.018	0.000	8.018	0.000	0.000	0.000	0.000	0.000	10.705

Program MDAP/MAIS Code: 519

A. Mission Description and Budget Item Justification

Wide Area Surveillance (WAS) consists of two advanced sensor systems, the Stateside Affordable Radar System (STARS) and Scorpion, incorporated into a single WAS System. Based on existing technological capabilities, WAS detects/tracks low, slow and other asymmetrical threats in the airspace and meets the user needs by sensing stressing airborne targets in complex environments with affordable sensors. The sensor outputs will be incorporated into the Battle Control Systems-Fixed (BCS-F) air picture and utilized as the North American Aerospace Defense Command/ Northern Command (NORAD/NORTHCOM) Command and Control (C2) air surveillance system of record.

Some aspects of the WAS program are classified. These will be provided on a need-to-know basis.

This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Wide Area Surveillance capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.000M was expended for civilian pay expenses in this program element, and in FY23 0.000M is forecasted for civilian pay expenses in this program element.”

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	2.760	0.000	0.000	0.000	0.000
Current President's Budget	2.687	0.000	8.018	0.000	8.018
Total Adjustments	-0.073	0.000	8.018	0.000	8.018
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.073	0.000			
• Other Adjustments	0.000	0.000	8.018	0.000	8.018

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>				Project (Number/Name) 675899 / <i>Wide Area Surveillance</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675899: <i>Wide Area Surveillance</i>	0.000	2.687	0.000	8.018	0.000	8.018	0.000	0.000	0.000	0.000	0.000	10.705
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Wide Area Surveillance (WAS) consists of two advanced sensor systems, the Stateside Affordable Radar System (STARS) and Scorpion, incorporated into a single WAS System. Based on existing technological capabilities, WAS detects/tracks low, slow and other asymmetrical threats in the airspace and meets the user needs by sensing stressing airborne targets in complex environments with affordable sensors. The sensor outputs are incorporated into the Battle Control Systems-Fixed (BCS-F) air picture and utilized as the North American Aerospace Defense Command/ Northern Command (NORAD/NORTHCOM) Command and Control (C2) air surveillance system of record. This effort is for a S1 Block 2 for the STARS system. FY24 funds will support development, fielding, integration, and testing activities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.000M was expended for civilian pay expenses in this program element, and in FY23 0.000M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: STARS (S1) Block 2 Modernization	2.687	0.000	8.018	0.000	8.018
Description: Development, Testing & Fielding					
FY 2023 Plans: There is no approved funding in FY23 and will be treated as a skip year.					
FY 2024 Base Plans: Activities include, but are not limited to: - Continue S1 Block 2 Minimum Viable Product (MVP) engineering and development. - S1 Block 2 MVP fielding, integration, and testing. - Engineering, development, and testing to upgrade MVP to full S1 Block 2 system.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675899 / <i>Wide Area Surveillance</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Funding increased to support development, fielding and integration of Block 2 MVP system as well as the resulting testing activities and efforts required to obtain a full Block 2 system.					
Accomplishments/Planned Programs Subtotals	2.687	0.000	8.018	0.000	8.018

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

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPAF 03 Line Item 834240: <i>Wide Area Surveillance</i>	34.863	29.150	11.594	-	11.594	8.503	8.281	8.279	0.076	243.071	343.817
• OPAF 05 861900: <i>Spares and repair parts</i>	0.013	5.059	5.440	0.000	5.440	5.519	5.684	5.809	5.925	0.000	33.449

Remarks

D. Acquisition Strategy

The Wide Area Surveillance (WAS) strategy is a single step acquisition approach for full capability to develop, produce, and field highly capable and sustainable advanced sensors in the National Capital Region. Science & technology contracts were let prior to the Engineering and Manufacturing Development phase for both subsystems. The Cost Plus Fixed-Fee (CPFF) contract for Stateside Affordable Radar System (STARS) was awarded to a single developer to design, build, integrate, and test the STARS system. A subsequent task order was awarded (Jul 17) to include pre-operational site support. The CPFF contract for Scorpion was awarded (Aug 17) to a single developer to complete the design, build, integration, and testing of the Scorpion system, and conduct pre-operational site support. The pre-operational portion of the contract for the Scorpion system transitioned to Interim Contract Support (ICS) in Dec 2018, STARS system transitioned to ICS in June 2019. The ICS portion of both the Scorpion system and the STARS system contracts transitioned to Contractor Logistics Support (CLS) in July 2021. This strategy includes a single delivery approach with 5 STARS and 84 Scorpion systems for a total of 89 sub-systems delivered to achieve FOC. RDT&E funds support a Block 2 version of the fielded STARS system.

Air Force Program Executive Officer (PEO) DIGITAL (AFPEO DIGITAL) is the PEO for WAS. Air Force Life Cycle Management Center (AFLCMC) is the Contracting Authority for the WAS program and provides contracts, legal, and comptroller support. Air Force Program Executive Officer (PEO) DIGITAL (AFPEO DIGITAL) is the program's Milestone Decision Authority (MDA).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675899 / <i>Wide Area Surveillance</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Wide Area Surveillance (WAS) S1 Block 2 NRE	Various	Raytheon : El Segundo, CA	0.000	2.315	Jul 2022	-		0.308	Mar 2024	-		0.308	0.000	2.623	0.000
Wide Area Surveillance (WAS) S1 Block 2 Development	Various	Raytheon : El Segundo, CA	0.000	0.372	Oct 2022	-		5.516	Mar 2024	-		5.516	0.000	5.888	-
Subtotal			0.000	2.687		-		5.824		-		5.824	0.000	8.511	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	Various	46 Test Squadron : Eglin AFB, FL	0.000	0.000	Mar 2022	-		1.047	Jan 2024	-		1.047	0.000	1.047	-
Subtotal			0.000	0.000		-		1.047		-		1.047	0.000	1.047	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS	Various	AFCLCMC/HBDB : Hanscom AFB, MA	0.000	0.000	Jul 2022	-		1.147	Jul 2024	-		1.147	0.000	1.147	-
Subtotal			0.000	0.000		-		1.147		-		1.147	0.000	1.147	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	2.687	-	8.018	-	8.018	0.000	10.705	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675899 / <i>Wide Area Surveillance</i>
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Wide Area Surveillance	
STARS Block 2 Development Effort	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604445F / <i>Wide Area Surveillance</i>	Project (Number/Name) 675899 / <i>Wide Area Surveillance</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Wide Area Surveillance</i>				
STARS Block 2 Development Effort	1	2022	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604617F / <i>Agile Combat Support</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.000	8.199	5.645	0.000	5.645	0.000	0.000	0.000	0.000	0.000	13.844
675218: <i>Applications Development</i>	-	0.000	8.199	5.645	0.000	5.645	0.000	0.000	0.000	0.000	0.000	13.844
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This program is part of the overarching Kessel Run portfolio. In FY 2023, PE 0207522F, Airbase Air Defense Systems (ABADS), Project 675218, Applications Development efforts are transferred to PE 0604617F, Agile Combat Support (ACS), Project 675218, Applications Development.

Global all-hazards/threats to Department of the Air Force (DAF) installations continues to generate substantial risk to tactical, operational, and strategic missions. The DAF Emergency Management (EM) program builds secure and resilient installations with integrated, adaptable, and interoperable whole-of-community common core capabilities required across the range of military operations to prevent, protect against, mitigate, respond to, and recover from all-hazards/threats. The EM program is primarily concerned with natural, technological, and human-caused hazards/threats that pose the greatest risk to lives, resources, facilities, infrastructure, and mission assets. Included is DAF support to civil and host nation authorities; anti-terrorism programs; and Countering Weapons of Mass Destruction (CWMD).

Funding is required to leverage advanced information technology (IT) capabilities and develop a DAF Emergency Management Information System (EMIS). DAF EMIS will excavate, consolidate, correlate, and propagate interoperable authoritative information to and from diverse mission partners (e.g., local, state, tribal, federal, higher headquarters, joint, and allied). It will generate the ability to collaborate with multi-jurisdictional partners and manage resources to save lives, mitigate resource loss, and continue operational missions. Included are capabilities to compress decision-making cycles; propagate a tactical, operational, and strategic Common Operating Picture (COP); and facilitate convergence of information through sensing, making sense, and taking action. DAF EMIS will enhance complex multi-jurisdictional/mission partner interoperability through use of common terminology, a COP, standardized processes, data sharing, and systematic methods. DAF EMIS interoperable informational capabilities are rooted in and support Homeland Security Presidential Directive 5 (HSPD-5), Management of Domestic Incidents, Presidential Policy Directive 8, National Preparedness, the Department of Homeland Security (DHS) National Planning Framework/Mission Areas, the National Preparedness System, the National Incident Management System (NIMS), Incident Command System (ICS), and explicit requirements expressed in DoD/DAF Emergency Management; CWMD; and Chemical, Biological, Radiological, and Nuclear (CBRN) Defense doctrine/policy. DAF EMIS requirements support SecAF operational imperatives, the AF/A4 Basing and Logistics Enterprise Strategy (BLES), the Air Force Advanced Battle Management System (ABMS), and the Joint All Domain Command and Control (JADC2) construct.

DAF EMIS requirements will be filled through agile development and new additive capabilities by leveraging the Command and Control Incident Management Emergency Response Application (C2IMERA). This tool is an installation Command and Control (C2) situational awareness and decision making capability and allows DAF EMIS to connect and integrate with the Air Force user base and C2 nodes including mission execution to include the application of air/space power authorities during crisis response operations/major combat operations. The alignment of DAF EMIS (e.g., AF/A4 delegated authorities for EM & CBRN defense) within and

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604617F / <i>Agile Combat Support</i>
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through C2IMERA provides significant synergistic effects regarding cost burden sharing to include advancing response/ recovery outcomes in support of DAF tactical, operational, and strategic war-fighting capabilities.

Through RDT&E funding and agile development DAF EMIS will develop and deliver cross-cutting common core whole-of-community informational capabilities to 1) identify and manage all-hazard/threat risk to protected assets; 2) enhance planning and resource posturing and delivery; 3) support hazard/threat specific community resiliency training; 4) facilitate EM exercise planning and execution; 5) inform and warn the populace/public/higher headquarters; and 6) support incident/attack command and coordination during response and recovery operations.

Included are DAF EMIS capabilities synchronized with DHS planning framework/mission area information capabilities to 1) prevent a threatened or an actual act of terrorism and/or nation state adversary attack through consolidating and disseminating select threat information; 2) protect lives, resources, mission assets through escalation of physical protective measures (e.g., sheltering, evacuation, hardening, etc.) to include capturing and displaying mission partner CBRN hazard COP elements; 3) mitigate the impact, severity, or consequences for community determined hazard/threat vulnerabilities (and build resiliency); 4) respond to save lives, stabilize the incident, protect personnel/assets, meet basic human needs, and set the stage for initial recovery; and 5) recover the installation by stabilizing infrastructure and restoring lifeline systems through whole-of-community collaboration (e.g., water, electrical systems, cyber systems, communications, shelter, transportation, and hazardous material), meeting the needs of individuals/the installation/local community, and prioritizing recovery of near and long-term mission generation ability.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.00M was expended for civilian pay expenses in this program element, and in FY23 0.50M is forecasted for Government Program Office manpower to include civ pay, MITRE, & A&AS expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	0.000	8.199	5.632	0.000	5.632
Current President's Budget	0.000	8.199	5.645	0.000	5.645
Total Adjustments	0.000	0.000	0.013	0.000	0.013
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.013	0.000	0.013

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604617F / <i>Agile Combat Support</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Title: Department of the Air Force Emergency Management Information System (DAF EMIS), formerly known as Disaster Response Force Common Operating Picture (DRF COP)</p> <p>Description: DAF EMIS supports incidents or events at the tactical, operational, and strategic level, allowing information to be shared and exchanged across the Air Force enterprise and other relevant external agencies within the Continental United States (CONUS) and Outside the Continental United States (OCONUS) Air Force Installations.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Establish baseline interoperability with EM mission partners. -- Operational: Develop functionality that is aligned and synchronized with standardized and systematic DHS/ DoD/DAF EM processes, cross-cutting information common core capabilities, and national planning framework/mission areas. -- IT System: Seamlessly share user selected information with mission partner applications. Entails ability to access and share authoritative info from a multitude of select systems/applications/sensors (e.g., intelligence, Law Enforcement, EM, public health, DHS/Host Nation CWMD/CBRN sensor networks, off installation critical and routine infrastructure monitoring systems, etc.). - Develop initial whole-of-community EM planning and integrated risk management capabilities to enhance resource posturing/delivery for response/recovery actions; support all-hazard/threat community resiliency training; facilitate EM exercise planning and execution; and better inform and warn the populace/public through exploitation of advanced technology. - Develop, implement, and maintain a sharable and interoperable, standardized, singular, near real-time situational awareness COP for DAF and multi-jurisdictional response and recovery forces. - Monitor/consolidate installation and surrounding community infrastructure status to focus response/recovery priorities. - Provide ability to monitor holistic near-real time status of community lifelines (Safety and Security; Food, Water, Shelter; Health and Medical; Energy/Power & Fuel; Communications; Transportation; and Hazardous Material) and ability to target lifeline stabilization activities. - Support software architectural improvements to enable transition from incrementally delivered micro services to a multi-tenancy implementation with support for Software as a Service (SAAS) while supporting the additional DAF EMIS capabilities and increased user base. - Continue with the extension of cross-domain capabilities to support full data synchronization between the Non-Secure Internet Protocol Router (NIPR) (unclassified) and Secure Internet Protocol Router (SIPR) (classified) C2IMERA instances to facilitate sharing of threat data, plans, and ultimately the Joint All Domain Command and Control (JADC2) construct. - Support the Agile Dev Ops development of enhanced architecture to make C2IMERA more scalable, add additional integrations and enhance data automation, and increase interoperability across CONUS and OCONUS DAF installations. This includes application architecture to advance the ability to operate in Degraded, Disconnected, Intermittent and Low-Bandwidth (D-DIL) environments to support Homeland Defense, building EM mission partner capacity, Defense Support to Civil Authorities, and key operational concepts such as Agile Combat Employment. 	0.000	8.199	5.645

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604617F / <i>Agile Combat Support</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>- Leverage emergent computational technologies in machine learning, artificial intelligence (AI), image analytics, and other advanced algorithms to save lives, mitigate resource loss, and continue DAF missions.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue to develop DAF EMIS operational and IT system interoperability requirements. - Develop advanced whole-of-community EM planning and integrated risk management capabilities; leverage augmented reality/virtual reality (AR/VR) interface technologies for community resilience training/table top exercises; and enhance the ability to inform and warn the populace/public through connection/interoperability with emerging DHS CWMD sensors, DoD Joint Program Office for Chemical/Biological Defense Integrated Early Warning and CBRN support to C2 IT capabilities and concepts, and the Defense Threat Reduction Agency/DAF Austere Environment Reconnaissance and Surveillance (AERS) CBRN Defense sensors. - Continue to develop, implement, and maintain a sharable and interoperable, standardized, singular, near real-time situational awareness COP for DAF and multi-jurisdictional response and recovery forces. - Integrate sensors/drones to assess post incident/attack impacts regarding the surrounding community and installation infrastructure status - increase response/recovery actions. - Continue to provide the ability to monitor holistic near-real time status of community lifelines (Safety and Security; Food, Water, Shelter; Health and Medical; Energy/Power & Fuel; Communications; Transportation; and Hazardous Material). - Continue to software architectural improvements, enable transition from incrementally delivered micro services to a multi-tenancy implementation with software as a service, and support additional DAF EMIS capabilities and increased user base. - Continue with the extension of cross-domain capabilities to support full data synchronization between the NIPR and SIPR C2IMERA instances to facilitate the JADC2 construct. - Continue to support the Agile Dev Ops development of enhanced software and software architecture to make the system more scalable, add additional integrations and enhance data automation, and increase interoperability across CONUS and OCONUS DAF Installations. - Continue to leverage emergent computational technologies in machine learning, artificial intelligence (AI), image analytics, and other advanced algorithms to increase DAF capability to save lives, mitigate resource loss, and continue DAF missions. <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY24: Funding decreased as architecture development is realized, focus now primarily on feature development.</p>			
Accomplishments/Planned Programs Subtotals	0.000	8.199	5.645

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

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity
3600: *Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)
PE 0604617F / *Agile Combat Support*

E. Acquisition Strategy

The acquisition strategy builds on agile software engineering methodologies and modernization of existing capabilities utilizing evolutionary acquisition. In FY21, the acquisition strategy transitioned to the Software Acquisition Pathway to support the continuous integration/continuous deliver (CI/CD) agile methodology. This program is part of the overarching Kessel Run portfolio and is dependent on support from the All Domain Common Platform (ADCP).

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604617F / <i>Agile Combat Support</i>	Project (Number/Name) 675218 / <i>Applications Development</i>
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Software development	
DAF EMIS Software development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604617F / <i>Agile Combat Support</i>	Project (Number/Name) 675218 / <i>Applications Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Software development				
DAF EMIS Software development	1	2023	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.193	0.156	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.349
674211: <i>GLOBAL ACCESS</i>	-	0.193	0.156	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.349
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

This BPAC has no more funding across the FYDP after FY23.

A. Mission Description and Budget Item Justification

Funding supports the transition of End-to-End Distribution Model (EDEM) initiatives. EDEM is the model of record for transportation programmatic analysis

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	0.156	0.000	0.000	0.000
Current President's Budget	0.193	0.156	0.000	0.000	0.000
Total Adjustments	0.193	0.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.193	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

Change Summary Explanation

FY2022, \$0.193M was reprogrammed from BA04 to BA07.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Deployment & Distribution Enterprise	0.193	0.156	-
Description: Develop deployment and distribution technology			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<i>FY 2023 Plans:</i> Transition for end-to-end modeling development			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Ends in FY23			
Accomplishments/Planned Programs Subtotals	0.193	0.156	-

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

Remarks
To support FIAR compliance, the creation of new Program Element for FY23 was directed. When new PE established, FY23 funds will move out of this BPAC

E. Acquisition Strategy
Transition funding for ETEM capabilities

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>	Project (Number/Name) 674211 / <i>GLOBAL ACCESS</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Global Access				
Develop deployment and distribution technology	2	2022	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	1,085.909	1,032.528	1,275.268	0.000	1,275.268	1,325.999	1,164.122	1,097.200	911.395	Continuing	Continuing
673501: <i>Air Vehicle - Tech Refresh 3</i>	-	144.023	67.210	0.000	0.000	0.000	0.000	0.000	8.603	8.914	0.000	228.750
673502: <i>Air Vehicle Block 4 Planning & Sys Eng</i>	-	296.882	370.411	490.402	0.000	490.402	470.800	341.273	334.745	256.000	0.000	2,560.513
673503: <i>Test and Evaluation (T&E)</i>	-	241.723	270.841	261.303	0.000	261.303	342.251	355.370	296.977	205.707	0.000	1,974.172
673504: <i>Propulsion (PP)</i>	-	146.006	52.391	266.422	0.000	266.422	267.489	206.599	216.848	197.560	Continuing	Continuing
673505: <i>Maintenance Systems (MxS)</i>	-	44.064	49.836	42.044	0.000	42.044	33.681	30.494	29.845	30.924	0.000	260.888
673506: <i>Combat Data Systems (CDS)</i>	-	40.937	53.248	39.496	0.000	39.496	29.902	36.343	39.442	40.871	Continuing	Continuing
673507: <i>Training Systems & Simulation</i>	-	78.972	74.619	61.472	0.000	61.472	54.890	62.451	68.237	70.707	Continuing	Continuing
673508: <i>Infrastructure & Support Costs</i>	-	67.860	74.101	73.600	0.000	73.600	75.456	78.847	80.878	83.804	Continuing	Continuing
673509: <i>DevSecOps</i>	-	25.442	19.871	22.886	0.000	22.886	23.499	24.594	4.406	4.565	Continuing	Continuing
673510: <i>Utility and Subsystem Support to Mission Systems</i>	-	0.000	0.000	16.263	0.000	16.263	27.203	27.306	16.356	10.916	Continuing	Continuing
674871: <i>Information Operations Technology</i>	-	0.000	0.000	0.342	0.000	0.342	0.000	0.000	0.000	0.000	0.000	0.342
675346: <i>F-35</i>	-	0.000	0.000	1.038	0.000	1.038	0.828	0.845	0.863	1.427	0.000	5.001

Note
 This program, BA 7, PE 0604840F, project , PTMS Upgrade, is a new start.
 This program, BA 7, PE 0604840F, project , Information Operations Technology, is a new start.

A. Mission Description and Budget Item Justification
 The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the United States Air Force, United States Navy, United States Marine Corps and International Partners countries. There are three variants: the F-35A Conventional Takeoff and Landing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	
<p>(CTOL), F-35B Short Take Off and Vertical Landing (STOVL), and the F-35C Carrier Variant (CV). Maximum commonality among the variants, consistent with National Disclosure Policy, will minimize total air system life cycle costs. Planning, systems engineering, development, and testing for Block 4 continues across the F-35 Air System to include the air vehicle, propulsion system, combat data systems, maintenance systems, and training systems as Initial Operational Capability (IOC) has been met for each variant.</p> <p>The JSF Continuous Capability Development & Delivery (C2D2) efforts provide incremental warfighting capability improvements to maintain joint air dominance against evolving threats. Block 4 capability requirements were initiated through ongoing Service-led operational analysis of warfighting gaps identified in the Fifth Generation Fighter Modernization Initial Capabilities Document (ICD), and through F-35 JSF Block 4 Mission Decomposition analysis completed in FY2014. These analyses served as the basis for the Block 4 Capability Development Document (CDD), staffed through the Air Force Requirements Oversight Council (AFROC) and signed by the USAF Chief of Staff in January 2015. Joint Requirements Oversight Council (JROC) approved the CDD on 21 March 2017. Modernization activities in FY2023 and FY2024 continue with the incremental releases of Block 4 capabilities. Block 4 efforts include a robust weapons integration portfolio and provide new opportunities for International Partners to assess, integrate, and field unique capabilities based on global sovereign requirements.</p> <p>The United Kingdom, Italy, Netherlands, Canada, Australia, Denmark and Norway are participants in F-35 modernization. The program shown here reflects United States Air Force funding. Foreign Military Sales are ongoing separately.</p> <p>FY24 PE 0604840 F-35 C2D2 Project 675346 is submitting a Technical Adjustment to realign \$1.038 million to PE 0604840F Project 673508 for, civilian pay funding.</p> <p>FY24 PE 0604840 F-35 C2D2 Project 673502 is submitting a Technical Adjustment to realign \$5.000 million to PE 0604281F for, Software Programmable OMS Compliant (SPoC)</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022, \$54.5M was expended for civilian pay expenses in this project element, and in FY2023, \$58.7M is forecasted for civilian pay expenses in this project element.</p> <p>This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	1,105.404	1,014.708	808.922	0.000	808.922
Current President's Budget	1,085.909	1,032.528	1,275.268	0.000	1,275.268
Total Adjustments	-19.495	17.820	466.346	0.000	466.346
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-19.680			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	37.500			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	9.999	0.000			
• SBIR/STTR Transfer	-29.494	0.000			
• Other Adjustments	0.000	0.000	466.346	0.000	466.346

Change Summary Explanation

FY22 reduction of -\$29.494 million for SBIR; +\$9.999 millions AFDW reprogramming
 FY23 funding decreased by Congress for a program decrease and a Congressional increase of \$37.500 million for F135 engine enhancements.
 FY24 funding increased for Block 4 Planning and Test & Evaluation efforts.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673501 / Air Vehicle - Tech Refresh 3			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
673501: Air Vehicle - Tech Refresh 3	-	144.023	67.210	0.000	0.000	0.000	0.000	0.000	8.603	8.914	0.000	228.750
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Technology Refresh 3 (TR-3) conducts post Critical Design Review (CDR) design activities. This effort will develop and deliver a TR-3 system through full flight-worthy certification and production readiness review for Lot 15. The design of TR-3 subsystems Integrated Core Processor (ICP), Aircraft Memory System (AMS), and Panoramic Cockpit Display Electronics Unit and Display Unit (PCD-EU, PCD-DU) configurations will contain new backplane technology, commercial operating systems, and modified middleware necessary to support Block 3F functionality and incorporation of all Block 4 capabilities. This work includes nonrecurring engineering for the development, test, and certification of the ICP, AMS, PCD-EU, and PCD-DU, and includes processing capacity to ensure long term viability for future capabilities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Technology Refresh 3 (TR-3)	144.023	67.210	0.000	0.000	0.000
Description: TR-3 conducts post CDR design activities. This effort will develop and deliver a TR-3 system through full flight-worthy certification and production readiness review for Lot 15. The design of TR-3 subsystems ICP, AMS, PCD-EU, and PCD-DU configurations will contain new backplane technology, commercial operating systems, and modified middleware necessary to support Block 3F functionality and incorporation of all Block 4 capabilities. This work includes nonrecurring engineering for the development, test, and certification of the ICP, AMS, PCD-EU, and PCD-DU, and includes processing capacity to ensure long term viability for future capabilities.					
FY 2023 Plans: The TR-3 program will complete final laboratory system integration and test, flight test, and system certification requirements for fleet fielding.					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673501 / Air Vehicle - Tech Refresh 3
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding decreased due to the program nearing completion. This is driven by the ramp down and completion of sub tier supplier scope, and completion of system development at the Prime.					
Accomplishments/Planned Programs Subtotals	144.023	67.210	0.000	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-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673501 / Air Vehicle - Tech Refresh 3
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TR-3 Prime Development	C/CPIF	LM/FORT WORTH TX : TBD	-	133.574	Oct 2021	67.210	Oct 2022	-		-		-	0.000	200.784	-
TR-3 Prime Next GenDAS Shipsets Proc	C/CPIF	LM/FORT WORTH TX : TBD	-	6.146	Feb 2022	-		-		-		-	0.000	6.146	-
TR-3 Prime OT NRE	C/CPIF	LM/FORT WORTH TX : TBD	-	2.049	Nov 2021	-		-		-		-	0.000	2.049	-
TR-3 Prime OT NextGen DAS NRE	C/CPIF	LM/FORT WORTH TX : TBD	-	2.049	Nov 2021	-		-		-		-	0.000	2.049	-
Subtotal			-	143.818		67.210		-		-		-	0.000	211.028	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TR-3 Project Support	MIPR	Various : TBD	-	0.205	Nov 2021	-		-		-		-	0.000	0.205	-
Subtotal			-	0.205		-		-		-		-	0.000	0.205	N/A

Remarks
1. Government support at National Security Agency (NSA) / Communications Electronics Research Development and Engineering Center (CERDEC) in support of TR-3 development.

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	144.023	67.210	-	-	-	0.000	211.233	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673501 / Air Vehicle - Tech Refresh 3
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

673501	
Perform Safety of Flight Qualification Testing	■
Conduct TR-3 System Test Readiness Review	■
Perform Ground Test	■
Perform TR-3 Flight Test	■
Perform Final Hardware Qualification Testing	■
Deliver First Shipsets of TR-3 Hardware to Lot 15 Production Line	■
1st Aircraft Lot 15 DD250	■

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673501 / Air Vehicle - Tech Refresh 3
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
673501				
Perform Safety of Flight Qualification Testing	1	2022	1	2022
Conduct TR-3 System Test Readiness Review	3	2022	3	2022
Perform Ground Test	4	2022	4	2022
Perform TR-3 Flight Test	4	2022	2	2023
Perform Final Hardware Qualification Testing	1	2022	1	2023
Deliver First Shipsets of TR-3 Hardware to Lot 15 Production Line	4	2022	4	2022
1st Aircraft Lot 15 DD250	3	2023	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673502 / Air Vehicle Block 4 Planning & Sys Eng			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
673502: Air Vehicle Block 4 Planning & Sys Eng	-	296.882	370.411	490.402	0.000	490.402	470.800	341.273	334.745	256.000	0.000	2,560.513
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

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

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Air Vehicle Block 4 Planning & Sys Eng	296.882	370.411	490.402	0.000	490.402
Description: The F-35 Air Vehicle Program Management Office (AV PMO) development portfolio includes efforts to improve the F-35 air vehicle lethality, survivability, and interoperability in response to emerging threats outlined in the National Security Strategy and Operational Plans. As designed, Block 4 consists of three principle lines of effort: development of software-based capabilities, development and integration of new and modernized aircraft hardware which enable the development of new capabilities, and new weapons integration. Included in					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673502 / Air Vehicle Block 4 Planning & Sys Eng

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>the AV/Block 4 Planning and Systems Engineering effort is both Prime and Government Systems Engineering Support needed for Avionics/Electronic Warfare and Weapons Integration efforts to include studies, analysis and risk reduction efforts.</p> <p>FY 2023 Plans: Continue with Agile development of capabilities through Developmental and Operational Flight Test. Continue requirements decomposition and preliminary design activities for advanced Block 4 capabilities. Continue development and maturity of key long lead capabilities and service unique weapons, enabling A2AD strategies including increased payloads, integrated fires, passive weapons, interoperability and multi-spectrum dominance in response to near-peer threats. Initiate development of enhanced cyber detection and mitigation capability for the F-35 in response to critical and emerging threats. Continue and expand application of cyber resilience engineering processes and tools for software, hardware, and weapons, through flight test. Continue and expand application of cyber resilient engineering processes and tools for software, hardware, and weapons, though flight test. Continuing development and timely delivery of software drops to meet warfighter need. Continue supporting efforts for airframe, air vehicle systems, Air-Ship integration, including Electromagnetic aircraft launch system - advanced arresting gear (EMALS-AAG) launch bulletins and related work, mission systems, future capabilities studies and weapons integration efforts. Continue support for Block 4 Capabilities and support preliminary systems engineering efforts associated with AARGM-ER, AGM-158 family of weapons, and increased air-to-air missile carriage. Continue systems engineering, integration, and test (SEIT) development for avionics, weapons, studies & analyses, and risk reduction efforts.</p> <p>FY 2024 Base Plans: Continue with Agile development of capabilities through Developmental and Operational Flight Test. Continue requirements decomposition and preliminary design activities for advanced Block 4 capabilities. Continue development and maturity of key long lead capabilities and service unique weapons, enabling A2AD strategies including increased payloads, integrated fires, passive weapons, interoperability and multi-spectrum dominance in response to near-peer threats. Initiate development of enhanced cyber detection and mitigation capability for the F-35 in response to critical and emerging threats. Continue and expand application of cyber resilience engineering processes and tools for software, hardware, and weapons, through flight test. Continue and expand application of cyber resilient engineering processes and tools for software, hardware, and weapons, though flight test. Continuing development and timely delivery of software drops to meet warfighter need. Continue supporting efforts for airframe, air vehicle systems, Air-Ship integration, including Electromagnetic aircraft launch system advanced arresting gear (EMALS-AAG) launch bulletins and related work, mission systems, future capabilities</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673502 / Air Vehicle Block 4 Planning & Sys Eng

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>studies and weapons integration efforts. Continue support for Block 4 Capabilities and support preliminary systems engineering efforts associated with AARGM-ER, AGM-158 family of weapons, and increased air to-air missile carriage. Continue systems engineering, integration, and test (SEIT) development for avionics, sensors, weapons, studies & analyses, and risk reduction efforts. Continue and expand the joint requirement for Common Low Observable Waveform development as a new tactical data link (TDL) to be used for interoperability across joint platforms within a highly contested environment. Begin the development of the Common Low Observable Waveform to meet the Joint requirement to start RDT&E work in FY2024/2025 in order to field a capability in FY2028/2029. The reason for the need for an accelerated timeline is due to limitations of Link-16 in the highly contested environment.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to the addition of the Common Low Observable Waveform development.</p>					
Accomplishments/Planned Programs Subtotals	296.882	370.411	490.402	0.000	490.402

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

N/A

Remarks

D. Acquisition Strategy

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force											Date: March 2023				
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2					Project (Number/Name) 673502 / Air Vehicle Block 4 Planning & Sys Eng				

Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
AV Prime Phase II Cape/Development	C/CPIF	LM /Fort Worth TX : TBD	-	261.727	Oct 2021	308.328	Oct 2022	296.568	Nov 2023	-		296.568	Continuing	Continuing	-
AV Prime Phase II Fee	C/CPIF	LM /Fort Worth TX : TBD	-	10.244	Oct 2021	10.244	Oct 2022	42.600	Nov 2023	-		42.600	Continuing	Continuing	-
AV Prime Air Vehicle Integration	C/CPFF	LM /Fort Worth TX : TBD	-	2.500	Oct 2021	2.500	Oct 2022	3.128	Nov 2023	-		3.128	Continuing	Continuing	-
AV Common Low Observable Waveform	TBD	TBD : TBD	-	-		-		99.000	Nov 2023	-		99.000	Continuing	Continuing	-
AV Systems Engineering	Various	Various : TBD	-	6.381	Dec 2021	8.624	Dec 2022	11.668	Nov 2023	-		11.668	Continuing	Continuing	-
AV Cyber Survivability	Various	Various : TBD	-	-		9.834	Oct 2022	18.764	Nov 2023	-		18.764	Continuing	Continuing	-
Subtotal			-	280.852		339.530		471.728		-		471.728	Continuing	Continuing	N/A

Remarks

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

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
AV Mission Systems Support	Various	Various : TBD	-	10.530	Nov 2021	7.881	Nov 2022	10.651	Nov 2023	-		10.651	Continuing	Continuing	-
AV Vehicle Systems Support	Various	Various : TBD	-	0.500	Nov 2021	17.000	Nov 2022	0.500	Nov 2023	-		0.500	Continuing	Continuing	-
AV CSO Development Support	Various	Various : TBD	-	5.000	Nov 2021	6.000	Nov 2022	7.523	Nov 2023	-		7.523	Continuing	Continuing	-
Subtotal			-	16.030		30.881		18.674		-		18.674	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force							Date: March 2023						
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2			Project (Number/Name) 673502 / Air Vehicle Block 4 Planning & Sys Eng						
	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	296.882		370.411		490.402		-		490.402	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673502 / Air Vehicle Block 4 Planning & Sys Eng

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

673502	
Systems Engineering & Agile Capability Development: Planning Events	
Systems Engineering & Agile Capability Development: IPRs	
Hardware Enablers: A/C Cooling	
Hardware Enablers: Electronic Warfare (EW) Upgrade	
Hardware Enablers: Embedded GPS Inertial (EGI)	
Hardware Enablers: Beyond Line Of Sight (BLOS) Communications	
Hardware Enablers: Common Low Observable Waveform	
Production: LOT 15	
Production: LOT 16	
Production: LOT 17	
Production: LOT 18	
Production: LOT 19	
Production: LOT 20	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673502 / Air Vehicle Block 4 Planning & Sys Eng

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
673502				
Systems Engineering & Agile Capability Development: Planning Events	1	2022	4	2028
Systems Engineering & Agile Capability Development: IPRs	1	2022	4	2028
Hardware Enablers: A/C Cooling	1	2022	4	2025
Hardware Enablers: Electronic Warfare (EW) Upgrade	1	2022	1	2028
Hardware Enablers: Embedded GPS Inertial (EGI)	1	2022	1	2027
Hardware Enablers: Beyond Line Of Sight (BLOS) Communications	4	2022	4	2028
Hardware Enablers: Common Low Observable Waveform	1	2024	4	2028
Production: LOT 15	2	2023	1	2024
Production: LOT 16	2	2024	1	2025
Production: LOT 17	2	2025	1	2026
Production: LOT 18	2	2026	1	2027
Production: LOT 19	2	2027	1	2028
Production: LOT 20	2	2028	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673503 / Test and Evaluation (T&E)			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
673503: <i>Test and Evaluation (T&E)</i>	-	241.723	270.841	261.303	0.000	261.303	342.251	355.370	296.977	205.707	0.000	1,974.172
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

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

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Development Foundation Contract (DFC) Flight Test and Tech Refresh	83.039	90.605	81.832	-	81.832
Description: Flight test infrastructure at Edwards Air Force Base (AFB) and Pax River Naval Air Station (NAS) and F-35 tech refresh for laboratory development at Fort Worth, TX for Lockheed Martin Aeronautics and its subcontractors. This includes investment planning and other test planning activities required for Block 4 development, integration, developmental test and evaluation. Funding is required for the Lockheed Martin Integrated Test Force contractor labor, suppliers, and material. Other support efforts are provided for airframe, air vehicle systems, air-ship integration, mission systems, weapons integration, offboard mission support, autonomic logistics development, joint reprogramming enterprise and modeling and joint simulation environment					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673503 / Test and Evaluation (T&E)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>evaluations. Continue funding for DT Aircraft Modification broken out from the rest of the Development activities. This is continued support from FY2022 for DT aircraft modifications in order to be test-ready and operationally-representative.</p> <p>FY 2024 Base Plans: Continue to support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes Block 4 weapons integration, integrated system evaluations, multi-ship operations, and mission effectiveness evaluations. Continue funding for Development Test Aircraft Modification broken out from the rest of the Development activities. This is continued support from FY22 for Developmental Test (DT) aircraft modifications in order to be test-ready and operationally-representative. Funding will also procure Developmental Test (DT) Kits. Continue to support flight test capacity and flight test execution. This includes first increment testing through initial and fully operational increments. The funding will be used for continuing to develop and test incrementally, for new software releases and deficiency fixes.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to the decrease in TR-3 Developmental Test (DT) efforts.</p>					
<p>Title: Operational Test (OT)</p> <p>Description: Government test site Integrated Test activities to support development of Air Vehicle C2D2 and TR-3 programs, as well as inherent maintenance systems, training systems, and combat data systems test support. Testing includes ground, logistics, and flight-testing of incremental flight software releases, weapon integration, DMS/fleet sustainment, hardware refresh and regression efforts to ensure total system integration meets program requirements in an operationally representative environment. Test site capabilities to meet program requirements include infrastructure, ranges, engineering, administration, logistics; maintenance, controls, information technologies, classified facilities, and service unique supporting capabilities. The sites to be funded include but are not limited to Nellis AFB and Yuma Air Station.</p> <p>FY 2023 Plans: Funding will support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop, verify, and test capabilities as directed by the F-35 JPO. Major program testing includes TR-3 integration, Block 4 weapons integration, incremental software releases with new capability and deficiency report fixes, integrated system evaluations, multi-ship operations and mission effectiveness evaluations in an operationally representative environment. Continue funding for OT aircraft modifications in order to be test-ready and operationally-representative. Funding also includes the</p>	22.058	19.762	31.059	-	31.059

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673503 / Test and Evaluation (T&E)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>execution of the remaining 64 OT virtual mission trials and Initial Operational Test and Evaluation (IOT&E) close out tasks.</p> <p>FY 2024 Base Plans: Funding will support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes TR-3 integration, Block 4 weapons integration, integrated system evaluations, multi-ship operations and mission effectiveness evaluations in an operationally representative environment. Continued funding for Operational Test (OT) aircraft modifications in order to be test-ready and operationally-representative. The funding will be used for continual development through incremental test of new software and deficiency fixes. Funding also includes the execution of the remaining 64 OT virtual mission trials and IOT&E close out tasks. AV is the TR-3 system owner responsible for verifying capability with data provided from DT and OT funded in this chart.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to ramp up of Follow-on Modernization Phase 2.3 Operational Test Kit support.</p>					
<p>Title: Future Flight Test Capabilities/Investments</p> <p>Description: Investments in test fleet modifications, test mission equipment/assets, instrumentation capability, and data center are required to support Block 4 capability development and integrated test. TR-3 related capability requires current test aircraft and replacement test aircraft configurations to be modified with new hardware, software, and instrumentation systems. Program priorities, flight test demand, data quantity/bandwidth upgrades, and capability delivery schedules require a steady update to test fleet configurations. Modifications and instrumentation design/procurement/install are long-lead efforts requiring stable funding and contract vehicles to meet program needs.</p> <p>FY 2023 Plans: Continue incremental funding of Lot 14 Contract for Flight Test Instrumentation (FTI) design, procurement and installation. Continue FTI design/fabrication/installation (long-lead NRE, parts procurement, kit fabrication) for replacement test aircraft (16 unique designs). Continue non-recurring engineering (NRE)/procurement/installation to retrofit or maintain test aircraft viability. Continue development, procurement, and installation of flight test data center system upgrades to support Integrated Testing across multiple F-35 stakeholder sites. FTI development, procurement, fabrication, and installation for current/future service loaner aircraft in order to continue Integrated Testing with Service OT organizations. Further, continue integration and procurement efforts</p>	92.226	103.420	104.005	-	104.005

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673503 / Test and Evaluation (T&E)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>for required Block 4 test mission assets, includes but not limited to weapons test vehicles, unique test mission equipment, and other test execution support equipment.</p> <p>FY 2024 Base Plans: Begin incremental funding for Flight Sciences Replacements jets FTI design, procurement and installation (1 per variant). Begin incremental funding for Flight Science Lite jets for FTI design in support of weapons testing (1xF-35B and 2xF-35C). Continues FTI design/fabrication/installation (long-lead NRE, parts procurement, kit fabrication) for replacement test aircraft (16x unique designs). Continues NRE/procurement/installation to retrofit or maintain test aircraft viability. Additionally, development, procurement, and installation of flight test data center system upgrades to support Integrated Testing across multiple F-35 stakeholder sites. FTI development, procurement, fabrication, and installation for current/future service loaner aircraft in order to continue Integrated Testing with Service Operational Test organizations. Further, continue integration and procurement efforts for required Block 4 test mission assets, includes but not limited to weapons test vehicles, unique test mission equipment, and other test execution support equipment.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to continued ramp up of activities across the board, to include Lot 18/19 Flight Science, Flight Science Lite, Operational Test in support of TR-3 Flight Test Instrumentation and ramp up in JASSM-ER/LRASM and AARGM-ER flight test assets in FY2024.</p>					
<p>Title: Ground Test and Simulation Infrastructure (GTSI)</p> <p>Description: Development of GTSI capabilities from Block 4/TR-3 and other C2D2 early-on design and development through Installed Systems Verification activities prior to Developmental Flight Test for all variants of the F-35 aircraft. Infrastructure efforts include Laboratory Developments of Improvements & Modernization (I&M) assets used for design, development and test of Block 4 capabilities, and development of Ground Test & Evaluation Capabilities for digital and non-digital installed systems verification. Laboratory and/or Venue Developments will focus on the pure development of Block 4 capabilities through a Capability Verification Infrastructure that meets required fidelities that would advance the high-quality development of the Air System capabilities. GTSI will also include capabilities for cyber testing for TR-3 assessments within three main areas: air vehicle, information systems, and supply chain.</p> <p>FY 2023 Plans: Continue GTSI improvements and modernization capabilities needed for Block 4 Air System developments to include but are not limited to the Next-generation Electronic Warfare Environment Simulator (NEWEG), Automatic Test & Re-Test (ATRT) phase 3, GT&S Catalog, Friendly and Threat Signal Development and</p>	13.487	13.138	6.826	-	6.826

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673503 / Test and Evaluation (T&E)
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B. Accomplishments/Planned Programs (\$ in Millions)

Delivery, Multi-Spectral Environment improvements, etc. Efforts required to enable efficiencies in the Capability Verification process and decrease reliance on Flight Test Operations as the overwhelmingly sole means of Verification. Test Infrastructure improvements include Vendor Development lab capabilities as well as USG Organic Infrastructure. Develop F-35 mission threads for continued digital verification automated capabilities for early-on software development and continue aircraft cyber improvements and testing efforts. Major Investments include improvements to Digital Capabilities and Analysis and Ground Integrated Battlespace Verification.

FY 2024 Base Plans:

Continue GTSI improvements and modernization capabilities needed for Block 4 air system development. Efforts required to enable efficiencies in the Capability Verification process and decrease reliance on Flight Test Operations as the overwhelming sole means of Verification. Test Infrastructure improvements include Vendor lab capabilities as well as USG Organic Infrastructure. Develop F-35 mission threads for continued digital verification automated capabilities for early-on software development, and continue aircraft cyber improvements and testing efforts. Major Investments include improvements to Digital Capabilities and Analysis and Ground Integrated Battlespace Verification.

FY 2023 to FY 2024 Increase/Decrease Statement:

Funding decreased due to fielding of some GTSI Developments for the Ground Test Infrastructure and other Developments.

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Accomplishments/Planned Programs Subtotals</p>	241.723	270.841	261.303	-	261.303

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

N/A

Remarks

D. Acquisition Strategy

The T&E project will maximize use of existing F-35 contracts, where possible, for the various T&E-related capabilities and investments. For example, provisions for new instrumentation on new flight test aircraft are being implemented when applicable via existing production contracts in order to allow installation of the required hardware while those airframes are still on the assembly line. This will save significant costs and effort that would be required if instrumentation installation occurred after aircraft delivery. Other modifications and/or NRE may be implemented via existing contracts being managed by the Air Vehicle PMO as part of the Block 4 engineering and development efforts. In addition, a separate Cost-Plus-Incentive-Fee-type contract is planned to provide a long-term approach to upgrading and maintaining laboratories and also for maintaining the older existing System Development and Demonstration (SDD) test aircraft. Viability modifications to the SDD test aircraft are being contracted via a combination of Streamlined Delivery Orders for NRE and hardware as well as a Cost Plus-type contract, using both expedites the right modifications as needed at the right time in order to avoid test aircraft grounding and to maximize their availability. In addition, separate Basic Ordering Agreements or Indefinite Quantity/

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
3600 / 7	PE 0604840F / <i>F-35 C2D2</i>	673503 / <i>Test and Evaluation (T&E)</i>

Indefinite Delivery contracts may be used to implement a long-term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future capabilities. Several new cost reduction initiatives are being studied to determine possible migration away from Lockheed-Martin support to less-expensive organic support (via either government solutions, local test-base support contracts, or a combination of both) in areas such as test aircraft maintenance, test operations support, and networks/knowledge management. Other initiatives are being pursued to move more test data collection requirements from the open-air ranges to ground test chambers, computer-based models and simulations, or other laboratory venues where possible.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673503 / Test and Evaluation (T&E)
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DFC - Prime Developmental Foundation Contract	C/CPIF	LM; Fort Worth TX : TBD	-	90.258	Nov 2021	90.605	Nov 2022	72.188	Nov 2023	-		72.188	Continuing	Continuing	-
OT - Prime Operation Test Aircraft Modification	C/CPIF	LM; Fort Worth TX : TBD	-	4.540	Jun 2022	3.600	Aug 2023	18.251	Aug 2024	-		18.251	Continuing	Continuing	-
FI - Prime DT AC Viability	C/CPIF	LM; Fort Worth TX : TBD	-	24.584	Dec 2021	25.876	Dec 2022	79.310	Dec 2023	-		79.310	Continuing	Continuing	-
FI - Flight Test Asset	C/CPIF	LM; Fort Worth TX : TBD	-	56.072	Dec 2021	56.930	Dec 2022	21.394	Dec 2023	-		21.394	Continuing	Continuing	-
DT - Prime Development Test Aircraft Modification	C/CPIF	LM; Fort Worth TX : TBD	-	-		8.550	Aug 2023	4.332	Aug 2024	-		4.332	Continuing	Continuing	-
Laboratory Development	C/CPIF	LM; Fort Worth TX : TBD	-	-		-		9.645	Nov 2023	-		9.645	Continuing	Continuing	-
Subtotal			-	175.454		185.561		205.120		-		205.120	Continuing	Continuing	N/A

Remarks

R-3 Acronyms correspond to R-2A categories, per below breakout:
 DFC - Development Foundation Contract (DFC) Flight Test
 OT - Operational Test
 DT - Developmental Test
 FI - Future Flight Test Capabilities and Investments
 GTSI - Ground Test Simulation and Infrastructure
 Flight Test assets include DT and OT weapons procurement to support test and assets needed for flight test instrumentation

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation (EDW)	MIPR	Edwards AFB, CA : TBD	-	11.934	Dec 2021	16.389	Dec 2022	15.643	Dec 2023	-		15.643	Continuing	Continuing	-
Developmental Test & Evaluation (IDT)	MIPR	IDT : Ballston, VA : TBD	-	3.052	Dec 2021	3.434	Dec 2022	1.506	Dec 2023	-		1.506	Continuing	Continuing	-
Developmental Test & Evaluation (JHU)	MIPR	JHU : Lauren, MD : TBD	-	1.665	Dec 2021	1.873	Dec 2022	0.815	Dec 2023	-		0.815	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673503 / Test and Evaluation (T&E)
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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation (PAX)	WR	NAWCAD : Pax River, MD : TBD	-	16.097	Dec 2021	21.340	Dec 2022	15.549	Dec 2023	-		15.549	Continuing	Continuing	-
Developmental Test & Evaluation (CHLK)	WR	NAWCWD: China Lake, CA : TBD	-	0.628	Dec 2021	0.863	Dec 2022	1.309	Dec 2023	-		1.309	Continuing	Continuing	-
Operational Test & Evaluation (EDW)	MIPR	Edwards AFB, CA : TBD	-	0.627	Dec 2021	0.550	Dec 2022	0.999	Nov 2023	-		0.999	Continuing	Continuing	-
Operational Test & Evaluation (Eglin)	MIPR	Eglin AFB, FL : TBD	-	1.491	Dec 2021	2.048	Dec 2022	1.251	Jun 2024	-		1.251	Continuing	Continuing	-
Operational Test & Evaluation (PAX)	WR	NAWCAD : Pax River, MD : TBD	-	0.219	Dec 2021	0.300	Dec 2022	0.192	Dec 2023	-		0.192	Continuing	Continuing	-
Operational Test & Evaluation (CHLK)	WR	NAWCWD: China Lake, CA : TBD	-	4.173	Dec 2021	4.073	Dec 2022	7.919	Dec 2023	-		7.919	Continuing	Continuing	-
Operational Test & Evaluation (Nellis)	MIPR	Nellis AFB, NV : TBD	-	25.756	Dec 2021	33.860	Dec 2022	9.765	Dec 2023	-		9.765	Continuing	Continuing	-
Operational Test & Evaluation (NSMA)	MIPR	NSMA : NSMA : TBD	-	0.627	Dec 2021	0.550	Dec 2022	1.235	Dec 2023	-		1.235	Continuing	Continuing	-
Subtotal			-	66.269		85.280		56.183		-		56.183	Continuing	Continuing	N/A

Remarks
 Changing R-3 Test and Evaluation categories in accordance with OSD direction that these line items be one of the following three types: Developmental Test & Evaluation (DT&E), Operational Test & Evaluation (OT&E), or Live Fire Test & Evaluation (LFT&E). Duplicate checks are done by ITEM NAME - CONTRACT TYPE - ACTIVITY/ LOCATION.
 Crosswalk:
 DT&E Edwards AFB - DT - C2D2, TR-3, Block 4
 DT&E IDT - GTSI - C2D2, TR-3, Block 4
 DT&E JHU - GTSI - C2D2, TR-3, Block 4
 DT&E NAWCAD - DT + GTSI - C2D2, TR-3, Block 4
 DT&E NAWCWD - DT + GTSI - C2D2, TR-3, Block 4
 OT&E Edwards AFB - OT - C2D2, TR-3, Block 4
 OT&E Eglin AFB - GTSI - C2D2, TR-3, Block 4
 OT&E NAWCAD - GTSI - C2D2, TR-3, Block 4
 OT&E NAWCWD - OT - C2D2, TR-3, Block 4
 OT&E Nellis AFB - OT + FTI + GTSI - C2D2, TR-3, Block 4
 OT&E NSMA - OT - C2D2, TR-3, Block 4

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673503 / Test and Evaluation (T&E)
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

673503	
Development Foundation Contract Part III	
DT Aircraft Viability	
Flight Test Instrumentation	
Systems Engineering, Integration, and Test Contract	
OFP Development & Test	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673503 / Test and Evaluation (T&E)
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
673503				
Development Foundation Contract Part III	1	2022	2	2027
DT Aircraft Viability	1	2022	1	2026
Flight Test Instrumentation	1	2022	4	2028
Systems Engineering, Integration, and Test Contract	1	2023	1	2026
OFP Development & Test	1	2022	2	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673504 / Propulsion (PP)			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
673504: <i>Propulsion (PP)</i>	-	146.006	52.391	266.422	0.000	266.422	267.489	206.599	216.848	197.560	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Propulsion F135 projects within the Continuous Capability Development & Delivery (C2D2) are provided for developmental efforts for propulsion systems and test engine requirements such as Block 4 Integrated Flight Test Support, Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for F-35 engine modernization, affordability drivers for top engine availability degraders, and improvement to support the F135 Propulsion System for the F-35 Air Vehicle. Testing and development of the three F-35 aircraft variants require engine propulsion funding to enable continued flight hours. Flight hours are budgeted and planned to meet the Block 4 flight test timelines, and required Flight Test support. Flight Test Support efforts will transition to Organic support by FY2026. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts with signature predicting improvements and a bridge program for engine modernization. Engine Modernization is part of the wider Air System Modernization effort. In FY2022 and F20Y23, there was a Congressional Add for F135 Engine Enhancement that is being used to fund F135 Engine Core Upgrade (ECU) Preliminary Design through a Preliminary Design Review in December 2023. Starting in FY2024, Engine Modernization will be funded through the standard funding process. ECU Detailed Design labor will be added to the F135 Engine Enhancement contract in December 2024, and the rest of ECU EMD will be awarded in June 2024.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Propulsion (PP)	146.006	52.391	266.422	-	266.422
Description: Propulsion F135 Block 4 Integrated Flight Test Support includes efforts such as Engine Flight Test Mechanics, Flight Test Engineers, Replacement Engine Hardware, Test Engine Procurement, and other associated government costs.					
FY 2023 Plans: Continue Propulsion F135 Block 4 Integrated Flight Test Support to include Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurement, research, component and capability					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673504 / Propulsion (PP)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>development, prototypes, various studies, and other associated government costs. The Flight Test Fleet will maintain aircraft inventory at twelve aircraft in FY2023. This includes seven at Edwards Air Force Base and five at Patuxent River Naval Air Base. Flights and Engine Flight Hours (EFH) are expected to maintain the FY2022 levels at 240 flights and 480 flight hours per quarter. Flight Test Support efforts will transition to Organic support by FY2027. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, ALIS/ODIN transition, and FFR engine support efforts. FY2023 Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts, Engine signature predicting improvement efforts, and continuing F135 Engine Modernization developmental efforts.</p> <p>FY 2024 Base Plans: Continue Propulsion F135 Block 4 Integrated Flight Test Support to include Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for engine modernization and improvement to support the F135 Air Vehicle. Propulsion Flight Test Support enables the execution of F135 Air Vehicle Air System Playbook (ASP 16.1), and Technology Refresh 3 (TR-3) Requirements.</p> <p>The Flight Test Fleet will maintain similar elevated aircraft inventory at twelve aircraft in FY2024. This includes seven at Edwards Air Force Base and five at Patuxent River Naval Air Base. Flights and Engine Flight Hours (EFH) are expected to maintain their prior year levels at 240 flights and 480 flight hours per quarter. Flight Test Support efforts will transition to Organic support by FY2027.</p> <p>Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. FY2024 Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts, Engine signature predicting improvement efforts, and continuing F135 Engine Modernization/Propulsion System Upgrade developmental efforts.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to Air Vehicle modernization efforts and continuing F135 Engine Modernization/ Propulsion System Upgrade developmental efforts. FY2024 Budget includes first year of EMD program for ECU, greatly increasing development funding in FY2024.</p>					
Accomplishments/Planned Programs Subtotals	146.006	52.391	266.422	-	266.422

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

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force Date: March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673504 / Propulsion (PP)
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C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

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

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673504 / Propulsion (PP)
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

673504	
P&W Flight Test	
2 DT Engine Purchase Inc 3	
1 Flight Test DT Engine Purchase	
DevSecOps Emulation Lab for Full Authority Digital Engine Control (FADEC)	
F135 Engine Modernization	
Engine Signature Predictor (ESP)	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673504 / Propulsion (PP)
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
673504				
P&W Flight Test	1	2022	1	2027
2 DT Engine Purchase Inc 3	1	2022	4	2022
1 Flight Test DT Engine Purchase	1	2022	4	2023
DevSecOps Emulation Lab for Full Authority Digital Engine Control (FADEC)	1	2022	4	2023
F135 Engine Modernization	1	2022	4	2028
Engine Signature Predictor (ESP)	1	2023	1	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673505 / Maintenance Systems (MxS)
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
673505: Maintenance Systems (MxS)	-	44.064	49.836	42.044	0.000	42.044	33.681	30.494	29.845	30.924	0.000	260.888
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

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

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Operational Data Integrated Network (ODIN)	42.164	48.836	42.044	0.000	42.044
Description: ODIN will incrementally provide a modern, user-friendly integrated information system for the F-35 to deliver core maintenance and logistics information solutions. ODIN will be comprised of multiple elements to include modern hardware, architectures, software development methods, data environments, and platforms. Leveraging agile and modern software development practices, ODIN will serve as the primary logistics tool to support F-35 warfighter operations, health and diagnostics, mission planning, supply chain management,					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673505 / Maintenance Systems (MxS)
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B. Accomplishments/Planned Programs (\$ in Millions)

maintenance, and training. ODIN will substantially decrease F-35 administrator and maintainer workload, increase readiness rates for all F-35 variants, and allow software engineers to rapidly develop and deploy updates in response to changing warfighter requirements and improve data management, quality, and integrity. The ALIS to ODIN transition is intended to enable holistic fleet management, improve performance, enhance readiness, and reduce costs to the F-35 program. ODIN is comprised of both hardware and software which support the flow of Unclassified and Classified aircraft and maintenance-related data.

FY 2023 Plans:

Continue to modernize and reduce sustainment costs of the F-35 logistics information system by delivering incremental capabilities to transition aircraft, data, and operations from ALIS to ODIN. Initiate next-gen ODIN hardware refresh analysis and trade studies to support targeted five year hardware replacement. Implement the ODIN cloud-based infrastructure, migrate ALIS development into the government managed cloud environment, and begin transition to the new ODIN Enterprise Architecture. Continue modernization of the ODIN data architecture and implementation of the government managed ODIN data processing, analytics and archive environment. Efforts will continue in cybersecurity survivability and development of user-focused training. Execute efforts continuing to modernize current applications where applicable, leveraging commercial and government off the shelf and maximizing re-use from existing US Services logistics modernization efforts.

FY 2024 Base Plans:

Complete ALIS to ODIN software containerization efforts and development of foundational infrastructure for software and data modernization to increase user capability. Continue development of the Linux platform and ODIN data architecture. Finalize current generation hardware update. Continue analysis of alternatives on next-generation hardware tech insertion supporting ODIN development and test plan as well as capability requirements that are not currently encompassed in the baseline equipment. Optimize the ODIN cloud-based infrastructure while continuing migration and modernization of the ODIN enterprise. Leverage the establishment of modern software architecture from Unclassified development efforts to develop and release the Classified portion of the F-35 Maintenance Systems ODIN enterprise. Develop and deploy improved capabilities to replace legacy applications.

FY 2024 OCO Plans:

N/A

FY 2023 to FY 2024 Increase/Decrease Statement:

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673505 / Maintenance Systems (MxS)
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Funding decreased due to a periodic ramp down in hardware development as requirements are finalized following FY2023 current generation hardware development efforts.					
<p>Title: Prognostics and Health Management (PHM)</p> <p>Description: Prognostics and Health Management (PHM) encompasses the Air-System set of software, technical data and capabilities to enable optimal maintenance, and resolution of aircraft failures and impending failures. On-aircraft software identifies failures, enables reporting of status to the pilot, and records data for life cycle management and sustaining engineering. The data processed by ALIS/ODIN supports maintenance debriefs, life cycle management via Assess Material Condition (AMC), and failure resolution via Health Reporting Codes (HRCs) and Anomaly and Failure Resolution System (AFRS). Maintenance performance (inclusive of reliability and maintainability) is enhanced via the collection and reporting of the Failure Reporting and Corrective Action System (FRACAS). Applied advanced analytics on the aggregate PHM is used for airframe lifing and enterprise use, and improves responsiveness to operational needs.</p> <p>FY 2023 Plans: Finalize development of PHM failure resolution improvements by analyzing AFRS technical data, as identified by the associated affordability war room initiatives and Performance-to-Plan metrics, and AMC algorithm development and implementation. Finalize development of government-hosted PHM data storage and analytics infrastructure. Finalize Systems Engineering and architecture development of PHM Downlink capability.</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to program completion.</p>	1.900	1.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	44.064	49.836	42.044	0.000	42.044

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

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / <i>F-35 C2D2</i>	Project (Number/Name) 673505 / <i>Maintenance Systems (MxS)</i>
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D. Acquisition Strategy
N/A

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673505 / Maintenance Systems (MxS)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
673505				
Operational Data Integrated Network (ODIN): Hardware Development	1	2022	4	2024
Operational Data Integrated Network (ODIN): Hardware Development - Next Gen	1	2025	4	2028
Operational Data Integrated Network (ODIN): Software Architecture Development	1	2023	4	2024
Operational Data Integrated Network (ODIN): Software Application Modernization	1	2023	4	2028
Operational Data Integrated Network (ODIN): Software Prototyping	1	2023	3	2025
Operational Data Integrated Network (ODIN): Software Fielding	3	2023	1	2025
Operational Data Integrated Network (ODIN): ALIS Containerization	1	2023	1	2025
Operational Data Integrated Network (ODIN): Platform Development	1	2023	1	2025
Operational Data Integrated Network (ODIN): Platform Development Follow-On	4	2024	4	2028
Operational Data Integrated Network (ODIN): Integrated Data Environment Development	1	2023	4	2026
Operational Data Integrated Network (ODIN): Data Architecture Modernization	1	2023	4	2028
Operational Data Integrated Network (ODIN): Legacy Modernization and Migration	1	2023	1	2025
Operational Data Integrated Network (ODIN): COTS/GOTS Application Configuration, Software Development, and Integration	4	2023	4	2025
Prognostics and Health Management (PHM): PHM Algorithm Development	2	2022	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673506 / Combat Data Systems (CDS)
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
673506: <i>Combat Data Systems (CDS)</i>	-	40.937	53.248	39.496	0.000	39.496	29.902	36.343	39.442	40.871	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Joint Reprogramming Environment (JRE)	25.059	39.992	29.510	0.000	29.510
<p>Description: JRE is investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment and joint reprogramming enterprise. Other costs support Technology Investment for key Modernization/Innovation activities and Cloud based DevSecOps infrastructure.</p> <p>FY 2023 Plans: Continue efforts for the agile development of Common Reprogramming Tools (CRT) to provide Electronic Warfare Squadrons with essential software tools that reduce Mission Data File (MDF) development time and human error and increase combat effectiveness. The CRT effort will continue software coding and testing to support development/deployment of the software tool. Continue ongoing design and delivery efforts to upgrade RVVS to meet the Block 4 capability requirements and next generation threats. Continue ongoing efforts to support aircraft in relation to TR-3, Continuous Capability Development and Delivery (C2D2), and Network Boundary Consolidation. Continue development support for defining, managing and acquiring the</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673506 / Combat Data Systems (CDS)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>F-35 Reprogramming capability enhancements identified in approved requirements documents for Block 4 and modernization efforts and support efforts for joint reprogramming enterprise activities. Begin efforts on the Systems, Engineering, Integration & Test (SEIT) contract to integrate Block 4 software data loads at reprogramming laboratories. Begin efforts to perform laboratory integration to complete the F-35 Reprogramming Laboratory (FRL).</p> <p>FY 2024 Base Plans: Complete efforts for the AGILE development of Common Reprogramming Tools (CRT) to provide Electronic Warfare Squadrons with essential software tools that reduce Mission Data File (MDF) development time and human error and increase combat effectiveness. Continue software coding and testing to support development / deployment of the software tools. Continue to upgrade Reprogramming Verification & Validation Systems (RVVS) to meet the Block 4 capability requirements and meet next generation threats. Continue ongoing efforts to support aircraft in relation to Continuous Development Capability Delivery (C2D2), and Network Boundary Consolidation. Continue development support for defining, managing and acquiring the F-35 Reprogramming capability enhancements identified in approved requirements documents for Block 4 and modernization efforts and support efforts for joint reprogramming enterprise activities. Continue efforts on the Advanced Development, Integration & Test contract to integrate Block 4 software data loads at reprogramming laboratories.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to completion of efforts associated with Government Systems Engineering and Testing, specifically the Partner Analysis Laboratory Operations, Lab Based Security Assessment, and Baseline Performance Measurement.</p>					
<p>Title: Mission Planning Support Environment (MPSE)</p> <p>Description: MPSE is investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/ Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment and joint reprogramming enterprise. Other costs support Technology Investment for key Modernization/Innovation activities and Cloud based DevSecOps infrastructure.</p> <p>FY 2023 Plans:</p>	15.878	13.256	9.986	0.000	9.986

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673506 / Combat Data Systems (CDS)
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B. Accomplishments/Planned Programs (\$ in Millions)

Continue development support for defining, managing and acquiring the F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and software boundary. Continue development support of the MPSE software suite that is customized for each and every air vehicle Operational Flight Program (OFF) / Software Data Load (SDL) release to support the features and enhancements of that release. Continue development of the F-35 Next Generation Mission Planning (formerly Open Secure Collaboration Architecture (OSCAR)) to: a) Replace the Joint Mission Planning Software (JMPS) framework that is facing end-of-life, increasing cost, decreasing performance, and limited capability growth, and b) Replace the Ground Data Receptacle (GDR) cross-domain solution and encryption/decryption device that has been assessed by the NSA to have high cyber security risks and not able to meet NSA Raise-the-Bar requirements without a complete re-design. Continue ongoing efforts to transition F-35 mission planning software development to Agile and DevSecOps methodologies to reduce costs and increase speed of delivering capabilities to the warfighter. Continue ongoing efforts to transition F-35 mission planning software development workload from contractor to the Government, securing organic software development capability and reducing costs.

FY 2024 Base Plans:

Continue development support for F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and software. Continue development support of the MPSE software suite that is customized for each and every air vehicle OFF/SDL release to support the features and enhancements of that release. Continue development of the F-35 Next Generation Mission Planning. Continue efforts to transition F-35 mission planning software development to Agile and DevSecOps methodologies to reduce costs and increase speed of delivering capabilities to the warfighter. Continue ongoing efforts to transition F-35 mission planning software development workload from contractor to the Government, securing organic software development capability and reducing costs.

FY 2024 OCO Plans:

N/A

FY 2023 to FY 2024 Increase/Decrease Statement:

Funding decreased due to completion of efforts associated with Government Systems Engineering and Testing, specifically the Partner Analysis Laboratory Operations, Lab Based Security Assessment, and Baseline Performance Measurement

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>FY 2024 Base Plans:</p> <p>Continue development support for F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and software. Continue development support of the MPSE software suite that is customized for each and every air vehicle OFF/SDL release to support the features and enhancements of that release. Continue development of the F-35 Next Generation Mission Planning. Continue efforts to transition F-35 mission planning software development to Agile and DevSecOps methodologies to reduce costs and increase speed of delivering capabilities to the warfighter. Continue ongoing efforts to transition F-35 mission planning software development workload from contractor to the Government, securing organic software development capability and reducing costs.</p> <p>FY 2024 OCO Plans:</p> <p>N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> <p>Funding decreased due to completion of efforts associated with Government Systems Engineering and Testing, specifically the Partner Analysis Laboratory Operations, Lab Based Security Assessment, and Baseline Performance Measurement</p>					
Accomplishments/Planned Programs Subtotals	40.937	53.248	39.496	0.000	39.496

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673506 / Combat Data Systems (CDS)

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

N/A

Remarks

D. Acquisition Strategy

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673506 / Combat Data Systems (CDS)
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
CDS Prime JRE Development - CRT Increment 1	C/CPFF	LM; Ft Worth Tx : TBD	-	5.867	Oct 2021	13.360	Oct 2022	7.102	Dec 2023	-		7.102	Continuing	Continuing	-
CDS Prime JRE Development - RVVS	C/CPFI	LM; Ft Worth Tx : TBD	-	0.000	Jul 2022	14.282	Jul 2023	10.340	Dec 2023	-		10.340	Continuing	Continuing	-
CDS Prime JRE Development - CURC	C/CPFF	LM; Ft Worth Tx : TBD	-	3.588	Oct 2021	-		-		-		-	Continuing	Continuing	-
CDS Prime JRE Development - TR-3	C/CPAF	LM; Ft Worth Tx : TBD	-	2.987	Apr 2022	0.742	Apr 2023	-		-		-	Continuing	Continuing	-
CDS Prime JRE Development - SEIT	C/CPAF	LM; Ft Worth Tx : TBD	-	0.000		2.888	Oct 2022	6.898	Jul 2024	-		6.898	Continuing	Continuing	-
CDS Prime JRE Development - FRL	Various	Various : TBD	-	0.000		0.938	Oct 2022	-		-		-	Continuing	Continuing	-
CDS Prime JRE Development - Capability Development	MIPR	LM; Eglin AFB, FL : TBD	-	2.100	Dec 2021	6.840	Dec 2022	2.780	Dec 2023	-		2.780	Continuing	Continuing	-
CDS Prime MPSE Development F-35 Next Generation Mission Planning	C/CPFI	LM; Ft Worth Tx : TBD	-	11.750	Jul 2022	3.922	Jul 2023	3.922	Mar 2024	-		3.922	Continuing	Continuing	-
CDS Prime MPSE Development - CapabilityDevelopment	Various	Various : TBD	-	0.000		5.908	Oct 2022	5.014	Dec 2023	-		5.014	Continuing	Continuing	-
Subtotal			-	26.292		48.880		36.056		-		36.056	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
CDS JRE Development Support	Various	Various : TBD	-	10.517	Dec 2021	0.942	Dec 2022	2.390	Dec 2023	-		2.390	Continuing	Continuing	-
CDS MPSE Development Support	Various	Various : TBD	-	4.128	Dec 2021	3.426	Dec 2022	1.050	Dec 2023	-		1.050	Continuing	Continuing	-

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673506 / Combat Data Systems (CDS)
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

673506	
Joint Reprogramming Environment (JRE): Technology Refresh 3 (TR3) Reprogramming LabUpgrade	
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems(RVVS): Stimulator Upgrades SLDO 3	
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems(RVVS): Stimulator Upgrades Main	
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems(RVVS): Long Lead Procurement	
Joint Reprogramming Environment (JRE): Phase 2.3 - 30P05/30P07 Mission Data Tools -Contract	
Joint Reprogramming Environment (JRE): 40P02+ Mission Data Tools, Block 4 Hardware, Training	
Joint Reprogramming Environment (JRE): CRT INC 1 - CRT LOE	
Joint Reprogramming Environment (JRE): CRT INC 1 - Long Lead Procurement	
Joint Reprogramming Environment (JRE): CRT INC 1 - CRT INC 1 - Development	
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - Contract	

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673506 / Combat Data Systems (CDS)
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR2Configuration																												
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR3Configuration																												
Mission Planning Support Environment (MPSE): MPSE Re-architecture - Contract																												
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - PrototypeSLDO																												
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Increment1																												
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Increment2																												
Mission Planning Support Environment (MPSE): DevSecOps - Hill AFB, China Lake, Pt Mugu																												
Mission Planning Support Environment (MPSE): DevSecOps - NOMS Cloud Development(Multiple)																												
Mission Planning Support Environment (MPSE): OGCs - Contracts																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673506 / Combat Data Systems (CDS)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
673506				
Joint Reprogramming Environment (JRE): Technology Refresh 3 (TR3) Reprogramming LabUpgrade	1	2022	2	2023
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems(RVVS): Stimulator Upgrades SLDO 3	1	2022	3	2022
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems(RVVS): Stimulator Upgrades Main	4	2022	4	2024
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems(RVVS): Long Lead Procurement	1	2022	3	2023
Joint Reprogramming Environment (JRE): Phase 2.3 - 30P05/30P07 Mission Data Tools -Contract	1	2022	4	2023
Joint Reprogramming Environment (JRE): 40P02+ Mission Data Tools, Block 4 Hardware, Training	3	2023	4	2028
Joint Reprogramming Environment (JRE): CRT INC 1 - CRT LOE	2	2022	2	2022
Joint Reprogramming Environment (JRE): CRT INC 1 - Long Lead Procurement	1	2022	2	2022
Joint Reprogramming Environment (JRE): CRT INC 1 - CRT INC 1 - Development	1	2022	2	2024
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - Contract	1	2022	2	2023
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR2Configuration	1	2022	4	2028
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR3Configuration	1	2023	4	2028
Mission Planning Support Environment (MPSE): MPSE Re-architecture - Contract	3	2023	4	2028
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - PrototypeSLDO	1	2022	1	2022

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673506 / <i>Combat Data Systems (CDS)</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Increment1	1	2022	2	2023
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Increment2	4	2022	3	2026
Mission Planning Support Environment (MPSE): DevSecOps - Hill AFB, China Lake, Pt Mugu	1	2022	4	2026
Mission Planning Support Environment (MPSE): DevSecOps - NOMS Cloud Development(Multiple)	1	2022	4	2022
Mission Planning Support Environment (MPSE): OGCs - Contracts	1	2022	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673507 / Training Systems & Simulation
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
673507: Training Systems & Simulation	-	78.972	74.619	61.472	0.000	61.472	54.890	62.451	68.237	70.707	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

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

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

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

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Training Systems Capability Development (TSCD)	51.031	36.602	31.000	0.000	31.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673507 / Training Systems & Simulation
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Description: The F-35 Training Systems & Simulation Program Management Office (TSS PMO) development portfolio is aligned with the program's Continuous Capability Development & Delivery (C2D2) efforts and is organized in three primary lines of effort; Training System Capability Development (TSCD), Training Systems Investments (TSI) Roadmap, and Joint Simulation Environment (JSE) Development. As a function of the F-35 organizational pivot, this is the first budget cycle in which TSS PMO budget requirements have been comprehensively and discretely defined within a dedicated Project Unit.</p> <p>FY 2023 Plans: Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing a relevant capability upgrade (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2023. Additionally, PRTS will continue critical development, integration and test activities required to enable Block 4 training capabilities. The DMT program will continue with development activities to ensure DMT capability remains fully integrated with Capability Increments 1-3 (CI1-3) capabilities and in-line with overall Air System capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the LVC portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve. Training System lab infrastructure assets will be configured to enable current and future Training System development activities across the portfolio.</p> <p>FY 2024 Base Plans: Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing relevant capability upgrades (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2024. Additionally, the Production RunTime Server (PRTS) will continue critical development, integration and test activities required to enable TR-3 training capabilities. The Distributed Mission Trainer (DMT) Program will continue with development activities to ensure DMT can support the CI1-3 capabilities to be leveraged via US networks and in-line with overall Air System Capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the Live-Virtual-Constructive (LVC) portfolio, requirements derivation and planning actives for Enhanced Embedded Training and TCTS II integration will continue to evolve to support the US Service's LVC integrated training environment. Training System lab infrastructure assets will be configured to enable current and future Training System development activities across the portfolio. Effects Based Simulation (EBS) will continue design, development, and integration activities to support requirements analysis and pilot training tasks. EBS</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673507 / Training Systems & Simulation

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>was formerly carried as an effort in the Joint Simulation Environment (JSE) R-2A category, but was aligned to the Training System Capability Development (TSCD) R-2A category beginning in FY23.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to the delayed Training System transition from TR-2 to TR-3. Because of delays with the Training System hardware and software architecture modernization that is required to field TR-3 OFPs, and because the initial TR-3 OFPs are rehosts of TR-2 capabilities, the Training System is not delivering a new software load to support the initial TR-3 series OFPs. The Training System will again align to the Air Vehicle in Lot 17.</p>					
<p>Title: Training Systems Investments (TSI) Roadmap</p> <p>Description: Training Systems Investments (TSI) Roadmap: Development efforts will continue to focus on modernization of activities outlined in the TSS PMO roadmaps that will target the requirement of bringing higher fidelity training to the warfighter. Specific development and testing efforts focus on software architecture modernization, hardware architecture modernization, and Synthetic Threat Enhancement.</p> <p>FY 2023 Plans: Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing a relevant capability upgrade (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2023. Additionally, PRTS will continue critical development, integration and test activities required to enable Block 4 training capabilities. The DMT program will continue with development activities to ensure DMT capability remains fully integrated with C11-3 capabilities and in-line with overall Air System capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the LVC portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve. Training System lab infrastructure assets will be configured to enable current and future Training System development activities across the portfolio.</p> <p>FY 2024 Base Plans: Efforts will continue to support analysis, design, development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing relevant capability upgrades (Pilot Training, Maintainer Training, Instructional</p>	9.993	13.687	12.500	0.000	12.500

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673507 / Training Systems & Simulation

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Products) for release to the fleet in FY24. Additionally, F-35 Lightning Integrated Training Environment (FLITE) will continue critical development, integration and test activities with the first delivery expected in FY26. The Distributed Mission Training (DMT) Program will continue with development activities to ensure DMT can support the C11-3 capabilities to be leveraged via US networks and in-line with overall Air System Capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. DMT will ensure the connection of F-35 Pilot Training Devices (PTDs) to customer provided and accredited Wide Area Networks (WAN) to facilitate connecting multiple sites and enabling a virtual training environment in a common synthetic environment for the US Services. Within the Live-Virtual-Constructed (LVC) portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve to support the US LVC integrated training environment.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to delays in the integration efforts of Joint Simulation Environment components, specifically Next Generation Threat System (NGTS), into the exportable Program of Record (PoR) Pilot Training Device (PTD).</p>					
<p>Title: Joint Simulation Environment (JSE) Development</p> <p>Description: Joint Simulation Environment (JSE): Development and testing efforts will continue with a focus on remaining F-35 In-A-Box (FIAB) software integration, complex threat/sensor model integration to establish operationally representative simulation environment required for operational test trial validity, and the completion of Verification, Validation and Accreditation (VV&A) activities for F-35 Block 4 modernization. Efforts will include FIAB development, model fidelity and capability upgrades for existing threats/sensors/weapons, development of new threat/sensor/weapon models, and environment upgrades to enable effective verification of Block 4 capabilities. Efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB and Nellis AFB.</p> <p>FY 2023 Plans: Efforts will continue with a focus on the completion of IOT&E operational test trails through completion of Run-for-Score events. Efforts will include testing and evaluation of FIAB software developments for integration, threat/weapon/sensor model fidelity upgrades, and JSE upgrades to enable effective verification of Block 4 capabilities.</p> <p>FY 2024 Base Plans:</p>	17.948	24.330	17.972	0.000	17.972

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673507 / Training Systems & Simulation

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Efforts will include modernization of F-35 In-A-Box (FIAB) software development and integration, model fidelity and capability upgrades for existing threats/sensors/weapon models, development of new threat/sensor/weapon models, and environment upgrades to enable effective verification of Block 4 capabilities. Planning efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB, and Nellis AFB. FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to on-going FIAB Block 4 development, integration activities and development of new threats/ weapons models being extended due to contractor manpower constraints, the restructure of JPO contracts and the continuation of FIAB data rights litigation and licensing issues preventing documentation and software deliveries.					
Accomplishments/Planned Programs Subtotals	78.972	74.619	61.472	0.000	61.472

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

N/A

Remarks

D. Acquisition Strategy

The majority of Training System capability development requirements (CI1-3 development, PRTS development, Lab Infrastructure) will be executed via training specific CLINs in Enterprise-level development contracts (Block 4 - Phase 2.3, Development Foundation). Training System Investment requirements will be executed via a combination of training specific CLINs in Enterprise-level contracts, TSS PMO specific contract actions and Other Transaction Authority (OTA) contracts. JSE development requirements will be executed via a combination of Enterprise-level contract actions and MIPR transactions to support OGC activities.

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673507 / Training Systems & Simulation
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TSS Prime Training System Alignment (TSCD)	C/CPIF	Lockheed Martin : Ft. Worth, TX	-	24.632	Nov 2021	11.926	Nov 2022	11.946	Nov 2023	-		11.946	Continuing	Continuing	156.494
TSS Prime PTD TR-3 Development (TSCD)	C/CPIF	Lockheed Martin : Ft. Worth, TX	-	10.198	Nov 2021	13.079	Nov 2022	9.546	Nov 2023	-		9.546	Continuing	Continuing	87.945
TSS Prime Training Lab Infrastructure (TSCD)	C/CPFF	Lockheed Martin : Ft. Worth, TX	-	14.815	Nov 2021	8.897	Nov 2022	7.323	Nov 2023	-		7.323	Continuing	Continuing	73.316
TSS Live-Virtual-Constructive (LVC) - DMT (TSCD)	C/CPFF	Lockheed Martin : Ft. Worth, TX	-	1.250	Nov 2021	1.500	Nov 2022	0.958	Nov 2023	-		0.958	Continuing	Continuing	35.389
TSS Effects Based Simulation Development (TSCD)	C/CPFF	J.F. Taylor Inc. : Lexington Park, MD	-	-		1.200	Nov 2022	1.227	Nov 2023	-		1.227	Continuing	Continuing	15.258
TSS Hardware Re-architecture (TSI)	Various	Not specified. : TBD	-	2.143	Nov 2021	6.663	Nov 2022	5.770	Nov 2023	-		5.770	Continuing	Continuing	20.223
TSS Software Re-architecture (TSI)	C/CPIF	Lockheed Martin : Ft. Worth, TX	-	7.500	Nov 2021	6.495	Nov 2022	4.738	Nov 2023	-		4.738	Continuing	Continuing	46.379
TSS Synthetic Threat Enhancement (TSI)	C/CPFF	Lockheed Martin : Ft. Worth, TX	-	0.350	Nov 2021	0.529	Nov 2022	1.992	Nov 2023	-		1.992	Continuing	Continuing	16.664
TSS JSE Prime FIAB Development	C/CPIF	Lockheed Martin : Ft. Worth, TX	-	7.146	Nov 2021	10.421	Nov 2022	8.617	Nov 2023	-		8.617	Continuing	Continuing	55.394
TSS JSE VWC Development	Various	Various : TBD	-	0.000	Nov 2021	-		-		-		-	Continuing	Continuing	7.592
Subtotal			-	68.034		60.710		52.117		-		52.117	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TSS JSE Pax Development Support	MIPR	NAWCAD : NAS Patuxent River, MD	-	9.034	Nov 2021	11.823	Nov 2022	7.687	Nov 2023	-		7.687	Continuing	Continuing	50.892
TSS JSE Other Development Support	Various	Various : TBD	-	1.768	Nov 2021	2.086	Nov 2022	1.668	Nov 2023	-		1.668	Continuing	Continuing	5.063

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673507 / Training Systems & Simulation
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

673507	
Training System Capability Development	
Training System Lab Infrastructure	
Production Run-Time Server (PRTS) TR-3 Development	
Effects Based Simulation (EBS) Capability Development	
Distributed Mission Training (DMT)	
F-35 Lightning Integrated Training Environment (FLITE)	
Weapon Service Development	
Common Training Services	
Synthetic Threat Enhancement	
Joint Simulation Environment, Capability Development & Air System Alignment	
JSE IOT&E Execution	
JSE Block 4 Capability Development	
F-35 In-A-Box (FIAB) Block 4 Capability Development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673507 / Training Systems & Simulation

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
673507				
Training System Capability Development	1	2022	4	2028
Training System Lab Infrastructure	1	2022	4	2028
Production Run-Time Server (PRTS) TR-3 Development	1	2022	3	2025
Effects Based Simulation (EBS) Capability Development	1	2022	4	2028
Distributed Mission Training (DMT)	1	2022	4	2028
F-35 Lightning Integrated Training Environment (FLITE)	1	2022	3	2025
Weapon Service Development	1	2022	3	2025
Common Training Services	1	2022	3	2025
Synthetic Threat Enhancement	1	2024	3	2026
Joint Simulation Environment, Capability Development & Air System Alignment	1	2022	4	2028
JSE IOT&E Execution	1	2022	4	2023
JSE Block 4 Capability Development	1	2023	4	2028
F-35 In-A-Box (FIAB) Block 4 Capability Development	1	2023	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673508 / Infrastructure & Support Costs
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
673508: Infrastructure & Support Costs	-	67.860	74.101	73.600	0.000	73.600	75.456	78.847	80.878	83.804	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY2022, Infrastructure and Support Costs was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Units 3410 (USMC) 2936 (USN) and 675346 (USAF), which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

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

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: F-35 JPO AFLCMC Civilian Pay	0.000	50.862	55.500	0.000	55.500
Description: The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee F-35 acquisition programs throughout its life cycle.					
FY 2023 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673508 / Infrastructure & Support Costs
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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Continue to fund the F-35 Joint Program Office acquisition and product support workforce.

FY 2024 Base Plans:

Continue to fund the F-35 Joint Program Office acquisition and product support workforce.

FY 2024 OCO Plans:

N/A

FY 2023 to FY 2024 Increase/Decrease Statement:

Funding increased due to actual FY2023 Average Work Year Cost (AWYC) adjustments and/or inflation.

Title: Core Program Support/Contract Support Services (CSS) Support	67.860	23.239	18.100	0.000	18.100
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Description: Includes off-base leases, Advisory and Assistance Services (A&AS), travel, supplies, Navy Working Capital fund subject matter expert support, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to C2D2 development efforts.

FY 2023 Plans:

Continue to support program office efforts, including Arlington, VA program unique off-base lease costs, CSS support, travel, supplies, Navy working capital technical SME labor, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to C2D2 development efforts.

FY 2024 Base Plans:

Continue to support program office efforts, including Arlington, VA program unique off-base lease costs, CSS support, travel, supplies, Navy working capital technical SME labor, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to C2D2 development efforts.

FY 2024 OCO Plans:

N/A

FY 2023 to FY 2024 Increase/Decrease Statement:

Funding decreased due to Air Force investment offset.

Accomplishments/Planned Programs Subtotals	67.860	74.101	73.600	0.000	73.600
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C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / <i>F-35 C2D2</i>	Project (Number/Name) 673508 / <i>Infrastructure & Support Costs</i>

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673508 / Infrastructure & Support Costs
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Core Program Support Cyber Risk Reduction	Various	Various : TBD	-	1.000	Dec 2021	1.200	Dec 2022	1.200	Dec 2023	-		1.200	Continuing	Continuing	-
Core Program Support Model-Based Systems Engineering	Various	Various : TBD	-	0.200	Dec 2021	0.500	Dec 2022	0.500	Feb 2024	-		0.500	Continuing	Continuing	-
Core Program Support Air Worthiness Support and Cyber Safe Support	C/FFP	DTIC : TBD	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	1.200		1.700		1.700		-		1.700	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
F-35 JPO AFLCMC Civilian Pay	MIPR	Wright Patterson AFB, OH : TBD	-	46.862	Oct 2021	50.862	Oct 2022	55.500	Oct 2023	-		55.500	Continuing	Continuing	-
CSS Support/Civ Support	Various	Various : TBD	-	7.070	Dec 2021	7.570	Dec 2022	5.300	Dec 2023	-		5.300	Continuing	Continuing	-
Core Program Support Off-Base Leases	MIPR	WHS : NCR	-	12.228	Oct 2021	12.569	Oct 2022	9.500	Oct 2023	-		9.500	Continuing	Continuing	-
Core Program Support Travel	Various	Various : TBD	-	0.500	Oct 2021	0.900	Oct 2022	1.200	Oct 2023	-		1.200	Continuing	Continuing	-
Core Program Support GPC	Various	GPC - Arlington, VA : TBD	-	-		0.500	Dec 2022	0.400	Oct 2023	-		0.400	Continuing	Continuing	-
Subtotal			-	66.660		72.401		71.900		-		71.900	Continuing	Continuing	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	67.860	74.101	73.600	-	73.600	Continuing	Continuing	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673508 / Infrastructure & Support Costs
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

673508	
Continued JPO Infrastructure and Support Costs	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673508 / Infrastructure & Support Costs

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
673508				
Continued JPO Infrastructure and Support Costs	1	2023	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673509 / DevSecOps			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
673509: DevSecOps	-	25.442	19.871	22.886	0.000	22.886	23.499	24.594	4.406	4.565	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY2022, DevSecOps was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project 675346, which is still included at the end of the R-2A for fiscal years FY2021. This Project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

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

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: DevSecOps Support	25.442	19.871	22.886	0.000	22.886
Description: Continue development and support for DevSecOps infrastructure, platform, software development pipeline, and joint F-35 organizational connections. Continue to develop a transition plan to stand-up a team consisting of industry and government software development in support of software modernization and DevSecOps Cloud transition. Establish initial capabilities and expand existing software development efforts with the goal of transitioning dispersed and separated software development environments into model-based systems engineering and a fully collaborative requirements to development environment. Capabilities include software development environment for Maintenance Systems ODIN, ALIS to ODIN migration, Combat Data System's					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673509 / DevSecOps

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

Mission Planning, Propulsion's Offboard Management System, and Air Vehicle Mission System domains. Additional goals of delivering flight-worthy rapid prototyping of capability, virtual test capability, and transitioning workloads to lower cost software sustainment efforts. New requirements from PMOs are expected. Prepare environment for on-boarding, as well as transitioning the PMOs from separate pillars to a centralized JPO-managed cloud environment. Includes software licensing for PMO tool sets and associated applications. Major cost drivers include requirements tool, and collaboration tools, authentication tools - supporting Single Sign On, Multi-Factor Authentication and development tools. For software tooling efforts, working towards an eventual consolidation of tools across the PMOs (i.e., application rationalization) with an end goal of a standardized compiler tool sets and Cybersecurity compliance. Accordingly, talent/consumption (hardware and software to run the environment) contracts must be renewed and expanded. Cybersecurity requirements must also be met, meaning additional resources for security processes, monitoring, scanning, vulnerability identification plus mitigation, and meeting all requirements for DoD compliance to obtain ongoing/continuous Authority to Operate (ATO) and continuous Authority to Operate (cATO).

FY 2023 Plans:

Mature DevSecOps environment into an operational platform for F-35 Software Development supporting US Government, contracted and partner nation applications plus Project Management Offices (PMO) software application development, model-based system engineering. Continue transition of PMOs into centralized JPO-managed cloud environment. Continue obtaining appropriate software Cloud development environment, talent, licensing and tools. Maintain Cloud, talent and consumption contracts. Continue meeting cyber security requirements. Develop continuous Authority to Operate (cATO) DevSecOps pipeline and tools to meet compliance requirements and software modernization initiatives for all DevSecOps environments.

FY 2024 Base Plans:

Continue development and support for DevSecOps infrastructure, platform, software development pipeline, and joint F-35 organizational connections. Continue to develop a transition plan to stand-up a team consisting of Industry and Government personnel in support of software modernization and DevSecOps Cloud transition. Establish initial capabilities and expand existing software development efforts with the goal of transitioning dispersed and separated software development environments into model based systems engineering and fully collaborative requirements to development environment. Capabilities include software development environment for Maintenance Systems ODIN, ALIS to ODIN transition, Combat Data System's Mission Planning, Propulsion's Offboard Management System, and Air Vehicle Mission System domains. Additional goals of delivering flight-worthy rapid prototyping of capability, virtual test capability, and transitioning workloads to lower cost software sustainment efforts. New requirements from PMOs are expected. The team will prepare the environment for on-

FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673509 / DevSecOps

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>boarding, as well as transition the PMOs from separate pillars to a centralized JPO-managed cloud environment. Major cost drivers include requirements, collaboration, and authentication tools - supporting Single Sign On, Multi-Factor Authentication and development tools. For software tooling efforts, working towards an eventual consolidation of tools across the PMOs (i.e. application rationalization) with an end goal of standardized compiler tool sets and Cybersecurity compliance. Accordingly, talent/consumption (hardware and software to run the environment) contracts must be renewed and expanded. Cybersecurity requirements must also be met, meaning additional resources for security processes, monitoring, scanning, vulnerability identification plus mitigation, and meeting all requirements for DoD compliance to obtain ongoing Authority to Operate (ATO) and cATO.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to the emerging requirements to move DevSecOps development to a centralized Cloud environment and an update to the Cloud estimate based on component and service data actuals.</p>					
Accomplishments/Planned Programs Subtotals	25.442	19.871	22.886	0.000	22.886

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

N/A

Remarks

D. Acquisition Strategy

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673509 / DevSecOps
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Dev Ops Development Support - Talent	C/FFP	Various : TBD	-	16.000	Dec 2021	10.021	Dec 2022	12.034	Jan 2024	-		12.034	Continuing	Continuing	-
Dev Ops Development Support - Licenses	C/FFP	August Schell Enterprises : TBD	-	3.642	Oct 2021	5.250	Oct 2022	5.452	Jun 2024	-		5.452	Continuing	Continuing	-
Dev Ops Development Support - Cloud Support	C/FFP	Amazon Web Services : TBD	-	5.800	Oct 2021	2.850	Oct 2022	2.700	Dec 2023	-		2.700	Continuing	Continuing	-
Dev Ops Development Support - Industry Stand-up	C/FFP	TBD : TBD	-	-		1.750	Mar 2023	2.700	Mar 2024	-		2.700	Continuing	Continuing	-
Subtotal			-	25.442		19.871		22.886		-		22.886	Continuing	Continuing	N/A

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

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	25.442	19.871	22.886	-	22.886	Continuing	Continuing	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673509 / DevSecOps
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Project Milestones																												
Contract Award: DevSecOps Infrastructure/ Platform/Tools																												
Contract Award: DevSecOps FENCES																												
Contract Award: DevSecOps Cloud																												
Contract Award: DevSecOps Industry Standup																												
System Development																												
AWS Impact Level 2 Research, Development and Test																												
AWS Impact Level 5 Buildout																												
AWS Impact Level 5 Research, Development and Test																												
AWS Impact Level 6 Buildout																												
AWS Impact Level 6 Research, Development and Test																												
AWS Impact Level 6+ (SAP) Buildout																												
AWS Impact Level 6+ (SAP) Research, Development and Test																												
Data Transfer as a Service																												
Cloud Gateway (Collateral) LM Connection																												
Cloud Gateway (Collateral) Research, Development and Test																												
Cloud Gateway (SAP) LM Connection																												
Cloud Gateway (SAP) Research, Development and Test																												
AzureStack Impact Level 6+ (SAP) Buildout																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673509 / DevSecOps
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Schedule Details

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

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673510 / <i>Utility and Subsystem Support to Mission Systems</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
673510: <i>Utility and Subsystem Support to Mission Systems</i>	-	0.000	0.000	16.263	0.000	16.263	27.203	27.306	16.356	10.916	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 0604840F, project , PTMS Upgrade, is a new start.

As the United States and its allies add new capabilities to outpace the growing threat of China, increased cooling and electrical power capacity will be required to support these new capabilities. Current power extractions from the current F135 engine before any capability upgrades is reducing engine life. In order to address increased thermal loads from new Mission Systems requirements, an upgrade to the Power Thermal Management System (PTMS) and Fuel Thermal Management System (FTMS) is required.

A. Mission Description and Budget Item Justification

This is a NEW START. Current Mission System planning estimates due to Block 4 capabilities and beyond indicate that additional cooling is required for aircraft beginning in Lot 22 (FY2028). This upgrade/modification consists of an upgrade to the current Honeywell PTMS that includes larger heat exchangers, shifting some systems from the cold liquid loop to the hot liquid loop, increasing system pressure, increasing pump speeds and raising compressor discharge temperatures. This modification upgrades components that are relatively low cost and already at a high technical readiness level. All PTMS changes for this level of cooling would be accomplished within the existing PTMS bay and there are not expected to be any necessary changes to the capacity of the cold liquid loop or the hot liquid loop. This work includes nonrecurring engineering for the development, test, and certification of the upgraded PTMS system to ensure suitable cooling is available for future capacities. The Government has assessed that EMD phase would take 5-6 years.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: PTMS Upgrade	0.000	0.000	16.263	0.000	16.263
Description: This is a NEW START. Current Mission System planning estimates due to Block 4 capabilities and beyond indicate that additional cooling is required for aircraft beginning in Lot 22 (FY28). This upgrade/modification consists of an upgrade to the current Honeywell PTMS that includes larger heat exchangers,					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673510 / Utility and Subsystem Support to Mission Systems

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>shifting some systems from the cold liquid loop to the hot liquid loop, increasing system pressure, increasing pump speeds and raising compressor discharge temperatures. This modification upgrades components that are relatively low cost and already at a high technical readiness level. All PTMS changes for this level of cooling would be accomplished within the existing PTMS bay and there are not expected to be any necessary changes to the capacity of the cold liquid loop or the hot liquid loop. This work includes nonrecurring engineering for the development, test, and certification of the upgraded PTMS system to ensure suitable cooling is available for future capacities.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: The PTMS Upgrade program will begin nonrecurring engineering effort to increase PTMS Upgrade cooling requirements. This work includes the necessary labor and nonrecurring engineering to support development of the cooling PTMS system and a detailed schedule of EMD to include the necessary operational testing and flight tests.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to the PTMS Upgrade requirements needed to meet Mission Systems Capabilities.</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	16.263	0.000	16.263

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673510 / Utility and Subsystem Support to Mission Systems

Schedule Details

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

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 674871 / Information Operations Technology
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
674871: Information Operations Technology	-	0.000	0.000	0.342	0.000	0.342	0.000	0.000	0.000	0.000	0.000	0.342
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
This program, BA 7, PE 0604840F, project , Information Operations Technology, is a new start.

A. Mission Description and Budget Item Justification

This is a New Start to procure Microsoft 365 Enterprise Licensing Upgrades for Improved Zero Trust (ZT) Capabilities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$54.5M was expended for civilian pay expenses in this project element, and in FY23, \$58.7M is forecasted for civilian pay expenses in this project element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Information Operations Technology	-	0.000	0.342	-	0.342
Description: This is a New Start to procure Microsoft 365 Enterprise Licensing Upgrades for Improved Zero Trust (ZT) Capabilities.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: This is a New Start to procure Microsoft 365 Enterprise Licensing Upgrades for Improved Zero Trust (ZT) Capabilities.					
FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to the New Start to procure Microsoft 365 Enterprise Licensing Upgrades for Improved Zero Trust (ZT) Capabilities.					
Accomplishments/Planned Programs Subtotals	-	0.000	0.342	-	0.342

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 674871 / Information Operations Technology

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 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 674871 / Information Operations Technology	

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Information Operations Technology	
Enterprise Software Agreement (ESA)	████████████████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 674871 / Information Operations Technology

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Information Operations Technology				
Enterprise Software Agreement (ESA)	1	2024	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 675346 / F-35			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675346: F-35	-	0.000	0.000	1.038	0.000	1.038	0.828	0.845	0.863	1.427	0.000	5.001
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY2022, PE 0604840F Project 675346 was reduced to zero due to breakout of new Projects per Congressional mandate. In FY2024, a clerical error added civilian pay funding to Project 675346. A tech adjustment will be made to move the FY2024 funding to the Infrastructure & Support Costs Project 673508.

A. Mission Description and Budget Item Justification

F-35 Continuous Capability Development and Delivery (C2D2) provides continuing incremental upgrades of the three F-35 variants and associated ground equipment. Upgrades are essential capabilities for Air Interdiction and Strategic Attack, Close Air Support, Suppression and Destruction of Enemy Air Defenses, Offensive and Defensive Counter Air and expanded Surface Warfare. The C2D2 acquisition strategy is based upon incremental deliveries of capabilities. The strategy includes periodic deliveries with a focus on hardware, tech refresh and software. C2D2 capability planning includes an efficient transition from F-35 SDD to C2D2. As SDD development activities ramp down C2D2 will assume responsibility for improvements and modernization efforts.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Clerical Error for Infrastructure and Support Costs	-	0.000	1.038	-	1.038
Description: In FY2024, a clerical error added civilian pay funding to Project 675346. A tech adjustment will be made to move the funding to the Infrastructure & Support Costs Project 673508.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: In FY2024, a clerical error added civilian pay funding to Project 675346. A tech adjustment will be made to move the funding to the Infrastructure & Support Costs Project 673508.					
FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to a clerical error.					
Title: Product Development - Air Vehicle (AV) / Block 4 Planning and Systems Engineering	0.000	0.000	0.000	0.000	0.000
Description: Block 4 Planning and Systems Engineering from preliminary design and requirements decomposition through completion of Developmental Flight Test for all variants of the F-35 aircraft. Modernization efforts include Requirements Decomposition and continuous development and release of capabilities identified as Block 4 upgrades. This is a continuation of the previous Block 4 developmental					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 675346 / F-35

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>contracts, which will include activities leading to successful completion of Developmental Flight Test, to include select facility upgrades required for Block 4 research, development, test and evaluation. Included in Block 4 are upgraded capabilities and continuous improvements to maintain Air System viability against evolving threats indicated in the Electronic Warfare Initial Capabilities Document (ICD), the Fifth Generation Fighter Modernization ICD, and the Block 4 Capability Development Document (CDD), reduce life cycle cost, and improve operational suitability. Continuous risk reduction activities to include Air System Integration, preplanning for subsequent Block 4 Modernization events, and investments to deliver the full Block 4 Air System capabilities as needed. Efforts also included are Advanced Anti-Radiation Guided Missile Extended Range (AARGMER), non-recurring engineering (NRE) for obsolescence, and 6 In The Bay early systems engineering. C2D2 capability planning includes an efficient transition from F-35 System Development and Demonstration (SDD) to C2D2. As SDD development activities ramp down C2D2 will assume responsibility for improvements and modernization efforts.</p> <p>Beginning in FY 2022, Air Vehicle - Block 4 Planning & Sys Eng was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from BPAC 675346, which is still included at the end of the R-2A for FY 2020 and FY 2021. This Project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY 2022 request.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>					
<p>Title: AV Product Development - Technology Refresh 3 (TR-3)</p> <p>Description: Technology Refresh 3 (TR-3) conducts post Critical Design Review (CDR) design activities. This effort will develop and deliver a TR-3 system through full flight-worthy certification and production readiness review for Lot 15. The design of TR-3 subsystems Integrated Core Processor (ICP), Aircraft Memory System (AMS), and Panoramic Cockpit Display Electronics Unit and Display Unit (PCD-EU, PCD-DU) configurations will contain new backplane technology, commercial operating systems, and modified middleware necessary</p>	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 675346 / F-35

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>to support Block 3F functionality and incorporation of all Block 4 capabilities. This work includes nonrecurring engineering for the developing, test, and certification of the ICP, AMS, PCD-EU, and PCD-DU, and includes processing capacity to ensure long term viability for future capabilities.</p> <p>Beginning in FY 2022, Air Vehicle - Technology Refresh 3 (TR-3) was established as a separate, distinct project within the Continuous Capability Development and Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from BPAC 675346, which is still included at the end of the R-2A for FY 2020 and FY 2021. This Project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY 2022 request.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>					
<p>Title: Infrastructure and Support Costs</p> <p>Description: Funding will support infrastructure investment planning and other test planning activities required for Block 4 development, integration, test and evaluation. Funding related to the Integrated Test Force, government, and contractor labor. Support efforts for airframe, air vehicle systems, air ship integration, mission systems, weapons integration, offboard mission support, autonomic logistics development, joint reprogramming enterprise and modeling and joint simulation environment activities, including Nimble Lightning efforts. Other costs in support of ranges, chase planes and Developmental Test (DT) site operations. USAF only will fund additional Program Management Activities (PMA) to transition to a final hybrid product support integrator (HPSI) which will support sustainment analysis with product support managers, focused on long term strategic planning and transition to a final integrated support plan. Other costs support Technology Investment for Modernization, Cloud based DevSecOps infrastructure, and COCOM Requirements for Coalition Mission Data Files (CMDx) to reduce fratricide in coalition environments.</p> <p>Beginning in FY 2022, Infrastructure and Support Costs was established as a separate, distinct project within the Continuous Capability Development and Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from BPAC 675346, which is still included at the end of the R-2A for FY 2020 and FY 2021. This</p>	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 675346 / F-35

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2022 request.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>					
<p>Title: Test and Evaluation (TE)</p> <p>Description: : Integrated Test activities in support of Block 4, to include Lockheed Martin and Pratt & Whitney support at all test sites. Non-recurring engineering required to plan for the service life extension of existing Developmental Test (DT) aircraft and modification necessary to bring DT aircraft fleet to a more production representative and sustainable configuration, and to develop flight test instrumentation and release test software to meet Block 4 requirements. Additional upgrades required to support development and evaluation of improvements driven by changes in the threat environment and as identified in the Electronic Warfare Initial Capabilities Document (ICD), the Fifth Generation Fighter Modernization ICD, and the Block 4 Capability Development Document (CDD). Efforts include non-recurring engineering and procurement of a test article to evaluate service life of F-35B STOVL Aircraft.</p> <p>Beginning in FY 2022, Test and Evaluation (T&E) was established as a separate, distinct project within the Continuous Capability Development and Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from BPAC 675346, which is still included at the end of the R-2A for FY 2020 and FY 2021. This project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY 2022 request.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans:</p>	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 675346 / F-35

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: N/A					
<p>Title: Maintenance Systems (MxS) Operational Data Integrated Network (ODIN) / Autonomic Logistics Information System (ALIS) Development</p> <p>Description: The F-35 Operational Data Integrated Network (ODIN) is the F-35 program solution for delivering core maintenance and logistics information system solutions to F-35 warfighters. Leveraging agile and modern software development practices, ODIN will replace ALIS to serve as the primary logistics tool to support F-35 warfighter operations, health and diagnostics, mission planning, supply chain management, maintenance, and training. ODIN will substantially decrease F-35 administrator and maintainer workload, increase readiness rates for all F-35 variants, and allow software engineers to rapidly develop and deploy updates in response to changing warfighter requirements and improve data management, quality and integrity. ODIN is intended to provide the data to enable holistic fleet management, improve performance, enhance readiness, and reduce costs to the F-35 program. It comprises both hardware and software, and supports the flow of Unclassified and Classified aircraft and maintenance-related data.</p> <p>Autonomic Logistics Information System (ALIS) will continue to deliver the core logistics and maintenance infrastructure requirements for the F-35 enterprise until ODIN is fielded at all sites. ALIS includes features such as aircraft scheduling, training delivery, record keeping, technical data delivery, supply chain management, maintenance management, pilot and maintenance debriefing, and mission planning. ALIS development is only focused on low cost and high return investments that provide a high confidence return on investment in the short term, significant warfighter impact, and/or offer synergy with ODIN development efforts.</p> <p>Beginning in FY2022, Maintenance Systems (MxS) was established as a separate, distinct project within the Continuous Capability Development and Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from BPAC 675346, which is still included at the end of the R-2A for FY 2020 and FY 2021. This project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY 2022 request.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans:</p>	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 675346 / F-35

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: N/A					
Title: Combat Data Systems (CDS) Description: Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning and joint reprogramming enterprise. Beginning in FY 2022, Combat Data Systems (CDS) was established as a separate, distinct project within the Continuous Capability Development and Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from BPAC 675346, which is still included at the end of the R-2A for FY 2020 and FY 2021. This Project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY 2022 request. FY 2023 Plans: N/A FY 2024 Base Plans: N/A FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: N/A	0.000	0.000	0.000	0.000	0.000
Title: Propulsion (PP) Description: Propulsion F135 Block 4 Integrated Flight Test Support includes efforts such as Engine Flight Test, Test Engine Procurements, and other associated government costs. For C2D2 to be able to continue to test all three aircraft variants, propulsion support is required to enable continued flying. Increased flights and flight hours are planned over the next 2 years, requiring elevated propulsion support. All of the current Full Flight Release (FFR) engines supporting Flight Test are at or nearing their life limits, requiring the purchase of new	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 675346 / F-35

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Initial Service Release (ISR) engines to replace them. This replacement effort is planned to occur over the next few years to enable continued flight capability.</p> <p>Beginning in FY 2022, Propulsion (PP) was established as a separate, distinct project within the Continuous Capability Development and Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from BPAC 675346, which is still included at the end of the R-2A for FY 2020 and FY 2021. This Project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY 2022 request.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>					
<p>Title: Training Systems (TSS)</p> <p>Description: Training System efforts include continuous development and release of capabilities identified as Block 4 upgrades integral to an aligned Air System. This is a continuation of previous Block 4 developmental efforts, which will include: capability development, architecture upgrades to support capability delivery, enhanced synthetic threat integration, opportunities to leverage JSE investments toward Training System requirements, and facility/lab upgrades required for research, development, test, and evaluation. Included in Block 4 are upgraded capabilities and continuous improvements to maintain Air System viability and alignment against evolving threats indicated in the Electronic Warfare Initial Capabilities Document (ICD), Fifth Generation Fighter Modernization ICD, Block 4 Capability Development Document (CDD), and TSS PMO Roadmap. Distributed Mission Training (DMT) Development and Test from preliminary design through completion of development, testing and fielding of the initial DMT capability for the United States Air Force, United States Navy, and United States Marine Corps. The DMT effort is developing the Joint Interoperability Interface (JII) as the filter for the F-35 simulator to interface with the various network standards. The DMT hardware and software components will be added to the Pilot Training Device (PTD) configuration baseline, yielding a fielded training capability for all F-35 services and customers with distributed training network capability. This is a continuation of previous DMT efforts. Included in DMT are upgraded capabilities and continuous improvements to maintain</p>	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 675346 / F-35

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Air System viability against evolving threats, reduce life cycle cost, and improve operational suitability. Funding will support hardware purchase and planning for installation and test activities required for DMT development, integration, test, and evaluation. Funding related to contractor labor. Support efforts for Full Mission Simulator, Deployable Mission Rehearsal Trainer, and Tactical Environment Simulator capability developments.</p> <p>The Joint Simulation Environment (JSE) will continue efforts to allow for completion of F-35 IOT&E events at the Patuxent River NAS facility. Efforts to upgrade JSE capabilities at Patuxent River NAS to support future F-35 Block 4 needs will continue and efforts to bring future JSE facilities at Wright Patterson AFB, Edwards AFB, and Nellis AFB online in FY23. Efforts to determine feasibility of integrating the JSE, F-35 In-a-Box (FIAB) and the F-35 Effects Based Simulator (EBS) with F-35 Training software to move towards a common software architecture will begin. F-35 EBS will continue development of unclassified and classified capabilities, and deliver formal software releases to current and new domestic and international partners and stakeholders. Continuation of efforts to support events involving the F-35, including Nimble Lightning, at the Virtual Warfare Center (VWC).</p> <p>Beginning in FY 2022, Training Systems and Simulation (TSS) was established as a separate, distinct project within the Continuous Capability Development and Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from BPAC 675346, which is still included at the end of the R-2A for FY 2020 and FY 2021. This Project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY 2022 request.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>					
<p>Title: DevSecOps</p> <p>Description: Beginning in FY 2022, DevSecOps was established as a separate, distinct project within the Continuous Capability Development and Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from BPAC 675346, which is still included at the end of the R-2A for FY 2020 and FY 2021. This Project has also been updated to reflect the directed project categories to provide traceability between current</p>	0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 675346 / F-35

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
execution and the FY 2022 request.					
<i>FY 2023 Plans:</i> N/A					
<i>FY 2024 Base Plans:</i> N/A					
<i>FY 2024 OCO Plans:</i> N/A					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.038	0.000	1.038

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

N/A

Remarks

This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Navy. The United Kingdom, Italy, Netherlands, Canada, Australia, Denmark, and Norway are participants in the SDD phase of JSF.

D. Acquisition Strategy

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

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 675346 / F-35
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

675346	
Funds allocated to this BPAC in error. Placeholder event.	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 675346 / F-35

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
675346				
Funds allocated to this BPAC in error. Placeholder event.	1	2024	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	25.582	37.901	40.203	0.000	40.203	49.651	19.864	1.401	0.000	0.000	174.602
676003: <i>HRM Structural Development</i>	0.000	25.582	37.901	40.203	0.000	40.203	49.651	19.864	1.401	0.000	0.000	174.602
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: N86

A. Mission Description and Budget Item Justification

The Air Force Integrated Personnel and Pay System (AFIPPS) is a web-enabled, Enterprise Resource Planning (ERP) solution that integrates existing personnel and pay processes into one self-service system. AFIPPS supports how the Department of the Air Force (DAF) owns and operates the Human Resource Management domain and is a component of the AF/A1 digital transformation journey, currently underway. AFIPPS continues the transformation by providing an accurate and single authoritative source of personnel data to ensure timely delivery of pay, entitlements, allowances, and benefits to all Active Duty Air and Space Force, National Guard (ANG), and Reserve (AFRes) components. AFIPPS represents the DAF's commitment to modernize business practices and provide enhanced support to service members and their families by integrating personnel and pay systems. AFIPPS will eliminate DAF reliance on the unsustainable Defense Finance and Accounting System (DFAS) and the Defense Joint Military Pay System (DJMS) for payroll processing and ensures improved auditability of service member pay.

The AFIPPS program directly increases readiness for total force service members, human resources and financial management specialists, and DAF Commanders. AFIPPS will improve the DAF community's experience by allowing members to self-initiate pay/personnel actions, decreasing pay errors, and providing accurate personnel/pay data for leadership decision-making. AFIPPS modernizes the existing Military Personnel Data System (MilPDS) and adds pay and leave capability. In Jan 2021, the DAF leveraged a MilPDS self-service capability deployment to verify the baseline system had the infrastructure for the new pay and leave capability in place. The self-service capability allowed DAF Airmen and Guardians to initiate self-registration, validate member data and verify operational performance. AFIPPS will subsume MilPDS and launch its pay and leave capabilities achieving Go-Live in January 2025.

This requirement supports performance of a full financial audit as required by title 10 U.S.C Chapter 9A, Sec 240-D.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$0.000M was expended for civilian pay expenses in this program element, and in FY2023 \$0.000M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	22.010	37.901	1.126	0.000	1.126
Current President's Budget	25.582	37.901	40.203	0.000	40.203
Total Adjustments	3.572	0.000	39.077	0.000	39.077
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	4.262	0.000			
• SBIR/STTR Transfer	-0.690	0.000			
• Other Adjustments	0.000	0.000	39.077	0.000	39.077

Change Summary Explanation

Funding for FY 2022 and FY 2024 increased due to extended support and reprioritized developmental test activities to ensure compensation accuracy of payroll, ensure auditability of military pay, validate system performance, conduct training, and execute pre-deployment activities.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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Title: AFIPPS - System Integrator Development & Test	24.029	36.296	38.607
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Description: Acquire and develop the activities that support the acquisition of a personnel/pay capability for DAF personnel across all components (i.e., Active Duty Air and Space Force, ANG, and AFRes). Development initiatives can be divided into two objectives: Transactional System development and Reporting System development. The Transactional System references the AFIPPS capability to calculate and transact service member pay. The Reporting System enables service members and functional system users to pull reports and conduct analysis activities. The majority of Transactional System development activities are complete and undergoing Developmental Test & Evaluation (DT&E). These activities primarily drive the AFIPPS critical path. The section below discusses some DT&E obstacles experienced in late-FY21. Subsequent resolution and risk mitigation initiatives reprioritized a few post-deployment Transactional System development activities for incorporation into the baseline capability delivery. Reporting System development is on-going and will be likewise tested.

The AFIPPS Test and Evaluation Strategy encompasses Developmental Test & Evaluation (DT&E), Operational Test and Evaluation (OT&E), and a Cybersecurity Evaluation (CSE).

DT&E consists of two test series: Component Verification and Integration (CV&I) and Qualification Test and Evaluation (QT&E). CV&I is performed primarily by the system integrator and observed by Government Stakeholders. QT&E, on the other hand, is

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)

performed primarily by numerous Government Stakeholders. The test activities accomplished within this thrust align within the CV&I test series.

Late-FY21 CV&I initiatives uncovered integration issues with pay data retrieval from legacy systems. In FY22, the DAF resolved issues with numerous software updates and data conversion solutions. A root cause investigation revealed additional risk in both the configuration management plan and the planned software regression testing. The activities discussed below reflect the additional test and integration initiatives to effectively manage risk.

CSE is performed primarily by Government Stakeholders; however, this thrust includes some system integrator-led activities.

FY 2023 Plans:

(Note: Unless otherwise noted, all test activities fall within the CV&I test series of DT&E.)

- Complete Reporting System development.
- Develop, test and integrate statutory-directed pay requirements.
- Complete Data Management Evaluation Testing to validate legacy system data accurately converts to AFIPPS.
- Conduct and complete Payroll Integrated Baseline Regression Testing to validate payroll system functionality when integrated with completed additional development initiatives.
- Conduct Payroll Reconciliation Testing to validate AFIPPS correctly calculates payroll (originally planned for accomplishment late-FY21; reprioritized to resolve urgent data conversion issues).
- Conduct and complete integrator-led Performance Evaluation Testing to validate system key performance for compensation accuracy, military pay auditability, and timeliness payroll processing and disbursement to Airmen and Guardians.
- Conduct cybersecurity vulnerability scans on code; will update code as required (aligned within the Cybersecurity Evaluation (CSE)).
- Complete DoDAF architectures in support of interoperability certification.
- Continue change management activities in support of limited deployment release.
- Update contract and acquisition documentation to support the Limited Deployment Authority to Proceed (ATP) approval.
- Continue AF information technology efforts and studies (e.g., Common Services/Computing Environment, FIAR/FISCAM audit support, Platform as a Service (PaaS)/Software as a Service (SaaS) architectures, etc.) to ensure AFIPPS is fully integrated into AF & DoD enterprise networks, databases, and information systems.
- Continue to maintain the required AFIPPS computing environments (e.g., development, test and production) with DISA.

FY 2024 Plans:

(Note: Unless otherwise noted, all test activities fall within the CV&I test series of DT&E.)

FY 2022	FY 2023	FY 2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Will complete Payroll Reconciliation Testing to validate AFIPPS correctly calculates payroll. - Will develop, test and integrate statutory-directed pay requirements. - Will continue cybersecurity vulnerability scans on code and update code as required (aligned within the Cybersecurity Evaluation (CSE)). - Will conduct operating location training to Operational Assessment participants. - Will conduct training for AF and USSF base-level trainers in support of the Limited Deployment release. - Will conduct pre-deployment updates of data conversions and system configurations to the production environment prior to the Go-Live release. - Will continue change management activities in support of the Limited Deployment release. - Will update contract and acquisition documentation to support the Limited Deployment Authority to Proceed (ATP) approval. - Will continue AF information technology efforts and studies (e.g., Common Services/Computing Environment, FIAR/FISCAM audit support, Platform as a Service (PaaS)/Software as a Service (SaaS) architectures, etc.) to ensure AFIPPS is fully integrated into AF & DoD enterprise networks, databases, and information systems. - Will continue to maintain the required AFIPPS computing environments (e.g., development, test and production) with DISA. <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding for FY 2024 increased due to extended support and reprioritized developmental test activities to ensure compensation accuracy of payroll, auditability of military pay, validate system performance, conduct training, and execute pre-deployment activities.</p>			
<p>Title: AFIPPS - Government-Performed Test and Evaluation</p> <p>Description: The AFIPPS Test and Evaluation Strategy encompasses Developmental Test & Evaluation (DT&E), Operational Test and Evaluation (OT&E), and a Cybersecurity Evaluation (CSE).</p> <p>DT&E comprises two test series: Component Verification and Integration (CV&I) and Qualification Test and Evaluation (QT&E). CV&I is performed primarily by the system integrator and observed by Government Stakeholders. QT&E activities, on the other hand, are performed primarily by numerous Government Stakeholders. CV&I activities within this thrust focus on pre-test planning and post-test analysis. This thrust includes all QT&E activities.</p> <p>The DAF recently restructured the OT&E Strategy as well as the deployment schedule based on the Office of the Secretary of Defense (OSD) Director Operational Test and Evaluation (DOT&E) recommendations to better address system performance risks. Instead of a single Initial Operational Test & Evaluation (IOT&E) event following Go-Live, the DAF will conduct an Operational</p>	1.553	1.605	1.596

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Assessment ahead of a January 2025 Go-Live Limited Deployment. IOT&E will take place thereafter once all interfaces have deployed. This thrust includes all OT&E activities.</p> <p>The CSE activities accomplished within this thrust are performed primarily by Government Stakeholders.</p> <p>FY 2023 Plans: (Note: Unless otherwise depicted, all test events aligned within CV&I.)</p> <ul style="list-style-type: none"> - Conduct and complete government-led Human Resources Integrated Baseline Regression Test (IBRT) to validate human resources functional capability when combined with pay/leave capability. - Analyze integrator-led Payroll IBRT results to validate functional capability given recent development. - Analyze integrator-led Payroll Reconciliation Test results to validate AFIPPS correctly calculates payroll. - Analyze integrator-led Performance Evaluation Test results to validate system key performance for compensation accuracy, military pay auditability, and timeliness payroll processing and disbursement to Airmen and Guardians. - Conduct a Test Readiness Review in preparation for transition to the QT&E test series. - Conduct government-led Performance Evaluation Tests to validate system responsiveness is maintained during periods of high load and stress (QT&E). - Conduct and complete a System Operability Evaluation (SOE) to validate System Partner interfaces, critical technical parameters and key performance parameters (QT&E). - Conduct a User Evaluation Test (UET) and analyze results to validate system readiness for Operational Assessment (QT&E). - Provide support for the Joint Interoperability Test Command (JTIC) -led interoperability certification assessment tests (OT&E). - Conduct Cooperative Vulnerability Identification testing in which a team of cybersecurity specialists will assess AFIPPS' design (aligned with the CSE). <p>FY 2024 Plans: (Note: Unless otherwise depicted, all test events aligned within CV&I.)</p> <ul style="list-style-type: none"> - Will conduct Adversarial Cybersecurity Developmental Evaluation and Testing (ACD), in which a team of cybersecurity specialists perform evaluations of the system's cyber survivability and operational resilience in a mission context using realistic threat exploitation techniques, within a representative operating environment (aligned with the CSE). - Will complete analysis of Payroll Reconciliation Test results to validate AFIPPS correctly calculates payroll. - Will complete an User Evaluation Test (UET) and analyze results to validate system readiness for Operational Assessment (QT&E). - Will conduct end-to-end Treasury interface tests (QT&E). 				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
- Will conduct an Operational Test Readiness Review in preparation for transition to OT&E. - Will complete support for the Joint Interoperability Test Command (JTIC) led interoperability certification assessment tests (OT&E). - Will support execution of an AFOTEC-led Operational Assessment (OT&E).			
FY 2023 to FY 2024 Increase/Decrease Statement: Funding in FY 2024 decreased due to a ramp down in Government-performed QT&E test and analysis activities.			
Accomplishments/Planned Programs Subtotals	25.582	37.901	40.203

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPAF 03 834410: <i>INTEGRATED PERSONNEL AND PAY SYSTEM</i>	8.487	0.000	0.000	-	0.000	-	-	-	-	0.000	8.487

Remarks

E. Acquisition Strategy

The AFIPPS acquisition strategy focuses on expanding the fielded AF Military Personnel Data System (MilPDS) by integrating pay and leave capabilities. MilPDS is implemented using the commercial Oracle ERP E-Business Suite (EBS). The AFIPPS program configures/develops the pay module of EBS and ensures the system is fully integrated and deployed. The primary system integrator contract includes pay system development, test, and deployment. The development activities are fully coordinated and integrated with the on-going operation and sustainment of MilPDS.

AFIPPS is implementing agile principles to the maximum extent practical during the software development effort. The AFIPPS program includes two major releases:

First, the program leveraged a MilPDS self-service capability deployment to ensure infrastructure for pay and leave capability is in place. The self-service capability deployed in Jan 2021, allowing the AF community to initiate self-registration, validate member data, and verify operational performance.

Next, pay/leave capability was organized into stories then incorporated into work packages to be developed in three-week sprints. Each work package was developed and tested by the integrated user/developer team on multiple pre-production environments.

After completing initial development, the DAF will execute an extensive Test and Evaluation Strategy encompassing Development Test & Evaluation (DT&E), Operational Test & Evaluation (OT&E), and a Cybersecurity Evaluation (CSE).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>	
<p>DT&E will verify AFIPPS meets specifications and will validate system functionality and associated business processes relative to current payroll and leave systems. System performance will be re-verified upon integration with the existing MilPDS baseline. It is divided into two test series, Component Verification & Integration and Qualification Test & Evaluation (QT&E). Both the system integrator and Government stakeholders accomplish DT&E activities.</p> <p>The DAF will then conduct OT&E. The OT&E strategy recently changed from a single Initial Operational Test & Evaluation (IOT&E) event following Go-Live to a two-phased approach. The revision was based on OSD(DOT&E) recommendations to better address system performance risks. Phase 1 comprises an Operational Assessment to determine operational effectiveness and suitability prior to Go-Live. AFIPPS pay/leave capability will then be delivered in January 2025 in a single release to all Active Duty Air and Space Force, National Guard (ANG), and Reserve (AFRes) components. (Note: The legacy systems within the existing pay/leave process have a significant interdependency such that incrementally decommissioning systems is not feasible. Therefore, while the program implements agile methodologies, the DAF will conduct only one pay/leave capability release.) This Limited Deployment will be executed with a semi-automated interface with the Defense Enterprise Accounting and Management System (DEAMS). (Note: the development actions DEAMS requires to interface with AFIPPS are independent of the AFIPPS program.) After the fully automated DEAMS interface deploys, Phase 2 will comprise an IOT&E event to further validate system efficacy.</p> <p>The CSE comprises five test events which take place in parallel with DT&E and OT&E. The evaluation culminates in an Assessment & Authorization (A&A), which will evaluate AFIPPS' information system policies, security controls, documented vulnerabilities, etc. Thus far, the DAF has completed one of five test events.</p> <p>After successfully completing all test initiatives, the DAF will declare the system fully deployed and transition to the Capability Support Phase.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605018F / AF Integrated Personnel and Pay System (AF-IPPS)	Project (Number/Name) 676003 / HRM Structural Development
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
AFIPPS Prime Software Developmental Efforts	C/CPIF	ACCENTURE FEDERAL SVCS : ARLINGTON, VA	0.000	13.317	Jan 2022	18.716	Oct 2022	15.293	Oct 2023	-		15.293	Continuing	Continuing	90.482
AFIPPS Application Hosting Environment	MIPR	DISA EIS : Pensacola, FL	0.000	5.267	Nov 2021	5.667	Oct 2022	6.030	Oct 2023	-		6.030	Continuing	Continuing	-
AFIPPS Enterprise Systems Integration/ Deployment	Various	Various : Various	0.000	-		-		4.701	Apr 2024	-		4.701	Continuing	Continuing	-
AFIPPS COTS Licenses	Various	Various : Various	0.000	0.529	Apr 2022	1.009	Apr 2023	1.020	Apr 2024	-		1.020	Continuing	Continuing	-
AFIPPS Financial Improvement and Audit Readiness (FIAR)	C/FP	Various : Various	0.000	-		0.255	Aug 2023	0.257	Aug 2024	-		0.257	Continuing	Continuing	1.080
AFIPPS Direct Mission Support (Other)	C/CPAF	Oasis Systems, LLC : Lexington, MA	0.000	2.237	Jan 2022	4.115	Mar 2023	3.862	Oct 2023	-		3.862	Continuing	Continuing	14.195
Subtotal			0.000	21.350		29.762		31.163		-		31.163	Continuing	Continuing	N/A

Remarks
Target Value of Contract for all applicable Product Development cost categories increased to reflect target values through the 2QFY26 Full Deployment.

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
AFIPPS Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.000	1.553	Oct 2021	1.553	Oct 2022	0.556	Oct 2023	-		0.556	Continuing	Continuing	-
AFIPPS Operational Test & Evaluation (OT&E)	Various	Various : Various	0.000	-		0.052	Oct 2022	1.040	Oct 2023	-		1.040	Continuing	Continuing	-
Subtotal			0.000	1.553		1.605		1.596		-		1.596	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605018F / AF Integrated Personnel and Pay System (AF-IPPS)	Project (Number/Name) 676003 / HRM Structural Development
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Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AFIPPS Engineering, Professional, and Administrative Support Services (EPASS)	C/CPAF	Oasis Systems, LLC : Lexington, MA	0.000	0.533	Dec 2021	2.260	Oct 2022	2.382	Oct 2023	-		2.382	Continuing	Continuing	14.260
AFIPPS Other Program Support Cost	Various	Various : Various	0.000	2.146	Nov 2021	4.274	Nov 2022	5.062	Nov 2023	-		5.062	Continuing	Continuing	-
Subtotal			0.000	2.679		6.534		7.444		-		7.444	Continuing	Continuing	N/A

Remarks
Target Value of Contract for EPASS increased to reflect target values through the 2QFY26 Full Deployment.

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	25.582	37.901	40.203	-	40.203	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605018F / AF Integrated Personnel and Pay System (AF-IPPS)	Project (Number/Name) 676003 / HRM Structural Development

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Integrated Personnel and Pay System</i>	
Additional Development Activities (Transactional/Reporting)	
System Integrator Developmental Test (CV&I)	
Government Integrated Test and Evaluation Activities (DT&E, OT&E)	
Cybersecurity Evaluation (CSE)	
Limited Deployment Authority to Proceed	
Limited Deployment / Go-Live	
Engineering Support to Deployment and Evaluation	
Full Deployment Decision / Capability Support Authority to Proceed	
DevSecOps Transition Support for Sustainment and Cloud Migration	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605018F / <i>AF Integrated Personnel and Pay System (AF-IPPS)</i>	Project (Number/Name) 676003 / <i>HRM Structural Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Integrated Personnel and Pay System</i>				
Additional Development Activities (Transactional/Reporting)	1	2022	1	2024
System Integrator Developmental Test (CV&I)	1	2022	1	2024
Government Integrated Test and Evaluation Activities (DT&E, OT&E)	1	2022	1	2026
Cybersecurity Evaluation (CSE)	1	2022	4	2025
Limited Deployment Authority to Proceed	4	2024	4	2024
Limited Deployment / Go-Live	2	2025	2	2025
Engineering Support to Deployment and Evaluation	2	2025	1	2026
Full Deployment Decision / Capability Support Authority to Proceed	2	2026	2	2026
DevSecOps Transition Support for Sustainment and Cloud Migration	3	2026	3	2027

Note

Component Verification and Integration (CV&I)
 Developmental Test & Evaluation (DT&E)
 Operational Test & Evaluation (OT&E)
 Development, Security and Operations (DevSecOps)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	50.669	50.066	49.613	0.000	49.613	54.326	54.937	56.322	58.326	Continuing	Continuing
675066: <i>Anti-Tamper Technology Executive Agent</i>	-	50.669	50.066	49.613	0.000	49.613	54.326	54.937	56.322	58.326	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): N42

A. Mission Description and Budget Item Justification

The Anti-Tamper (AT) Technology Executive Agency budget funds activities related to the DoD Executive Agent for AT (ATEA) responsibilities required by DoD Directive 5200.47E, "Anti-Tamper (AT)." These responsibilities are unique to the DoD ATEA and the Air Force Component Office of Primary Responsibility (OPR) for AT. The DoD ATEA is responsible for developing and enforcing AT policy and guidance, assessing AT technologies (hardware and software), maintaining and developing new AT technology products and assessment capabilities, maintaining and maturing AT laboratory equipment and infrastructure, establishing and maintaining a library of AT technologies, providing security guidance and support mechanisms, providing outreach and education to the DoD AT community, providing intelligence support, and evaluating AT implementations across all DoD acquisition programs, foreign military sales (FMS), and direct commercial sales (DCS). The AF OPR for AT evaluates AT on applicable AF acquisition programs, FMS, and DCS as well as manages AF AT technology development.

AT directly enables CPI resilience. AT protects critical program information (CPI), also known as Technology Advantage Elements (TAE), in U.S. weapon systems that are no longer under U.S. control (e.g., lost/left on the battlefield or sold to a foreign government) from hands-on, reverse engineering (RE) attacks. AT protections enable the U.S. to preserve its technological advantage and the combat capabilities of critical weapons systems while supporting the warfighters' mission requirements. Furthermore, AT adds longevity to DoD weapon systems by deterring or delaying RE attacks, and thus reducing an adversaries' ability to obtain the CPI and/or develop weapon countermeasures against the system. All DoD acquisition programs, FMS, and DCS with CPI require a validated AT Plan.

The AT program includes resources required for subject matter experts (SMEs) to evaluate AT Plans and conduct AT validation on all DoD Weapon Systems. Additionally, the AT program provides resources for SMEs to perform AT assessments of both commercial off the shelf (COTS), contractor funded government only use (CFGO) and government off the shelf (GOTS) products. As the COTS, CFGO and GOTS technologies advance, the AT program includes the resources required to mature AT hardware/software assessment capabilities. These capabilities include the acquisition of specialized equipment, maintenance and/or renovations to support the integration of this equipment, and modifications to new and/or existing laboratory facilities to meet equipment and security requirements.

The DoD ATEA coordinates technology development among the DoD Services/Agencies, National Laboratories, and Industry. These technology development efforts fund development of new AT technology, as well as enhance existing AT technology efforts to increase the technology readiness level (TRL) and facilitate transition for programs to implement. The AT technology development and enhancement efforts include: advanced AT sensor hardware, secure processing, crypto-analysis, tamper penalties, modifying and developing technology to address vulnerability and susceptibility of fielded parts, and other AT enablers.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>
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The Air Force AT OPR conducts AT technology and product development to meet Air Force service needs to mature promising AT technologies to transition to Air Force weapons systems. Technology and product development priorities are given to those technologies/products that most benefit AF acquisition programs while aligning to the overall DoD ATEA technology and product development strategy. These activities are coordinated through the ATEA as a part of the ATEA technology and product development roadmap and to coordinate with Navy and Army AT technology development efforts.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 \$1.9M was expended for civilian pay expenses in this program element and in FY23 \$2.8M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	51.492	50.066	53.561	0.000	53.561
Current President's Budget	50.669	50.066	49.613	0.000	49.613
Total Adjustments	-0.823	0.000	-3.948	0.000	-3.948
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.823	0.000			
• Other Adjustments	0.000	0.000	-3.948	0.000	-3.948

Change Summary Explanation

The FY 2024 President's Budget submittal was reduced \$3.948M from the FY 2023 submission due to DAF execution review.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: DoD Anti-Tamper Technology Executive Agent (DoD ATEA)	37.829	36.686	35.298
Description: AT technology and product development/coordination and evaluations, hardware/software vulnerability assessments, capability development, laboratory equipment and infrastructure improvements; outreach and education to the AT Community, AT implementation validation and evaluation as well as AT policy development.			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>FY 2023 Plans: - Continue to validate and evaluate AT implementations on all DoD Acquisition programs; initiate early product development activities to include studies and requirements generation, conduct vulnerability assessments, develop advanced assessment capabilities, improve laboratory equipment and infrastructure, and provide intelligence support. Develop AT policy and continue to train the acquisition workforce on AT policy and technology.</p> <p>FY 2024 Plans: - Continue to validate and evaluate AT implementations on all DoD Acquisition programs; initiate early product development activities to include studies and requirements generation, conduct vulnerability assessments, develop advanced assessment capabilities, improve laboratory equipment and infrastructure, and provide intelligence support. Develop AT policy and continue to train the acquisition workforce on AT policy and technology.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase reflects baseline/inflation growth within the PE.</p>				
<p>Title: DoDATEA Program Management Support</p> <p>Description: Includes civilian pay, A&AS, outreach and education, travel, supplies, and AFLCMC/XA-AT support.</p> <p>FY 2023 Plans: Support program office efforts, including civilian pay, A&AS, intelligence support, outreach and education, travel, and supplies.</p> <p>FY 2024 Plans: Support program office efforts, including civilian pay, A&AS, intelligence support, outreach and education, travel, and supplies.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase reflects baseline/inflation growth within the PE.</p>		6.744	6.943	7.430
<p>Title: Air Force Anti-Tamper Office Technology and Product Development</p> <p>Description: The Air Force AT office conducts Anti-Tamper technology and product development to meet AF service needs to mature promising AT technologies to transition to AF weapon systems. The AF AT office will fund and manage new technology development efforts, to include studies and requirements generation, all targeted to protect AF CPI. These new AT technology requirements will be obtained from AF programs and these new AT technologies will then transition to Air Force and DoD programs.</p> <p>The AT technology and product development and enhancement efforts include: advanced AT sensor hardware, secure processing, crypto-analysis, tamper penalties, and other AT enablers.</p>		6.096	6.437	6.885

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p><i>FY 2023 Plans:</i> The Air Force AT office conducts Anti-Tamper technology development to meet Air Force service needs to mature promising AT technologies to transition to Air Force weapons systems.</p> <p><i>FY 2024 Plans:</i> The Air Force AT office conducts Anti-Tamper technology development to meet Air Force service needs to mature promising AT technologies to transition to Air Force weapons systems.</p> <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase reflects baseline/inflation growth within the PE.</p>			
Accomplishments/Planned Programs Subtotals	50.669	50.066	49.613

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

N/A

Remarks

E. Acquisition Strategy

The DoD ATEA acquisition strategy is to coordinate DoD AT technology and product developments, including associated studies and requirements generation activities across the Services which fund development and assessments of new AT technology, as well as enhance existing AT technology efforts by increasing TRL. The output of the studies and requirements generation will also poise the ATEA for ATEA-funded product and technology development. The ATEA will coordinate the Technology and Product Development Roadmap with major Prime vendors. Evaluating their AT CRADA projects is of major importance. The ATEA will also coordinate with the Service AT personnel to foster communication and understand what programs Services are developing for their AT implementation. Emerging research areas such as materials, cryptography and electronic circuits have the potential to bring new AT capabilities with increased processing power, reduced power draw, and smaller form factor. The goal of the research and ultimate technology and product development is to mature promising technologies to the point they can be transitioned to a program office or industry for integration and implementation in DoD weapon systems. Priorities will be given to those technologies that most benefit the DoD AT community.

The Air Force AT Office will fund and manage new technology and product efforts to protect Air Force and DoD CPI. These new AT technology requirements will be obtained from AF and DoD programs and these new AT technologies will then transition to Air Force and DoD programs.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>	Project (Number/Name) 675066 / <i>Anti-Tamper Technology Executive Agent</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Force AT Technology and Product Development	Various	Not specified. : Dayton, OH	-	6.096	Oct 2021	6.437	Oct 2022	6.671	Oct 2023	-		6.671	Continuing	Continuing	-
Air Force Anti-Tamper Technology and Product Development	Various	Not specified. : Huntsville, AL	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	6.096		6.437		6.671		-		6.671	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DoD Anti-Tamper Technology Executive Agent (DoD ATEA)	Various	Not specified. : Dayton, OH	-	9.666	Oct 2021	8.558	Oct 2022	9.500	Oct 2023	-		9.500	Continuing	Continuing	-
DoD ATEA Technology Executive Agent	Various	Not specified. : Huntsville, AL	-	7.440	Oct 2021	7.688	Oct 2022	7.700	Oct 2023	-		7.700	Continuing	Continuing	-
DoD AT Executive Agent Technology	Various	Not specified. : Crane, IN	-	10.761	Oct 2021	8.715	Oct 2022	8.000	Oct 2023	-		8.000	Continuing	Continuing	-
DoD Anti-Tamper Executive Agent	Various	Not specified. : Albuquerque, NM	-	7.979	Oct 2021	9.097	Oct 2022	8.102	Oct 2023	-		8.102	Continuing	Continuing	-
Subtotal			-	35.846		34.058		33.302		-		33.302	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DoDATEA Program Management Support	Various	Not specified. : Dayton, OH	-	8.345	Oct 2021	9.183	Oct 2022	9.250	Oct 2023	-		9.250	Continuing	Continuing	-
Air Force Tech Development Management Support	Various	Not specified. : Dayton, OH	-	0.382	Oct 2021	0.388	Oct 2022	0.390	Oct 2023	-		0.390	Continuing	Continuing	-
Subtotal			-	8.727		9.571		9.640		-		9.640	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force							Date: March 2023				
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>				Project (Number/Name) 675066 / <i>Anti-Tamper Technology Executive Agent</i>				

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	50.669	50.066	49.613	-	49.613	Continuing	Continuing	N/A

Remarks
 Additional funding breakout and award dates are classified per the Anti-Tamper Security Classification Guide. Please contact the ATEA if additional information is required.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>	Project (Number/Name) 675066 / <i>Anti-Tamper Technology Executive Agent</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

ATEA	
ATEA Program Office	
AT RDT&E	
AT Technology Development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>	Project (Number/Name) 675066 / <i>Anti-Tamper Technology Executive Agent</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ATEA				
ATEA Program Office	1	2022	4	2028
AT RDT&E	1	2022	4	2028
AT Technology Development	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0605117F I Foreign Materiel Acquisition and Exploitation
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	109.249	117.838	93.881	0.000	93.881	84.783	86.574	72.292	74.908	Continuing	Continuing
675897: Foreign Materiel Acquisition and Exploitation	-	109.249	117.838	93.881	0.000	93.881	84.783	86.574	72.292	74.908	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Foreign Materiel Acquisition and Exploitation (FMA&E) program element supports the military services' and defense agencies' Foreign Material Program activities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In PY \$0.498M was expended for civilian pay expenses in this program element, and in CY \$0.499M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	71.391	80.338	87.084	0.000	87.084
Current President's Budget	109.249	117.838	93.881	0.000	93.881
Total Adjustments	37.858	37.500	6.797	0.000	6.797
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	37.858	37.500	6.797	0.000	6.797

Change Summary Explanation

See classified budget document.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605117F / <i>Foreign Materiel Acquisition and Exploitation</i>
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C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Foreign Materiel Acquisition and Exploitation Description: Classified details can be found in OSD Comptroller's classified Defense Wide Justification Book Volume 6. FY 2023 Plans: Classified FY 2024 Base Plans: Classified FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to a one-time supplemental funding of \$37.5M in FY23, an OUSD(I&S) directed program in FY24 and inflation.	109.249	117.838	93.881	0.000	93.881
Accomplishments/Planned Programs Subtotals	109.249	117.838	93.881	0.000	93.881

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

N/A

Remarks

N/A

E. Acquisition Strategy

Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605117F / <i>Foreign Materiel Acquisition and Exploitation</i>	Project (Number/Name) 675897 / <i>Foreign Materiel Acquisition and Exploitation</i>

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Foreign Material Acquisition & Exploitation																												
FY22 FMP Plan executed and updated as required	██████████																											
Additional acquisition opportunities reviewed quarterly; FY22 execution reprioritized	██████████																											
Additional exploitation opportunities reviewed quarterly; FY22 execution reprioritized	██████████																											
FY23 requirements and funding requests submitted by Services/Agencies					██████																							
FY23 requirements and funding requests validated and prioritized					██																							
FY23 FMP Plan approved and published					██																							
FY23 FMP Plan executed and updated as required					██████████																							
Additional acquisition opportunities reviewed quarterly; FY23 execution reprioritized					██████████																							
Additional exploitation opportunities reviewed quarterly; FY23 execution reprioritized					██████████																							
FY24 requirements and funding requests submitted by Services/Agencies					██████																							
FY24 requirements and funding requests validated and prioritized					██																							
FY24 FMP Plan approved and published					██																							
FY24 FMP Plan executed and updated as required									██████████																			
Additional acquisition opportunities reviewed quarterly; FY24 execution reprioritized									██████████																			

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605117F / <i>Foreign Materiel Acquisition and Exploitation</i>	Project (Number/Name) 675897 / <i>Foreign Materiel Acquisition and Exploitation</i>
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Additional exploitation opportunities reviewed quarterly; FY24 execution reprioritized																												
FY25 requirements and funding requests submitted by Services/Agencies																												
FY25 requirements and funding requests validated and prioritized																												
FY25 FMP Plan approved and published																												
FY25 FMP Plan executed and updated as required																												
Additional acquisition opportunities reviewed quarterly; FY25 execution reprioritized																												
Additional exploitation opportunities reviewed quarterly; FY25 execution reprioritized																												
FY26 requirements and funding requests submitted by Services/Agencies																												
FY26 requirements and funding requests validated and prioritized																												
FY26 FMP Plan approved and published																												
FY26 FMP Plan executed and updated as required																												
Additional acquisition opportunities reviewed quarterly; FY26 execution reprioritized																												
Additional exploitation opportunities reviewed quarterly; FY26 execution reprioritized																												
FY27 requirements and funding requests validated submitted by Services/Agencies																												
FY27 requirements and funding requests validated and prioritized																												

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605117F / <i>Foreign Materiel Acquisition and Exploitation</i>	Project (Number/Name) 675897 / <i>Foreign Materiel Acquisition and Exploitation</i>
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FY27 FMP Plan approved and published																												
FY27 Plan executed and updated as required																												
Additional acquisition opportunities reviewed quarterly; FY27 execution reprioritized																												
Additional exploitation opportunities reviewed quarterly; FY27 execution reprioritized																												
FY28 requirements and funding requests submitted by Services/Agencies																												
FY28 requirements and funding requests validated and prioritized																												
FY28 FMP Plan approved and published																												
FY28 FMP Plan is executed and updated as required																												
Additional acquisition opportunities reviewed quarterly; FY28 execution reprioritized																												
Additional exploitation opportunities reviewed quarterly; FY28 execution reprioritized																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605117F / <i>Foreign Materiel Acquisition and Exploitation</i>	Project (Number/Name) 675897 / <i>Foreign Materiel Acquisition and Exploitation</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Foreign Materiel Acquisition & Exploitation</i>				
FY22 FMP Plan executed and updated as required	1	2022	1	2023
Additional acquisition opportunities reviewed quarterly; FY22 execution reprioritized	1	2022	1	2023
Additional exploitation opportunities reviewed quarterly; FY22 execution reprioritized	1	2022	1	2023
FY23 requirements and funding requests submitted by Services/Agencies	3	2022	4	2022
FY23 requirements and funding requests validated and prioritized	4	2022	4	2022
FY23 FMP Plan approved and published	4	2022	4	2022
FY23 FMP Plan executed and updated as required	1	2023	1	2024
Additional acquisition opportunities reviewed quarterly; FY23 execution reprioritized	1	2023	1	2024
Additional exploitation opportunities reviewed quarterly; FY23 execution reprioritized	1	2023	1	2024
FY24 requirements and funding requests submitted by Services/Agencies	3	2023	4	2023
FY24 requirements and funding requests validated and prioritized	4	2023	4	2023
FY24 FMP Plan approved and published	4	2023	4	2023
FY24 FMP Plan executed and updated as required	1	2024	1	2025
Additional acquisition opportunities reviewed quarterly; FY24 execution reprioritized	1	2024	1	2025
Additional exploitation opportunities reviewed quarterly; FY24 execution reprioritized	1	2024	1	2025
FY25 requirements and funding requests submitted by Services/Agencies	3	2024	4	2024
FY25 requirements and funding requests validated and prioritized	4	2024	4	2024
FY25 FMP Plan approved and published	4	2024	4	2024
FY25 FMP Plan executed and updated as required	1	2025	4	2025
Additional acquisition opportunities reviewed quarterly; FY25 execution reprioritized	1	2025	4	2025
Additional exploitation opportunities reviewed quarterly; FY25 execution reprioritized	1	2025	4	2025

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605117F / <i>Foreign Materiel Acquisition and Exploitation</i>	Project (Number/Name) 675897 / <i>Foreign Materiel Acquisition and Exploitation</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
FY26 requirements and funding requests submitted by Services/Agencies	3	2025	4	2025
FY26 requirements and funding requests validated and prioritized	4	2025	4	2025
FY26 FMP Plan approved and published	4	2025	4	2025
FY26 FMP Plan executed and updated as required	1	2026	4	2026
Additional acquisition opportunities reviewed quarterly; FY26 execution reprioritized	1	2026	4	2026
Additional exploitation opportunities reviewed quarterly; FY26 execution reprioritized	1	2026	4	2026
FY27 requirements and funding requests validated submitted by Services/Agencies	3	2026	4	2026
FY27 requirements and funding requests validated and prioritized	4	2026	4	2026
FY27 FMP Plan approved and published	4	2026	4	2026
FY27 Plan executed and updated as required	1	2027	4	2027
Additional acquisition opportunities reviewed quarterly; FY27 execution reprioritized	1	2027	4	2027
Additional exploitation opportunities reviewed quarterly; FY27 execution reprioritized	1	2027	4	2027
FY28 requirements and funding requests submitted by Services/Agencies	3	2027	4	2027
FY28 requirements and funding requests validated and prioritized	4	2027	4	2027
FY28 FMP Plan approved and published	4	2027	4	2027
FY28 FMP Plan is executed and updated as required	1	2028	4	2028
Additional acquisition opportunities reviewed quarterly; FY28 execution reprioritized	1	2028	4	2028
Additional exploitation opportunities reviewed quarterly; FY28 execution reprioritized	1	2028	4	2028

Note

The schedule on the previous page, representing the Foreign Material Program acquisition and exploitation processes, repeats for each fiscal year. Out of cycle Ad-Hoc foreign material acquisition and exploitation reviews are held when required throughout each fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605278F / <i>HC/MC-130 Recap RDT&E</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	43.095	52.940	36.536	0.000	36.536	24.889	25.871	26.135	26.974	27.390	263.830
675006: <i>HC/MC-130 Recap</i>	0.000	0.611	0.287	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.898
675278: <i>HC-130J Modernization</i>	0.000	0.000	0.000	0.926	0.000	0.926	0.746	0.892	0.763	0.790	24.777	28.894
675910: <i>Block 8.X</i>	0.000	42.484	52.653	35.610	0.000	35.610	24.143	24.979	25.372	26.184	2.613	234.038

Program MDAP/MAIS Code: 257

A. Mission Description and Budget Item Justification

HC/MC-130 Recapitalization provides a Medium-lift tanker aircraft to replace and augment the aging USAF fleet of combat rescue HC-130P/N and special operations MC-130E/H/P/W and AC-130H/U/W aircraft for Combat Search and Rescue (CSAR) and Air Force Special Operation Forces, which are experiencing airworthiness, maintainability, and operations limitations. HC/MC-130 Recap incorporates production line modifications to the C-130J production aircraft to convert them to an HC/MC model, providing a common baseline configuration aircraft. The program also funds post-production modifications to add special mission systems required for behind-enemy-line operations required of CSAR and Special Operations aircraft. The HC-130J aircraft provides combat search and rescue infiltration and exfiltration including aerial refueling of aircraft in combat search and rescue operations as well as acting as an airborne command post during rescue operations. The MC-130J can provide specialized mobility capability to position, supply, re-supply and recover specialized ground tactical units. The AC-130J is an MC-130J that has been highly modified to provide close air support and armed reconnaissance.

The Research, Development, Testing and Evaluation (RDT&E) portion of the Recap program funds engineering support and studies to conduct rapid development activities, and develops upgrades to deliver specific increments of capability in common configurations across the fielded fleet, which includes AC/HC/MC-130J. The RDT&E activities in PE 0605278F currently include, but are not limited to, Block 7.0/8.1, and Communications Modernization Phase I and Phase II. Block 7.0/8.1 leverages the baseline C-130J (PEC 0401132F) Block 7.0/8.1 upgrade, but funds unique AC/HC/MC-130J configuration integration requirements. The Block 7.0/8.1 project will deliver Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM) capabilities required for compliance with evolving international airspace standards. It also incorporates a new Flight Management System (FMS) that allows AC/HC/MC-130J aircraft to maintain hardware and software commonality with the C-130J Enterprise. The remaining capabilities 7.0/8.1 provides are Link-16, Civil GPS Navigation and Data Link, Identification Friend or Foe (IFF) Transponder Mode-5, and Automatic Dependent Surveillance-Broadcast Out (ADS-B Out). The USAF has also initiated the Communications Modernization program to comply with Mobile User Objective System (MUOS) and VINSON/ANDVT Cryptographic Modernization (VACM) mandates, as well as deliver Second-generation Anti-jam Tactical UHF Radio for NATO (SATURN), Single Channel Ground and Airborne Radio System (SINCGARS), and HF Modernization capabilities to resolve DMS issues.

The Air Force decoupled IFF Mode 5 and ADS-B from the Block 7.0/8.1 program to accelerate fielding to address DoD mandates. Additionally, in 2018 the USAF significantly revamped its HC-130J Block 7.0/8.1. upgrade strategy, de-scoping the MC-130J from the current Block 7.0/8.1 program to allow the MC-130J to prioritize other (SOCOM- funded) modifications while allowing Air Combat Command (ACC) to move forward with Block 7.0/8.1 on the HC-130J. The majority of the AC/MC-130J Block 7.0/8.1 requirements, including meeting the DoD MUOS and VACM mandates, will be addressed through the Communications Modernization program. The remaining capabilities will be addressed at a future date.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605278F / <i>HC/MC-130 Recap RDT&E</i>
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HC/MC-130J Recap funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/ demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs. It also covers integration and certification for Diminishing Manufacturing Sources Materiel Solutions (DMSMS) and other development activities under the Continuous Improvement Program (CIP) as needed to keep the AC/HC/MC programs effective against emerging threats. This development funding covers associated aircraft costs for testing purposes to include but not limited field level maintenance such as day-to-day launch, recovery, inspection, servicing, and removal and replacement of LRUs within the capabilities and qualifications of its maintenance team, support equipment needed to support flight test, maintenance repair team support during the transfer ferry sortie if the aircraft diverts and all test related aircraft flying hour costs.

The program may also include any Contractor Manpower Equivalent (CME)/A&AS support deemed necessary to support the program objectives. The HC/MC-130 Recap RDT&E permits the initiation and employment of rapid acquisition authorities to respond to emerging threats and requirements as needed.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver HC/MC-130 Recap weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022, \$1.135 million was expended for civilian pay expenses in this program element, and in 2023 \$4.075 million is forecast for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	46.796	47.994	12.860	0.000	12.860
Current President's Budget	43.095	52.940	36.536	0.000	36.536
Total Adjustments	-3.701	4.946	23.676	0.000	23.676
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	4.946			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-2.000	0.000			
• SBIR/STTR Transfer	-1.701	0.000			
• Other Adjustments	0.000	0.000	23.676	0.000	23.676

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

Project: 675910: *Block 8.X*

	FY 2022	FY 2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0605278F / <i>HC/MC-130 Recap RDT&E</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Congressional Add: *Next Generation Space Array*

Congressional Add Subtotals for Project: 675910

Congressional Add Totals for all Projects

	FY 2022	FY 2023
	-	4.946
	-	4.946
	-	4.946

Change Summary Explanation

FY 2022 funding decreased by total of \$3.701 million for \$1.701 million Small Business Innovation and Research (SBIR) and \$2.000 million reprogramming to support higher Air Force priorities.

FY 2024 funding increased by \$23.676 million due to a re-phase of Communication Modification Phase II efforts.

NOTE: FY 2023 funding increase of \$4.946 million for \$5.000 million FY 2023 Congressional Add and a decrease for \$0.054 million for Federally Funded Research Development Centers.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E				Project (Number/Name) 675006 / HC/MC-130 Recap			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675006: HC/MC-130 Recap	0.000	0.611	0.287	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.898
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning with FY 2024, HC Modernization efforts in Project 675006, HC/MC-130 Recap, will transfer to Project 675278, Block 8.X to ensure proper execution and transparency. The HC-130J Modernization Development program includes, but is not limited to, critical upgrades needed as a baseline requirement for the HC-130J architecture and support.

A. Mission Description and Budget Item Justification

HC/MC-130 Recapitalization will replace and augment the aging USAF fleet of combat rescue HC-130P/N and special operations MC-130E/H/P/W and AC-130H/U/W aircraft for Combat Search and Rescue (CSAR) and Air Force Special Operation Forces, which are experiencing airworthiness, maintainability, and operations limitations.

The RDT&E portion of the Recap program funds three major thrusts to include but not limited to Continuous Improvement Program, HC Block 7.0/8.1, and Governmental Test.

The HC-130J Recap RDT&E activity integrates Block 7.0/8.1 into a HC-130J, provides program capability updates, and integration with other HC-130J unique modifications. The HC-130J Block 7.0/8.1 program follows the same "Block Upgrade" strategy being used in the C-130J program [PE 0401132F].

The USAF will be fielding the IFF Mode 5, ADS-B Out and Link-16 portions of Block 7.0/8.1 ahead of the remaining 38 aircraft in order to comply with the 2020 mandates. The Link 16 has been deferred due to funding shortages driven by the requirement to upgrade, but will be developed as a future spiral capability should additional funds become available. A follow-on stand-alone program will be established to address issues out of the Block 7.0/8.1 effort. This stand-alone effort will include two (2) Capability Management Upgrades, CMU-1C and CMU-2, that address discrepancies in the Block 7.0/8.1 program and the Communication/Navigation/Identification - System Processors [CNI-SP], and also address Link-16 integration; and are planned to be accomplished in conjunction with the Star XIII mission computer software upgrade effort. This program would also include HC-130J platform certification for the Link-16 terminal [BU3] and any other discrepancies/upgrades that come up at that time.

The HC Block 7.0/8.1 Recap program is scheduled to complete development in 2023; however, the Direct Cite Authority [DCA] positions continue through the FYDP to support ACC program planning, and may be reallocated to future programs as they are established.

HC/MC-130J Recap funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs. It also covers integration and certification for Diminishing Manufacturing Sources Materiel Solutions [DMSMS] and other development activities under the Continuous Improvement Program [CIP] as needed to keep the AC/HC/MC programs effective against emerging threats. This development funding covers associated aircraft costs for testing purposes to include but not limited

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675006 / HC/MC-130 Recap
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field level maintenance such as day-to-day launch, recovery, inspection, servicing, and removal and replacement of LRUs within the capabilities and qualifications of its maintenance team, support equipment needed to support flight test, maintenance repair team support during the transfer ferry sortie if the aircraft diverts and all test related aircraft flying hour costs, RDT&E permits the initiation and employment of rapid acquisition authorities to respond to emerging threats and requirements as needed.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver HC/MC-130 Recap weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022, \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2023 \$0.000 million is forecast for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: Recap: Continuous Improvement Program [CIP]</p> <p>Description: Recurring Software and hardware enhancements to address evolving requirements for Special Operations Forces and Personnel Recovery missions. These enhancements will be incorporated in both production and fielded aircraft. These enhancements will include, but are not limited to, parallel operational flight program [OFP] updates.</p> <p>FY 2023 Plans: Plans include, but are not limited to, recurring Software and hardware enhancements required for HC-130J to remain effective against emerging threats.</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decreased due to transfer from Project 675006 HC/MC-130 Recap to Project 675278 HC-130J Modernization to ensure proper execution and transparency.</p>	0.001	0.001	0.000	0.000	0.000
<p>Title: Recap: HC Block 7.0/8.1 Development</p> <p>Description: Combined software/hardware upgrade for Block 7.0/8.1. Block 7.0/8.1 includes, but is not limited to: Link 16, a new Flight Management System [FMS], Civil Global Positioning System [GPS], Navigation, a Special Mission Processor Interface [SMP-I], Identification Friend or Foe [IFF] Mode 5, Civil Data Link, Automatic Dependent Surveillance-Broadcast Out [ADS-B-Out] and the CSO 2.5.</p>	0.516	0.285	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675006 / HC/MC-130 Recap

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>FY 2023 Plans: Continued software/hardware upgrade for Block 7.0/8.1.; HC Block 7.0/8.1 program is scheduled to complete development in 2023. This also includes any support for ACC development in FY23.</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decreased due to transfer from Project 675006 HC/MC-130 Recap to Project 675278 HC-130J Modernization to ensure proper execution and transparency.</p>					
<p>Title: Recap: Government Test Support</p> <p>Description: Includes, but is not limited to, test and evaluation planning, conduct and support to included MITRE/NSERC for developmental and operational testing for Phase II. This development activity also includes, but is not limited to, associated aircraft costs for testing purposes to include but not limited field level maintenance such as day-to-day launch, recovery, inspection, servicing, and removal and replacement of LRUs within the capabilities and qualifications of its maintenance team, support equipment needed to support flight test, maintenance repair team support during the transfer ferry sortie if the aircraft diverts and all test related aircraft flying hour costs.</p> <p>FY 2023 Plans: Government test support includes but is not limited to Development and operational testing for the HC Block 7.0/8.1 program.</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decreased due to transfer from Project 675006 HC/MC-130 Recap to Project 675278 HC-130J Modernization to ensure proper execution and transparency.</p>	0.094	0.001	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.611	0.287	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675006 / HC/MC-130 Recap
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 HCMC00: HC/ MC-130 Modifications	147.993	109.785	101.055	0.000	101.055	186.558	345.671	230.219	94.086	304.115	1,519.482
• APAF 07 HCMC00: HC/MC-130 PPS	0.000	20.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.000
• APAF 07 C130JM: MC-130J PPS	0.000	0.000	10.117	0.000	10.117	10.438	10.727	10.971	11.199	0.000	53.452

Remarks

D. Acquisition Strategy

Lockheed Martin is the primary contractor for Research and Development work in support of the HC/MC-130J Recap program. Block 7.0/8.1 strategy takes the common core Block 7.0/8.1 developed in the C-130J program and integrates it into the HC-130J. Block 7.0/8.1 will also integrate with HC- unique mods. The C-130J ADS-B Out program includes all C-130J variants.

Lockheed Martin is the primary contractor for Research and Development work in support of the HC-130J Modernization Development program. The HC-130J Modernization program will integrate capabilities needed to keep HC-130Js effective against emerging threats.

Development work done to date on the HC-130J Recap program has been on Cost Plus Award Fee (CPAF) and Cost Plus Incentive Fee (CPIF) type contracts.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675006 / HC/MC-130 Recap
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

HC/MC-130 Recap Development	
Recap: Continuous Improvement Program	
Recap: HC-130 Block 7.0/8.01	
Recap: Government Test Support	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675006 / HC/MC-130 Recap
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>HC/MC-130 Recap Development</i>				
Recap: Continuous Improvement Program	1	2022	4	2023
Recap: HC-130 Block 7.0/8.01	1	2022	4	2023
Recap: Government Test Support	1	2022	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E				Project (Number/Name) 675278 / HC-130J Modernization			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675278: HC-130J Modernization	0.000	0.000	0.000	0.926	0.000	0.926	0.746	0.892	0.763	0.790	24.777	28.894
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 0605278F, project 675278, HC-130J Modernization, Major Thrust Government Test Support is not a new start; program efforts transferred from project 675006, HC/MC-130 Recap.

This program, BA 7, PE 0605278F, project 675278, HC-130J Modernization, Major Thrust HC-130J Modernization Development is not a new start; program efforts transferred from project 675006, HC/MC-130 Recap.

This program, BA 7, PE 0605278F, project 675278, HC-130J Modernization, Major Thrust Continuous Improvement Program (CIP) is not a new start; program efforts transferred from project 675006, HC/MC-130 Recap.

A. Mission Description and Budget Item Justification

HC/MC-130 Recapitalization replaces and augments the aging USAF fleet of combat rescue HC-130P/N and special operations MC-130E/H/P/W and AC-130H/U/W aircraft for Combat Search and Rescue (CSAR) and Air Force Special Operation Forces, which are experiencing airworthiness, maintainability, and operations imitations. The RDT&E portions of the Recap program are the primary effort to modernize CSAR capabilities on the HC-130J platform in order to keep the aircraft viable against emerging threats. The HC-130J Modernization Programs fund the program lifecycle from development to installation in three major thrust areas to include but not limited to Continuous Improvement Program (CIP), Development, and Government Test. RDT&E permits the initiation and employment of rapid acquisition authorities to respond to emerging threats and requirements as needed.

CIP includes recurring software and hardware enhancements to address evolving requirements for Special Operations Forces and Personnel Recovery missions. These enhancements will be incorporated in both production and fielded aircraft. These enhancements will include, but are not limited to, parallel operational flight program [OFP] updates, integration and certification for Diminishing Manufacturing Sources Materiel Solutions [DMSMS], and other development activities as needed to keep the HC-130J programs effective against emerging threats. This funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs.

The HC-130J Modernization Development program funds engineering support and development activities necessary to deliver specific capabilities; these activities include but are not limited to Block 7.0/8.1 and Defensive System Suite upgrades. The HC-130J Block 7.0/8.1 upgrade follows the same "Block Upgrade" strategy being used in the C-130J program [PEC 0401132F]. The Air Force decoupled IFF Mode 5 and ADS-B from the Block 7.0/8.1 program to accelerate fielding to address DoD mandates. Link 16 was originally part of this strategy but was deferred due to funding shortages; Link 16 will be developed as a future spiral capability should additional funds become available. These upgrades will include, but are not limited to, two (2) Capability Management Upgrades to address discrepancies in the Block 7.0/8.1 program and the Communication/Navigation/Identification - System Processors [CNI-SP], address Link-16 integration; and are planned to be accomplished in

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675278 / HC-130J Modernization
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conjunction with the Star XIII mission computer software upgrade effort. This program would include HC-130J platform certification for the Link-16 terminal and support upgrades to resolve deficiency reports and meet mission requirements/mandates to maintain the fleet.

The HC-130J Defensive System Suites upgrade is expected to complete a study to determine development/production/installation for a two-position yoke switch to support radio frequency countermeasure capabilities.

HC-130J Modernization Government Test thrust area funding supports associated aircraft costs for testing purposes to include, but not limited to, field level maintenance such as day-to-day launch, recovery, inspection, servicing, and removal and replacement of LRUs within the capabilities and qualifications of its maintenance team, support equipment needed to support flight test, maintenance repair team support during the transfer ferry sortie if the aircraft diverts and all test related aircraft flying hour costs.

This program element may include necessary Contractor Manpower Equivalent (CME)/A&AS support and civilian pay expenses required to manage, execute, and deliver HC-130J modernization weapon system capabilities. Currently, HC-130J Block 7.0/8.1 program has allocated Direct Cite Authority [DCA] positions and while the program is scheduled to complete development in 2023 the allocated positions continue through the FYDP to support ACC program planning and may be reallocated to future programs as they are established. The use of such program's funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2023 \$0.000 million is forecast for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: Continuous Improvement Program (CIP)</p> <p>Description: Recurring Software and hardware enhancements to address evolving requirements for Special Operations Forces and Personnel Recovery missions. These enhancements will be incorporated in both production and fielded aircraft. These enhancements will include, but are not limited to, parallel operational flight program [OFP] updates.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: CIP efforts for HC-130J Mod.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>	0.000	0.000	0.001	0.000	0.001

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675278 / HC-130J Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increased due to transfer of efforts from Project 675006, HC/MC-130 Recap to Project 675278, HC-130J Modernization.					
<p>Title: Government Test Support</p> <p>Description: Test support for HC-130J Modernization and development activities to include but not limited to, test and evaluation planning, conduct, and support to include MITRE/NSERC for developmental and operational testing. This development activity also includes, but is not limited to associated aircraft costs for testing purposes, field level maintenance, and launch, recovery, inspection, servicing, and removal and replacement of LRUs.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: Development and Operational testing for the HC Block 7.0/8.1 program and other modernization efforts.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increased due to transfer of efforts from Project 675006, HC/MC-130 Recap to Project 675278, HC-130J Modernization.</p>	-	0.000	0.001	-	0.001
<p>Title: HC-130J Modernization</p> <p>Description: HC-130J Modernization and Development activities for CIP.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: Initiate development activities for recurring Software and hardware enhancements to address evolving requirements for Special Operations Forces and Personnel Recovery missions.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increased due to transfer of efforts from Project 675006, HC/MC-130 Recap to Project 675278, HC-130J Modernization and ramp-up of Program Office activities.</p>	0.000	0.000	0.924	0.000	0.924
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.926	0.000	0.926

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675278 / HC-130J Modernization

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>			<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• APAF 05 HCMC00: HC/ MC-130 Modifications	147.993	109.785	101.055	-	101.055	186.558	345.671	230.219	94.086	304.115	1,519.482
• APAF 07 HCMC00: HC/MC-130 PPS	0.000	20.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	20.000
• APAF 07 C130JM: MC-130 PPS	0.000	0.000	10.117	-	10.117	10.438	10.727	10.971	11.199	0.000	53.452

Remarks

D. Acquisition Strategy

The HC-130J Modernization Programs fund the program lifecycle from development to installation in three major thrust areas to include but not limited to Continuous Improvement Program (CIP), Development, and Government Test.

The Continuous Improvement Program (CIP) acquisition strategy is developed on an as needed basis dependent on each activity.

The HC-130J Modernization Development program funds engineering support and development activities necessary to deliver specific capabilities; these activities include but are not limited to Block 7.0/8.1 and Defensive System Suite upgrades. Lockheed Martin is the primary contractor for Research and Development work in support of the Block 7.0/8.1 and Defensive System Suite upgrades. Block 7.0/8.1 strategy takes the common core Block 7.0/8.1 developed in the C-130J program and integrates it into the HC-130J. Block 7.0/8.1 will also integrate with HC- unique mods. The Defensive System Suite upgrade will initiate with a study to inform the subsequent acquisition strategy.

Development work done to date on the HC-130J Modernization Program has been on Cost Plus Award Fee (CPAF) and Cost Plus Incentive Fee (CPIF) type contracts.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675278 / HC-130J Modernization
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

HC-130J Modernization	
HC-130J Modernization Program Development	
HC-130J Modernization Continuous Improvement Program (CIP)	
HC-130J Modernization Government Test Support	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675278 / HC-130J Modernization
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>HC-130J Modernization</i>				
HC-130J Modernization Program Development	2	2024	4	2028
HC-130J Modernization Continuous Improvement Program (CIP)	2	2024	4	2028
HC-130J Modernization Government Test Support	2	2024	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E				Project (Number/Name) 675910 / Block 8.X			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675910: <i>Block 8.X</i>	0.000	42.484	52.653	35.610	0.000	35.610	24.143	24.979	25.372	26.184	2.613	234.038
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funding is intended to execute system upgrades for AC/HC/MC-130J aircraft. The upgrades currently include, but are not limited to, AC/MC-130J Communications Modernization as well as studies and integration activities required for special mission 130J aircraft.

The USAF has also initiated the Communications Modernization program to comply with Mobile User Objective System [MUOS] and VINSON/ANDVT Cryptographic Modernization [VACM] mandates, as well as deliver Second-generation Anti-jam Tactical UHF Radio for NATO [SATURN], Single Channel Ground and Airborne Radio System [SINCGARS], and HF Modernization capabilities to resolve DMS issues.

Near-term, the Air Force intends to execute critical portions of AC/MC-130J 7.0/8.1 program as part of the Communications Modernization program. The remaining AC/MC-130J 7.0/8.1 capabilities [i.e., those not needed to execute Communications Modernization] will be installed on the AC and MC-130J under a future RDT&E program within this project, projected to begin in FY 2025.

Communication Modernization funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs.

RDT&E permits the initiation and employment of rapid acquisition authorities to respond to emerging threats and requirements as needed.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver HC/MC-130 Recap weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022 \$1.135 million was expended for civilian pay expenses in this program element, and in FY 2023 \$4.075 million is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Communications Modernization Phase I	40.635	38.897	4.896	-	4.896
Description: Includes, but is not limited to compliance with Mobile User Objective System (MUOS) and VINSON/ANDVT Cryptographic Modernization (VACM) mandates, which will allow for continuous secure voice, data, video, network-centric, and satellite communications in real-time as the satellite constellation transitions and cryptographic algorithms are modernized.					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675910 / Block 8.X
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>FY 2023 Plans: Continue EMD activities.</p> <p>FY 2024 Base Plans: Continuation of EMD activities and Trial Kit Install.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decreased due to reduced EMD activities.</p>					
<p>Title: Communications Modernization Phase II</p> <p>Description: Includes, but is not limited to, Second-generation Anti-jam Tactical UHF Radio for NATO (SATURN), Single Channel Ground and Airborne Radio System SINCGARS, and HF Modernization capabilities to resolve DMS issues, which will allow for continuous UHF, VHF, and HF communications in real-time. Due to technical inter-dependencies of the Communications Modernization program on some sub-systems delivered in the Block 7.0/8.1 program, AC/MC-130J 7.0/8.1 requirements will be addressed through both the Communications Modernization program and a future AC/MC-130J 7.0/8.x program.</p> <p>FY 2023 Plans: Begin Phase II EMD activities.</p> <p>FY 2024 Base Plans: Continuation of Phase II EMD activities.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to ramp up of EMD activities for Comms Mod Ph II.</p>	0.003	1.906	26.093	0.000	26.093
<p>Title: Government Test Support - Phase I</p> <p>Description: Test and evaluation planning, support to MITRE/NSERC for developmental and operational testing for Phase I. This development activity also supports associated aircraft costs for testing purposes to include but not limited field level maintenance, and day-to-day launch, recovery, inspection, servicing, and removal and replacement of LRUs, support equipment needed to support flight test, maintenance repair team support during the transfer ferry sortie if the aircraft diverts and all test related aircraft flying hour costs.</p> <p>FY 2023 Plans:</p>	0.086	3.227	3.738	0.000	3.738

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675910 / Block 8.X
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Begin Phase I EMD activities.</p> <p>FY 2024 Base Plans: Continuation of Phase I EMD activities for Communications Modernization.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increased due to ramp up of test activities.</p>					
<p>Title: Government Test Support - Phase II</p> <p>Description: Includes test and evaluation planning, conduct and support to included MITRE/NSERC for developmental and operational testing for Phase II. This development activity also includes, but is not limited to, associated aircraft costs for testing purposes to include but not limited field level maintenance such as day-to-day launch, recovery, inspection, servicing, and removal and replacement of LRUs within the capabilities and qualifications of its maintenance team, support equipment needed to support flight test, maintenance repair team support during the transfer ferry sortie if the aircraft diverts and all test related aircraft flying hour costs.</p> <p>FY 2023 Plans: Begin Phase II EMD activities.</p> <p>FY 2024 Base Plans: Continue Phase II EMD activities for Communications Modernization.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to ramp up of Comms Mod Phase II activities.</p>	0.000	0.001	0.882	0.000	0.882
<p>Title: Continuous Improvement (CIP)</p> <p>Description: Recurring Software and hardware enhancements to address evolving requirements. These enhancements will be incorporated in both production and fielded aircraft. These enhancements will include, but are not limited to parallel operational flight program [OFP] updates.</p> <p>FY 2023 Plans:</p>	1.760	3.676	0.001	0.000	0.001

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675910 / Block 8.X
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Developmental and testing activities for recurring software and hardware enhancements required for AC/MC-130J to remain effective against emerging threats.					
<i>FY 2024 Base Plans:</i> Phase I studies and other research projects.					
<i>FY 2024 OCO Plans:</i> N/A					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Decreased due reduction in CIP projects and studies.					
Accomplishments/Planned Programs Subtotals	42.484	47.707	35.610	0.000	35.610

	FY 2022	FY 2023
<i>Congressional Add:</i> Next Generation Space Array	-	4.946
<i>FY 2023 Plans:</i> Funding increase of \$4.946 million for \$5.000 million FY 2023 Congressional Add and a decrease for \$0.054 million for Federally Funded Research Development Centers. This supports network enabled weapons systems to respond to emerging threats and requirements.		
Congressional Adds Subtotals	-	4.946

C. Other Program Funding Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APAF 05 HCMC00: HC/MC-130 Modifications	147.993	109.785	101.055	-	101.055	186.558	345.671	230.219	94.086	304.115	1,519.482
• APAF 07 HCMC00: HC/MC-130 PPS	0.000	20.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	20.000
• APAF 07 C130JM: MC-130J PPS	0.000	0.000	10.117	-	10.117	10.438	10.727	10.976	11.199	0.000	53.457

Remarks

D. Acquisition Strategy
The Communications Modernization Phase I program complies with Mobile User Objective System [MUOS] and VINSON/ANDVT Cryptographic Modernization [VACM] mandates, which will allow for continuous secure voice, data, video, network-centric, and satellite communications in real-time as the satellite constellation transitions and cryptographic algorithms are modernized.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / <i>HC/MC-130 Recap RDT&E</i>	Project (Number/Name) 675910 / <i>Block 8.X</i>

The Communications Modernization Phase II program addresses critical Second-generation Anti-jam Tactical UHF Radio for NATO [SATURN], Single Channel Ground and Airborne Radio System [SINCGARS], and HF Modernization capabilities to resolve DMS issues, which will allow for continuous UHF, VHF, and HF communications in real-time.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675910 / Block 8.X
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Communications Modernization Phase I	SS/CPAF	Lockheed Martin : Marietta, GA	0.000	39.500	Mar 2022	39.768	Mar 2023	4.896	Mar 2024	-		4.896	0.000	84.164	-
Communications Modernization Phase II	SS/CPAF	Lockheed Martin : Marietta, GA	0.000	0.003	Aug 2023	1.906	Aug 2024	26.093	Aug 2025	-		26.093	0.000	28.002	-
Subtotal			0.000	39.503		41.674		30.989		-		30.989	0.000	112.166	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Direct Cite Civ Pay	TBD	Not specified. : TBD	0.000	1.135		4.075		-		-		-	0.000	5.210	-
Government Support Test	RO	46th Test Wing; TBD : TBD	0.000	0.086	Mar 2022	3.227	Mar 2023	3.738	Mar 2024	-		3.738	0.000	7.051	-
Government Support Test Phase II	RO	46th Test Wing; TBD : TBD	0.000	0.000	Mar 2022	0.001	Mar 2024	0.882	Aug 2024	-		0.882	0.000	0.883	-
Subtotal			0.000	1.221		7.303		4.620		-		4.620	0.000	13.144	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Continuous Improvement Program (CIP)	C/Various	Various : TBD	0.000	1.760	Jul 2022	3.676	Jul 2023	0.001	Jul 2024	-		0.001	0.000	5.437	-
Subtotal			0.000	1.760		3.676		0.001		-		0.001	0.000	5.437	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	42.484	52.653	35.610	-	35.610	0.000	130.747	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675910 / Block 8.X
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Communication Modification	
Communications Modernization Phase I	
Communications Modernization Phase II	
Government Test Support Phase I	
Government Test Support Phase II	
Continuous Improvement Program (CIP)	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605278F / HC/MC-130 Recap RDT&E	Project (Number/Name) 675910 / Block 8.X

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Communication Modification</i>				
Communications Modernization Phase I	2	2022	4	2024
Communications Modernization Phase II	4	2022	4	2028
Government Test Support Phase I	1	2022	4	2024
Government Test Support Phase II	4	2022	4	2028
Continuous Improvement Program (CIP)	1	2022	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0606018F / <i>NC3 Integration</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	30.077	22.743	22.910	0.000	22.910	24.921	25.000	24.979	25.853	0.000	176.483
674877: <i>NC3 Integration, Assessment, and Improvement</i>	-	30.077	22.743	22.910	0.000	22.910	24.921	25.000	24.979	25.853	0.000	176.483
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Nuclear Command, Control, and Communications (NC3) is critical to our Nation's nuclear deterrence. Nuclear Deterrence Operations (NDO) is an Air Force Core Function. Within this core function, Nuclear Command and Control (NC2) is the exercise of authority and direction by the President, as Commander in Chief, through established command lines, over nuclear weapon operations of military forces. The President's authority and direction are exercised through the Nuclear Command and Control System (NCCS). The NCCS is the designated combination of flexible and enduring elements including facilities, equipment, communications, procedures, personnel, and the structure in which these elements are integrated, all of which are essential for planning, directing, and controlling nuclear weapon operations. These functions are accomplished through the NC3 system of systems.

The NC3 system of systems provides connectivity from the President or Secretary of Defense through the National Military Command System (NMCS) to nuclear execution forces worldwide. To enhance NC3 mission success, the Air Force (AF) formalized AF NC3 elements as a specified AF Weapon System (WS), AN/USQ-225. Activities funded in this Program integrate legacy systems, ongoing NC3 programs, and future capabilities for the overall AF NC3 WS.

The AF Nuclear Weapon Center NC3 Integration Directorate (AFNWC/NC) ensures current, new, and future NC3 capabilities are fully integrated as part of the Air Force's overall effort to sustain, modernize, and recapitalize the nuclear enterprise. AFNWC/NC is responsible for integrating NC3 materiel management across Air Force Materiel Command (AFMC) to include authority and responsibility for weapon system architecture, weapon system configuration management, weapon system state-of-health reporting, risk management, supply chain management, overall integration, system test, verification, and certification. AFNWC/NC is responsible for analyzing, defining, building, and sustaining current and future AF NC3 WS system of systems configuration baselines, and marshaling necessary Supporting Centers in AFMC and other units/agencies in the Air Force and the Department of Defense (DoD) to support and/or accomplish these tasks. AFNWC/NC collaborates with AFMC Supporting Centers to champion the full spectrum of doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P) efforts, in support of U.S. Strategic Command as the Enterprise Lead for NC3, the Under Secretary of Defense for Acquisition and Sustainment as the NC3 Enterprise Capability Portfolio Manager, and Air Force Global Strike Command (AFGSC) as the Lead Command championing NDO requirements for all Combatant Commands.

This program funds activities for integrating AF NC3 WS materiel, authority and responsibility for model-based systems engineering (modeling, simulation and visualization) of the NC3 WS, digital engineering, configuration management, change management, risk management, weapon system state-of-health and mission worthiness assessments and reporting, supply chain supportability and risk management, and overall AF NC3 WS integration, development, system test, experimentation, modeling and simulation of capability gaps with potential solution alternative trade space assessments, verification, fielding, and certification. This

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0606018F / NC3 Integration
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program also supports capability gap analysis, modernization and integration activities associated with AFGSC's Force Development Concept vignette analyses, Joint All Domain Command and Control (JADC2) and Advanced Battle Management System (ABMS) initiatives.

The FY 2024 funding request was reduced by \$2.0 million to account for the availability of prior year execution balances

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 1.091M was expended for civilian pay expenses in this program element, in FY2023 1.950M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	26.532	23.559	24.910	0.000	24.910
Current President's Budget	30.077	22.743	22.910	0.000	22.910
Total Adjustments	3.545	-0.816	-2.000	0.000	-2.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	4.143	0.000			
• SBIR/STTR Transfer	-0.598	0.000			
• Other Adjustments	0.000	-0.816	-2.000	0.000	-2.000

Change Summary Explanation

FY22: Reprogramming 4.143M to NC3 Integration. Small Business Innovative Research (SBIR) adjustment (-0.598M)

FY23: Federally Funded Research Development Center (FFRDC) Sec 8026 reduction (-0.816M).

FY24: reduction for DAF underexecution (-2M)

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: NC3 Integration, Assessment, and Improvement	30.077	22.743	22.910
Description: Efforts include, but are not limited to: - Modeling, simulation, and visualization of the AF NC3 WS current and future capabilities			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0606018F / <i>NC3 Integration</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Conducting capability gap and trade-space analyses - Establishing NC3 capability recapitalization and modernization plans - Developing and conducting the AF NC3 WS health & mission worthiness assessments, as well as, expanding existing High Frequency (HF) and other frequency testbeds utilizing a phased approach - Conducting NC3 system component verification - Implementing and employing program and material management controls for the AF NC3 WS including configuration management, change management, risk management, supply chain supportability and risk management, maintenance data collection and reporting capabilities and AF NC3 WS health monitoring solutions - Issue tracking and resolution, assessments and analysis, and governance - Providing data-driven system of system solutions, and shaping NC3 component program acquisition strategies for AF NC3 WS sustainment and performance capability improvements - Initiating and implementing new capability programs/systems and changes to existing programs to align with AF NC3 WS requirements, test and certification, and future capabilities - Interfacing with JADC2 & ABMS leadership to ensure NC3 modernization efforts are synchronized with larger AF modernization efforts and identifying risk areas where advanced tech demonstrations may be required <p><i>FY 2023 Plans:</i> NC3 weapon system integration efforts including, but not limited to:</p> <ul style="list-style-type: none"> - Continue to expand existing communication spectrum and cyber assessment test bed utilizing a phased approach - Continue to perform NC3 physics, communication and networking analysis - Continue to develop and evolve technical framework of the NC3 WS to meet mission threats of 2030 and beyond - Continue to conduct WS analysis, develop WS capability model, plan WS updates, and implement WS updates - Continue to evaluate options for system-of-system performance improvements within constraints of NC3 WS strategic vision and roadmap - Continue to advance capability gap analysis efforts through modeling, simulation, visualization, trade space analysis, and prototyping of emerging NC3 technologies - Continue to develop and implement AF NC3 WS program and materiel management control processes including risk management, configuration management, change management, supply chain management, maintenance data collection and reporting and NC3 WS health assessment application, integrated scheduling, change management, and budgeting and cost controls, etc. - Continue to conduct NC3 WS health assessments, reporting, and issue resolution - Continue to map out the NC3 WS supply chain and develop supply chain monitoring capability, supply chain supportability, and supply chain risk management - Continue to develop digital models to measure and report capability impacts 			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0606018F / <i>NC3 Integration</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Continue to develop and coordinate Operational Performance Criteria Document (OPCD) updates to support weapon system configuration element specs, test and evaluation, and assessment of weapon capabilities and limitations - Continue to improve integration and interoperability of the NC3 WS - Continue to conduct WS risk, issue, and opportunity analysis, and mitigation/corrective action/pursuit plan development <p><i>FY 2024 Plans:</i> NC3 weapon system integration efforts including, but not limited to:</p> <ul style="list-style-type: none"> - Continue to implement test and evaluation certification program for NC3 WS - Continue to expand existing communication spectrum and cyber assessment test bed utilizing a phased approach - Continue to perform NC3 physics, communication and networking analysis - Continue to develop and evolve technical framework of the NC3 WS to meet mission threats of 2030 and beyond - Continue to conduct WS analysis, develop WS capability model, plan WS updates, and implement WS updates - Continue to evaluate options for system-of-system performance improvements within constraints of NC3 WS strategic vision and roadmap - Continue to analyze, model, simulate, visualize and prototype emerging NC3 technologies - Continue to develop and implement AF NC3 WS program and materiel management control processes including risk management, configuration management, change management, supply chain management, maintenance data collection and reporting and NC3 WS health assessment application, integrated scheduling, change management, and budgeting and cost controls, etc. - Continue to conduct NC3 WS health assessments, reporting, and issue resolution - Continue to map out the NC3 WS supply chain and develop supply chain monitoring capability, supply chain supportability, and supply chain risk management - Continue to develop digital models to measure and report capability impacts - Continue to develop and coordinate Operational Performance Criteria Document (OPCD) to support weapon system configuration element specs, test and evaluation, and assessment of weapon capabilities and limitations - Continue to establish authoritative intelligence community analysis for high-altitude electromagnetic pulse (HEMP) - Continue to improve integration and interoperability of the NC3 WS - Continue to conduct WS risk, issue, and opportunity analysis, and mitigation/corrective action/pursuit plan development <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase due to inflation</p>			
Accomplishments/Planned Programs Subtotals	30.077	22.743	22.910

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force Date: March 2023

Appropriation/Budget Activity
3600: *Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)
PE 0606018F / *NC3 Integration*

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

N/A

Remarks

E. Acquisition Strategy

The NC3 Integration acquisition strategy applies WS acquisition lifecycle principles across the system of systems AF NC3 WS. Key elements include configuration management, change management, supply chain supportability and risk management, maintenance data collection and reporting, risk management, experimentation, integration, test, verification, and certification, as well as modeling, simulation, visualization, gap and trade-space analyses for capabilities in sustainment, development, and for future capabilities. To conduct these essential activities a combination of competitively awarded contracts, classified contracts, and/or sole source contracts, will be used to augment AF organic capabilities with technical skill sets from Federally Funded Research and Development Centers (FFRDCs), research laboratories, University Affiliated Research Centers (UARCs), and industry Advisory and Assistance Services (A&AS) providers.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force											Date: March 2023				
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0606018F / NC3 Integration					Project (Number/Name) 674877 / NC3 Integration, Assessment, and Improvement				

Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DMS FFRDC/UARC/A&AS	Various	Various : Various	-	27.542	Oct 2021	20.060	Oct 2022	20.138	Oct 2023	-		20.138	Continuing	Continuing	-
Subtotal			-	27.542		20.060		20.138		-		20.138	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integration Studies /Test Support	Various	Various : Various	-	0.023	Oct 2021	0.045	Oct 2022	0.050	Oct 2023	-		0.050	Continuing	Continuing	-
Subtotal			-	0.023		0.045		0.050		-		0.050	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA (Eng/Acq Spt/Travel/Supplies)	Various	Various : Various	-	2.512	Oct 2021	2.638	Oct 2022	2.722	Oct 2023	-		2.722	Continuing	Continuing	-
Subtotal			-	2.512		2.638		2.722		-		2.722	Continuing	Continuing	N/A

			Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	30.077		22.743		22.910		-		22.910	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0606018F / NC3 Integration	Project (Number/Name) 674877 / NC3 Integration, Assessment, and Improvement

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

NC3 WS Integration	
AF NC3 WS Mission Worthiness Assessment	
NC3 Health Assessment and Analysis	
Enhance Implementation and Target Architecture through Development of NC3 Technologies	
Implement AF NC3 WS Program and Materiel Management Control Process	
AF NC3 WS Risk Management Program, Monthly Working Group, and Quarterly Board	
AF NC3 Maintenance Data Reporting	
NC3 Supply Chain Risk Analysis	
NC3 Supply Chain Normalization and Supply Health Reporting	
AF NC3 WS NC3 Configuration Boards Bi-monthly	
Implement NC3 Enterprise Collaboration Tech Analysis Repository	
NC3 Capability Improvement Program (NCIP) Biannually	
AF NC3 WS Review Biannually	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0606018F / <i>NC3 Integration</i>	Project (Number/Name) 674877 / <i>NC3 Integration, Assessment, and Improvement</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>NC3 WS Integration</i>				
AF NC3 WS Mission Worthiness Assessment	1	2022	4	2028
NC3 Health Assessment and Analysis	1	2022	4	2028
Enhance Implementation and Target Architecture through Development of NC3 Technologies	1	2022	4	2028
Implement AF NC3 WS Program and Materiel Management Control Process	1	2022	4	2028
AF NC3 WS Risk Management Program, Monthly Working Group, and Quarterly Board	1	2022	4	2028
AF NC3 Maintenance Data Reporting	1	2022	4	2028
NC3 Supply Chain Risk Analysis	1	2022	4	2028
NC3 Supply Chain Normalization and Supply Health Reporting	1	2022	4	2028
AF NC3 WS NC3 Configuration Boards Bi-monthly	1	2022	4	2028
Implement NC3 Enterprise Collaboration Tech Analysis Repository	1	2022	4	2028
NC3 Capability Improvement Program (NCIP) Biannually	1	2022	4	2028
AF NC3 WS Review Biannually	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	620.115	723.107	950.815	0.000	950.815	1,010.212	624.664	400.669	463.007	Continuing	Continuing
670132: B-52 Mission Employment Trainer	-	0.000	0.000	15.335	0.000	15.335	0.000	0.000	0.000	0.000	Continuing	Continuing
671803: B-52 AFMC Test Assets	-	3.262	4.369	1.503	0.000	1.503	1.549	1.511	1.471	2.986	Continuing	Continuing
671805: B-52 VLF/LF Modernization	-	9.520	4.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.520
671810: B-52 AEHF Integration	-	32.657	63.190	102.924	0.000	102.924	142.430	13.297	0.907	0.000	0.000	355.405
675039: B-52 System Improvements	-	32.767	23.150	15.024	0.000	15.024	4.023	0.000	0.000	0.000	0.000	74.964
675055: GPS-IU	-	3.193	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.193
675056: B-52 Radar Modernization Program (RMP)	-	136.862	240.176	204.349	0.000	204.349	128.688	37.977	0.000	0.000	0.000	748.052
675057: B-52 Low Cost Improvement (LCI)	-	0.058	0.702	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.760
675129: B-52 CERP	-	385.640	379.401	576.016	0.000	576.016	650.523	539.080	364.894	425.370	Continuing	Continuing
675160: B-52 Crypto Modernization	-	16.153	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.153
675165: B-52 Quad Crew	-	0.003	8.119	30.652	0.000	30.652	41.964	0.000	0.000	0.000	0.000	80.738
676039: B-52 Airspace Compliance	-	0.000	0.000	5.012	0.000	5.012	41.035	32.799	33.397	34.651	Continuing	Continuing

Note
 This program, BA 7, PE 0101113F, project , Mission Employment Trainer, is a new start.
 This program, BA 7, PE 0101113F, project , Airspace Compliance (M-Code), is a new start.

A. Mission Description and Budget Item Justification

The B-52H is a long-range bomber capable of delivering the widest variety of nuclear and conventional standoff and direct attack munitions in the Air Force. The Air Force plans to fly the B-52H to 2050.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>
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The B-52H modernization efforts are needed to perform current and future wartime missions and to ensure relevance, lethality and survivability. Additionally, modernization projects alleviate aircraft obsolescence issues due to Diminishing Manufacturing Sources and Material Shortages (DMSMS) while at the same time providing improved capabilities to the B-52H weapon system that require significant hardware and software development and testing.

B-52 funding also supports innovation activities including, but not limited to tech demonstrations, studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion, and future acquisition programs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 20.576M was expended for civilian pay expenses in this program element, and in FY23 25.415M is forecasted for civilian pay expenses in this program element.

This FY 2024 funding request was reduced by 15.300 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	646.811	770.313	732.254	0.000	732.254
Current President's Budget	620.115	723.107	950.815	0.000	950.815
Total Adjustments	-26.696	-47.206	218.561	0.000	218.561
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-47.206			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-7.756	0.000			
• SBIR/STTR Transfer	-18.940	0.000			
• Other Adjustments	0.000	0.000	218.561	0.000	218.561

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

Project: 675039: *B-52 System Improvements*

Congressional Add: *AFGSC Innovation Hub*

Congressional Add: *B-52 Training Automation*

	FY 2022	FY 2023
	10.000	10.000
	2.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Congressional Add Subtotals for Project: 675039	12.000	10.000
Congressional Add Totals for all Projects	12.000	10.000

Change Summary Explanation

FY22 -\$26.696M adjustment is for reprogrammings and Small Business Innovation Research (SBIR)

FY23 -\$47.206M adjustment is congressional marks for program delays

FY24 +\$218.561M adjustment is to support CERP-related activities that include procuring test engines, acquiring long-lead material, sub-system testing, additional manpower resources, and supporting sub-system critical design efforts.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 670132 / B-52 Mission Employment Trainer
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
670132: B-52 Mission Employment Trainer	-	0.000	0.000	15.335	0.000	15.335	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
This program, BA 7, PE 0101113F, project , Mission Employment Trainer, is a new start.

A. Mission Description and Budget Item Justification

The B-52 Mission Employment Trainer (MET) program is for the development of the B-52 Family of Systems (FoS) Trainers. The FoS Trainers includes, but is not limited to, new training devices and Systems Integration Labs (SIL) that will augment and eventually replace the existing B-52 legacy training systems and SIL that are antiquated, not concurrent with the B-52 aircraft, and cost-prohibitive for modernization or sustainment. The current B-52 trainers do not completely satisfy the training tasks specified in various course syllabus. In conjunction with the AFGSC A3/6 signed Future Training Concept, this new FoS approach will train Air Force personnel utilizing low, medium, and high-fidelity training devices. These training devices will leverage a common software architecture, include modularity and open mission systems, be rapidly reprogrammable and network capable, enable accelerated future upgrades, and support affordable sustainment. This FoS concept fulfills the future training needs of the formal training unit (FTU), combat units, and weapons school students spanning the continuum of learning. These new devices/trainers are of paramount importance because of their critical role to future B-52 combat capabilities that must advance through 2050.

Initial funds will be used to develop a B-52 medium fidelity training device that will provide an interactive and immersive environment to provide proficiency-based training for full-crew mission training and coordination, and related programmatic support. The current direction with the medium fidelity device will reuse a virtualized version of the aircraft's Operational Flight Programs (OFP) and will execute on commercial-grade, off-the-shelf computational hardware to offer a standalone, integrated, and appropriate simulated training environment. The virtualized OFP software will be developed to run on multiple training devices of varying physical fidelity. The medium fidelity device, and subsequent higher fidelity devices, will be rapidly reconfigurable to different aircraft configurations, be mobile, and capable of worldwide deployment. It lays the groundwork for an open system architecture that allows a continual roadmap to aircraft concurrency, upgradability, and feature sets that can be added in a cost-effective manner, keeping pace with the speed of technology and future B-52 aircraft upgrades.

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness. Funds may be used to purchase long-lead parts following completion of Preliminary Design Review (PDR).

As MET Integration provides future communication growth to the B-52, emerging security/certification requirements (nuclear certification, cyber security, program protection, crypto modernization, etc.) as well as other aircraft upgrades may require studies and/or support for potential impact to MET. Funds may be used to conduct development and test activities.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 670132 / B-52 Mission Employment Trainer

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0M was expended for civilian pay expenses in this program element, and in FY23 0M is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Title: Mission Employment Trainer</p> <p>Description: Mission Employment Trainer (MET) is a virtual flight simulator that provides necessary pilot training for various environments and conditions. The MET will include a modern, advanced Operational Flight Program that is rapidly reprogrammable and support simulated mission tasking.</p> <p>FY 2024 Plans: The Mission Employment Trainer project will start software and hardware development activities required to build a prototype training simulator.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to supporting the initial phase of software/hardware development required for building a prototype training simulator.</p>	-	-	15.335
Accomplishments/Planned Programs Subtotals	-	-	15.335

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

N/A

Remarks

D. Acquisition Strategy

The Mission Employment Trainer program intends to use a Small Business Innovative Research (SBIR) contract to develop the required software and hardware required for a modern B-52 virtual training system. The SBIR effort will support hardware/software development and incorporating Operational Flight Programs into the training simulator.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 670132 / B-52 Mission Employment Trainer	

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Mission Employment Trainer Integration</i>	
Software Development	██████████
Hardware Development	████████████████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 670132 / <i>B-52 Mission Employment Trainer</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Mission Employment Trainer Integration</i>				
Software Development	2	2024	4	2024
Hardware Development	2	2024	3	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 671803 / B-52 AFMC Test Assets			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
671803: B-52 AFMC Test Assets	-	3.262	4.369	1.503	0.000	1.503	1.549	1.511	1.471	2.986	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52 AFMC Test Assets project will provide funding for the test aircraft, manpower, and facilities at the Air Force Test Center located at Edwards AFB, California. The project will support the development testing and Bomber Modular Data Acquisition System (BMDAS) integration on B-52 test aircraft. In addition, the project will include Programmed Depot Maintenance (PDM) costs supporting test aircraft modifications occurring at Tinker AFB, OK.

Costs include, but are not limited to, any analysis, documentation, and related expenses necessary to establish a program of record and support the B-52 weapon system. Additionally, other costs include Program Management Administration (PMA) and centralized support and initiatives for anticipated weapon system enhancements (to include efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total cost of ownership).

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT), and safety of flight issues. Additionally, funds may accommodate PMA and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0M was expended for civilian pay expenses in this program element, and in FY23 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: B-52 AFMC Test Aircraft Asset Support	3.262	4.369	1.503
Description: B-52 Test Support provides funding for the test aircraft, manpower, Bomber Modular Data Acquisition System (BMDAS), and facilities at the Air Force Test Center, Edwards AFB. This will support the developmental testing and sustainment needs of the B-52.			
FY 2023 Plans: Continue to provide funding for the test aircraft, manpower, BMDAS, and facilities at the Air Force Test Center, Edwards AFB. This supports the developmental testing, facility, and sustainment needs of the B-52.			
FY 2024 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671803 / <i>B-52 AFMC Test Assets</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Will continue to provide funding for the test aircraft, manpower, BMDAS, and facilities at the Air Force Test Center, Edwards AFB. This will support the developmental testing, facility, and sustainment needs of the B-52.			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding decreased due to workload demand and required test support.			
Accomplishments/Planned Programs Subtotals	3.262	4.369	1.503

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

N/A

Remarks

D. Acquisition Strategy

Funding sent to Edwards AFB via MIPR and Project Orders for the test aircraft, manpower, BMDAS and facilities at the Air Force Test Center located at Edwards AFB, California.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671803 / <i>B-52 AFMC Test Assets</i>
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>AFMC Test Aircraft Support - 0036</i>	
Test Support	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671803 / <i>B-52 AFMC Test Assets</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>AFMC Test Aircraft Support - 0036</i>				
Test Support	1	2022	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671805 / B-52 VLF/LF Modernization
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
671805: B-52 VLF/LF Modernization	-	9.520	4.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.520
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52 Very Low Frequency/Low Frequency (VLF/LF) Modernization program integrates a receive-only, low frequency receiver and antenna subsystem to provide a secure, survivable strategic nuclear communication capability for the B-52. This project will consist of integrating an existing VLF/LF terminal into the B-52. Integration includes Group A wiring, rack and antenna, and the Group B terminal Line Replaceable Unit (LRU).

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

As the VLF/LF provides future communication growth to the B-52, emerging security/certification requirements (nuclear certification, cyber security, program protection, crypto modernization, etc.) as well as other aircraft upgrades may require studies and/or support for potential impact to VLF/LF.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0M was expended for civilian pay expenses in this program element, and in FY23 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: B-52 Very Low Frequency/Low Frequency (VLF/LF)	9.520	4.000	-
Description: Provides secure, survivable, receive-only strategic nuclear communication for the B-52			
FY 2023 Plans: Continue Engineering and Manufacturing Development phase to support fielding decision. Accomplish aircraft modification and testing.			
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to the program transitioning from development efforts to production.			
Accomplishments/Planned Programs Subtotals	9.520	4.000	-

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671805 / B-52 VLF/LF Modernization
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 B05200: <i>BP11 Production</i>	20.137	11.489	26.513	-	26.513	13.052	6.437	3.331	0.370	Continuing	Continuing
• APAF 06 000999: <i>Initial Spares/Repair Parts</i>	-	2.652	2.724	-	2.724	3.381	-	-	-	0.000	8.757

Remarks

D. Acquisition Strategy

The Milestone Decision Authority (MDA) approved the 25 January 2019 decision of the B-52 VLF/LF Acquisition Strategy Panel (ASP), which authorized the program to enter into the EMD phase with the Original Equipment Manufacturer (OEM). The program office received a proposal from the OEM on 16 August 2019. The EMD Contract was awarded 22 January 2020. The Acquisition Program Baseline (APB) was signed April 2020.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671805 / B-52 VLF/LF Modernization
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Collins Environmental Study	SS/FFP	Environmental Study : Richardson, TX	-	0.290	Mar 2022	-		-		-		-	0.000	0.290	-
VLF/LF EMD	SS/CPFF	Various : Oklahoma, OK	-	6.373	Jan 2022	1.826	Mar 2023	-		-		-	0.000	8.199	-
Subtotal			-	6.663		1.826		-		-		-	0.000	8.489	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
VLF/LF Program Office Support	Various	Various : TBD	-	1.285	Jul 2022	1.200	Mar 2023	-		-		-	0.000	2.485	-
Subtotal			-	1.285		1.200		-		-		-	0.000	2.485	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
VLF/LF Test	PO	Not specified. : TBD	-	0.372	Feb 2022	0.974	Oct 2022	-		-		-	0.000	1.346	-
VLF/LF Certifications	TBD	Not specified. : TBD	-	1.200	May 2022	-		-		-		-	0.000	1.200	-
Subtotal			-	1.572		0.974		-		-		-	0.000	2.546	N/A

Project Cost Totals			-	9.520		4.000		-		-		-	0.000	13.520	N/A
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Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671805 / <i>B-52 VLF/LF Modernization</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>B-52 VLF/LF Modernization</i>				
EMD	1	2022	4	2023
MS C	4	2023	4	2023
IOC	2	2025	2	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 671810 / B-52 AEHF Integration			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
671810: B-52 AEHF Integration	-	32.657	63.190	102.924	0.000	102.924	142.430	13.297	0.907	0.000	0.000	355.405
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52 Advanced Extremely High Frequency (AEHF) Integration satellite communications (SATCOM) system provides a survivable, low probability of intercept/detection, high bandwidth system that ensures secure intra/inter-flight and two-way command and control communications in the modern anti-access/aerial denial battle space. This communications upgrade replaces the Military Strategic and Tactical Relay (MILSTAR) Ultra High Frequency (UHF) SATCOM capability (MILSTAR is nearing system end of life) on the B-52. The AEHF Integration effort will integrate the radio, antenna and system components required to provide two-way EHF communication for the B-52.

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

As AEHF Integration provides future communication growth to the B-52, emerging security/certification requirements (nuclear certification, cyber security, program protection, crypto modernization, etc.) as well as other aircraft upgrades may require studies and/or support for potential impact to AEHF. Funds will be used to conduct development and test activities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 1.133M was expended for civilian pay expenses in this program element, and in FY23 2.40M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: B-52 AEHF Integration	32.657	63.190	102.924
Description: The B-52 Advance Extremely High Frequency (AEHF) Integration SATCOM system provides a survivable, low probability of intercept/detection, high bandwidth system that ensures secure intra/inter-flight and two-way command and control communications in the modern anti-access/aerial denial battle space. This communications upgrade replaces the Military Strategic Tactical Relay (MILSTAR) and its Ultra High Frequency (UHF) SATCOM capability (MILSTAR is nearing system end of life) on the B-52. The AEHF Integration effort will integrate the radio, antenna and system components required to provide two-way EHF communication for the B-52.			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671810 / B-52 AEHF Integration

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>FY 2023 Plans: Finish Technology Maturation and Risk Reduction (TMRR) in FY23, which includes preliminary designs for environment control systems needed in two aircraft locations and AEHF component locations in preparation for Preliminary Design Review (PDR). Evaluate Engineering and Manufacturing Development (EMD) proposal, complete Milestone B, and negotiate and award Engineering and Manufacturing Development (EMD) contract in preparation for Critical Design Review (CDR).</p> <p>FY 2024 Plans: Continue Engineering, Manufacturing and Development (EMD) efforts, which includes final designs supporting the critical design review and purchasing long-lead material for development efforts.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to program initiating EMD activities, purchasing long-lead material, and manpower requirements.</p>			
Accomplishments/Planned Programs Subtotals	32.657	63.190	102.924

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 B05200: B-52	0.000	0.000	0.000	-	0.000	15.501	93.914	52.694	68.834	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Milestone Decision Authority (MDA) for B-52 AEHF Integration is the Air Force Program Executive Officer (AFPEO) for Nuclear Command, Control, and Communications (NC3). The program will utilize the B-1/B-52 Flexible Acquisition and Sustainment Contract to award Risk Reduction studies, Program Planning activities, and the EMD effort to the Original Equipment Manufacturer (OEM). The OEM will be responsible for the integration of the AEHF terminal, which will be provided as Government Furnished Equipment (GFE).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671810 / B-52 AEHF Integration
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Risk Reduction	SS/CPFF	The Boeing Company : Oklahoma City, OK	-	24.568	Dec 2021	19.398	Oct 2022	-		-		-	Continuing	Continuing	-
EMD Contract	SS/CPIF	The Boeing Company : Oklahoma City, OK	-	-		27.313	Jul 2023	83.274	Dec 2023	-		83.274	Continuing	Continuing	-
Subtotal			-	24.568		46.711		83.274		-		83.274	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Crypto Overrun	SS/CPAF	Not specified. : TBD	-	-		3.170	May 2023	0.830	Dec 2023	-		0.830	Continuing	Continuing	-
Direct Cite Civilian Pay	Various	Not specified. : TBD	-	3.390	Oct 2021	3.552	Oct 2022	2.790	Oct 2023	-		2.790	Continuing	Continuing	-
Subtotal			-	3.390		6.722		3.620		-		3.620	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test	Various	Various : TBD	-	-		0.257	Oct 2022	1.052	Oct 2023	-		1.052	Continuing	Continuing	-
Subtotal			-	-		0.257		1.052		-		1.052	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Office Support (A&AS, Travel)	C/CPAF	Not specified. : TBD	-	4.699	Sep 2022	9.500	Dec 2022	14.978	Dec 2023	-		14.978	Continuing	Continuing	-
Subtotal			-	4.699		9.500		14.978		-		14.978	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671810 / <i>B-52 AEHF Integration</i>
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	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	32.657	63.190	102.924	-	102.924	Continuing	Continuing	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671810 / <i>B-52 AEHF Integration</i>
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>B-52 AEHF Integration</i>	
TMRR Activities	
Milestone B	
EMD	
Flight Test	
Milestone C	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671810 / <i>B-52 AEHF Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>B-52 AEHF Integration</i>				
TMRR Activities	1	2022	4	2023
Milestone B	4	2023	4	2023
EMD	4	2023	1	2027
Flight Test	2	2026	2	2027
Milestone C	2	2025	2	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675039: B-52 System Improvements	-	32.767	23.150	15.024	0.000	15.024	4.023	0.000	0.000	0.000	0.000	74.964
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

B-52 System Improvements is a comprehensive project to facilitate future capabilities and ensure the B-52's viability in performing current and future wartime missions. The scope of work may include, but not limited to, the development of an Analysis of Alternative (AoA), studies and analyses, a Capability Development Document (CDD), and/or any other analyses or documentation necessary to establish a Program of Record (POR). Additionally, this project may include airborne integration experiments or demonstrations of emerging technologies. Support of the platform integration efforts are necessary to identify and resolve challenges associated with integrating multiple programs and activities planned for the B-52 fleet.

Costs include any analysis, documentation, and related expenses necessary to establish a POR and support the B-52 weapon system. Additionally, other costs include, but are not limited to Program Management Administration (PMA), civilian pay expenses, rapid technology insertion, centralized support and initiatives for anticipated weapon system enhancements (to include efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total cost of ownership), emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), safety of flight issues and to fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness. Systems Improvement is permitted to fund software modernization efforts that merge into the operational flight program.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0M was expended for civilian pay expenses in this program element, and in FY23 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: B-52 Systems Improvements	20.767	0.150	0.150
Description: Initiate Analysis of Alternatives, modeling, simulation, testing, and demonstration, including but not limited to: Studies of existing and planned avionics, communications/navigation, electrical, weapons, flight, and nuclear-related aircraft systems and subsystems to support the future viability of the B-52 fleet.			
FY 2023 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Continue Analysis of Alternatives, modeling, simulation, testing, and demonstration, including but not limited to: Studies of existing and planned avionics, communications/navigation, electrical, weapons, flight, and nuclear-related aircraft systems and subsystems to support the future viability of the B-52 fleet.</p> <p>FY 2024 Plans: Will continue Analysis of Alternatives, modeling, simulation, testing, and demonstration, including but not limited to: Studies of existing and planned avionics, communications/navigation, electrical, weapons, flight, and nuclear-related aircraft systems and subsystems to support the future viability of the B-52 fleet.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>				
<p>Title: Quad Crew</p> <p>Description: The B-52 Quad Crew effort transitions Electronic Warfare display and functionality to the existing B-52 navigator station reducing the aircrew from five to four crew members.</p> <p>FY 2023 Plans: Pursue Quad Crew Engineering and Manufacturing Design (EMD) and testing activities, procure hardware, and prepare for Developmental and Operational Test. \$8.119M FY23 Quad Crew funding is in BPAC 675165. \$8M FY23 Quad Crew funding is in BPAC 675039 due to a database error.</p> <p>FY 2024 Plans: FY24 funding is reflected in Project 675165 Quad Crew. This FY23 \$8M was incorrectly mapped to this project. Quad Crew efforts increase in Project 675165 due to supporting design and integration activities, procuring long-lead test material, and updating technical documentation.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>		0.000	8.000	0.000
<p>Title: Advanced Concept Demonstration</p> <p>Description: Effort supports a classified Proof of Concept demonstration on the B-52.</p> <p>FY 2023 Plans: Support a proof of concept demonstration on the B-52 for a new classified initiative.</p> <p>FY 2024 Plans: Continued support a proof of concept demonstration on the B-52 for a new classified initiative.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>		-	5.000	14.874

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Funding increased due to supporting advanced concept demonstration.			
Accomplishments/Planned Programs Subtotals	20.767	13.150	15.024

	FY 2022	FY 2023
Congressional Add: AFGSC Innovation Hub	10.000	10.000
FY 2022 Accomplishments: Continue to support future investments such as Agile Pods, Future Comm Data Links, and Hypersonic Kill Chain Research and Development.		
FY 2023 Plans: Continue to support development initiatives and efforts that include Agile Pods, Beyond Line of Sight Communications, 3D Fuel System Model, and Fuel Additive Studies.		
Congressional Add: B-52 Training Automation	2.000	0.000
FY 2022 Accomplishments: Support updates to B-52 trainers, including automation activities.		
FY 2023 Plans: N/A		
Congressional Adds Subtotals	12.000	10.000

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

N/A

Remarks

\$8.119M FY23 Quad Crew funding is in BPAC 675165. 8M FY23 Quad Crew funding is in BPAC 675039 by error

D. Acquisition Strategy

The Acquisition Strategy for Quad Crew is addressed under BPAC 675165. The Quad Crew program will modify the existing the B-52 Electronic Warfare system to support situational awareness, self-protection, and survivability in a contested environment. The program will award an Engineering and Manufacturing Development (EMD) contract 4QFY23. The EMD effort will support transitioning Electronic Warfare capability to the Navigator Station. At Milestone C, the Quad Crew program will purchase aircraft kits that install upgraded Electronic Warfare technology.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Improvements Studies and Analysis	SS/ Various	The Boeing Company, 559 SMXS/MXDPBA : Oklahoma City, OK	-	20.717	Jan 2022	0.100	Jan 2023	0.100	Jan 2024	-		0.100	Continuing	Continuing	-
AFGSC Innovation Hub	C/CPAF	Radiance, SBCC, Outerlink : Barksdale, LA	-	10.000	Apr 2022	10.000	Jul 2023	-		-		-	Continuing	Continuing	-
B-52 Training Automation	TBD	TBD : Oklahoma City, OK	-	2.000	Jun 2022	-		-		-		-	Continuing	Continuing	-
Quad Crew	TBD	Not Specified : Oklahoma City, OK	-	-		8.000	Jul 2023	-		-		-	Continuing	Continuing	-
Proof of Concept Demonstration	TBD	Not Specified: TBD : Tinker, OK	-	-		5.000	Jul 2023	14.874	Jul 2024	-		14.874	Continuing	Continuing	-
Subtotal			-	32.717		23.100		14.974		-		14.974	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
B-52 Centralized Support, Program Management Administration, TDY, A&AS Contractor Support - 675039	Various	TBD : OK	-	0.050	Jan 2022	0.040	Jan 2023	0.040	Jan 2024	-		0.040	Continuing	Continuing	-
B-52 Centralized Support, Travel - 675039	Various	Various : TBD	-	-		0.010	Jan 2023	0.010	Jan 2024	-		0.010	Continuing	Continuing	-
Subtotal			-	0.050		0.050		0.050		-		0.050	Continuing	Continuing	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals		-	32.767	23.150	15.024	-		15.024	Continuing	Continuing	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675039 / <i>B-52 System Improvements</i>
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Systems Improvements</i>	
System Improvements Studies and Analysis, etc.	
<i>AFGSC Innovation Hub</i>	
Industry Collaboration Efforts	
<i>B-52 Training Automation</i>	
Training System Automation	
<i>Proof of Concept Demonstration</i>	
Proof of Concept	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675039 / <i>B-52 System Improvements</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Systems Improvements</i>				
System Improvements Studies and Analysis, etc.	1	2022	4	2026
<i>AFGSC Innovation Hub</i>				
Industry Collaboration Efforts	1	2022	4	2023
<i>B-52 Training Automation</i>				
Training System Automation	3	2022	2	2023
<i>Proof of Concept Demonstration</i>				
Proof of Concept	1	2023	4	2024

Note

Quad Crew schedule shown in BPAC 675165.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675055 / GPS-IU			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675055: GPS-IU	-	3.193	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.193
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Global Positioning System Interface Unit (GPS-IU) integrates GPS Position, Navigation and Timing (PNT) data into navigation, communications, and weapons systems on board the B-52. GPS-IU requires upgrading to incorporate any other GPS dependent capabilities on the B-52 platform. The upgrade will improve system reliability and address Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues on subcomponents of the GPS-IU. The modified GPS-IU will retain the existing functions and interfaces of the legacy GPS-IU, and provide additional interfaces to allow for future growth requirements. The B-52 fleet will also have the capability to carry additional GPS dependent weapons and targeting pods and increase processor throughput and memory capacity.

Funds may be used to address requirements including, but not limited to, emerging and short-notice DMSMS for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0M was expended for civilian pay expenses in this program element, and in FY23 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: Global Positioning System Interface Unit (GPS-IU)	3.193	0.000	0.000
Description: The Global Positioning System Interface Unit (GPS-IU) integrates GPS Position, Navigation and Timing (PNT) data into navigation, communications, and weapons systems on board the B-52. Program is intended to increase the memory and throughput capacity of the GPS-IU. In December 2022, the GPS-IU program stopped pursuing Engineering and Manufacturing Development (EMD) efforts due to technical difficulties and schedule delays.			
FY 2023 Plans: N/A			
FY 2024 Plans: N/A			
FY 2023 to FY 2024 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675055 / <i>GPS-IU</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
N/A			
Accomplishments/Planned Programs Subtotals	3.193	0.000	0.000

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

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APAF 06 Line Item B05200: <i>BP11 Production</i>	7.863	23.040	0.000	-	0.000	0.000	-	-	-	0.000	30.903
• APAF 06 000999: <i>Initial Spares</i>	0.000	1.578	0.462	-	0.462	-	-	-	-	0.000	2.040

Remarks

D. Acquisition Strategy

The GPS-IU Modernization program began development in the Technology Maturation and Risk Reduction (TMRR) phase via a sole source contract to Boeing Defense, Space & Security (DSS) in Oklahoma City, OK. Program was in the Engineering and Manufacturing Development (EMD) phase via a sole source contract to Boeing DSS, awarded 4QFY18.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675055 / GPS-IU
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

GPS-IU	
EMD	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675055 / <i>GPS-IU</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
GPS-IU				
EMD	1	2022	1	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675056 / B-52 Radar Modernization Program (RMP)			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675056: B-52 Radar Modernization Program (RMP)	-	136.862	240.176	204.349	0.000	204.349	128.688	37.977	0.000	0.000	0.000	748.052
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52 Radar Modernization Program (RMP) supports nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H aircraft. The APQ-166 system is increasingly difficult to sustain due to diminished manufacturing sources and obsolescent technologies; the current failure rate of the APQ-166 places long-duration missions at risk. This modernization program will encompass the radar antenna array, 12 individual Line Replaceable Units (LRU), radar control panel, radome, and Group A allocation that comprise the entire radar system. RMP will take advantage of advances in technology and on-going development efforts to acquire, to the maximum extent possible, previously developed Radar systems and integrate them into the B-52. The use of new technology will increase both the overall reliability of the radar system and the capabilities for new missions. RMP will allow the operational command (AF Global Strike Command) to fully utilize the capabilities of the B-52H aircraft to employ an array of nuclear and conventional weapons and to perform mission-essential navigation and weather avoidance functions. In addition, applicable training devices for the new radar subsystem must also be developed, modified and/or upgraded in conjunction with the aircraft modifications. This modification includes the installation of Engineering and Manufacturing Development (EMD) kits on two B-52H test aircraft to support Developmental/Operational Test and Evaluation.

This upgrade will affect B-52 training devices and will provide the ability to connect / operate in a common environment that provides realistic high-end combat training to meet future standards. Funds may be used to address the Bombing-Navigation System Maintenance Trainers (BNSMTs), a desktop trainer, as well as the Mission Employment Trainer (MET), and a Family of Systems (FoS) concept that includes Handheld/Wearable and Point-of-Use Devices, Medium-Fidelity Deployable Devices and High-Fidelity Devices covering the entire training spectrum. This program also upgrades one B-52 Software Integration Lab (SIL) with radar functionality, and builds a new Radar Development Lab and a new Radar SIL. As the RMP upgrade brings additional capability to the B-52, funds may be used to address emerging security/certification requirements (nuclear certification, cyber security, program protection, simulator common standards, etc.) in addition to increased radar integration (advanced targeting pod, Combat Network Communication Technology (CONNECT), Tactical Data Link (TDL), offensive avionics system, GPS Integration Unit (GPS-IU), Crypto modernization, mission planning, modular open system architecture (MOSA) considerations, crew vehicle interfaces, Electronic Warfare System, and B-52 Software Block (BSB), etc).

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), safety of flight issues, and associated components in the RMP configuration baseline. DMSMS efforts may include removal of end-of-life/obsolete software/hardware within the weapons system, simulators systems, and MOSA implementation. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675056 / B-52 Radar Modernization Program (RMP)

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 \$6.430M was expended for civilian pay expenses in this program element, and in FY23 \$6.593M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: Radar Modernization Program	136.862	240.176	204.349
Description: Support nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H aircraft. Development and production of new systems to replace the legacy equipment and to be installed on all 76 B-52H aircraft.			
FY 2023 Plans: Continue fabrication, qualification, and delivery of EMD subsystem units; complete System Integration Labs (SIL) fabrication, installation/checkout; continue software code development; initiate hardware/software integration SIL tests; develop training course material and tech pubs; begin test aircraft modification; prepare for first test aircraft post-mod/checkout and ground test and second test aircraft modification.			
FY 2024 Plans: Will continue fabrication and delivery of EMD subsystem units; complete Radar System Integration Labs (SIL) security certification; continue Agile and incremental software code development; continue hardware/software integration SIL tests; complete training course material and tech pubs development; complete first test aircraft modification and functional checkouts; complete ground test and initiate flight test with first test aircraft; initiate and complete second test aircraft modification and prepare for post-mod checkout and ground test.			
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to requiring a lower level of resources to complete aircraft modifications, software development, and supporting ground/flight test events.			
Accomplishments/Planned Programs Subtotals	136.862	240.176	204.349

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Lineltem B05200: BP11 Production	0.000	0.000	0.000	-	0.000	155.668	203.059	271.950	215.169	Continuing	Continuing
• APAF 07 Line Item B05200: Post Production Support	0.000	0.001	0.000	-	0.000	0.110	0.111	0.113	0.115	Continuing	Continuing
• APAF 06 000999: Initial Spares	0.000	0.002	0.000	-	0.000	0.219	0.222	0.227	0.232	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675056 / <i>B-52 Radar Modernization Program (RMP)</i>

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The Milestone Decision Authority approved the B-52 RMP Acquisition Strategy (AS) on 13 March 2018. Per the Acquisition Strategy, the Original Equipment Manufacturer completed radar and other supplier selections in June 2019. The team completed System Preliminary Design Review in October 2020, Milestone B in June 2021, awarded the Engineering Manufacturing and Development contract in June 2021, and conducted System Critical Design Review in February 2022.

The Milestone B Acquisition Decision Memo updated the Acquisition Strategy to split the Milestone C into two decision points. Milestone C Decision Point #1 authorizes Low-Rate Initial Production (LRIP) Lot 1 and purchase of long-lead items needed to meet Initial Operational Capability. Milestone C Decision Point #2 will authorize LRIP Lot 2.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675056 / B-52 Radar Modernization Program (RMP)
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	C/CPFF	The Boeing Company : Oklahoma City, OK	-	15.108	Dec 2021	25.414	Dec 2022	0.000		-		0.000	Continuing	Continuing	-
Engineering & Manufacturing Development (EMD) Phase	SS/CPIF	The Boeing Company : Oklahoma City, OK	-	104.262	Nov 2021	182.398	Nov 2022	177.088	Nov 2023	-		177.088	Continuing	Continuing	-
Subtotal			-	119.370		207.812		177.088		-		177.088	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Trainer Support	C/CPAF	AFLCMC/WNS : WPAFB, OH	-	0.000		5.852	Mar 2023	0.000		-		0.000	Continuing	Continuing	-
557th Software Development	PO	557th SWES : Tinker AFB, OK	-	3.686	Dec 2021	3.730	Dec 2022	2.000	Dec 2023	-		2.000	Continuing	Continuing	-
CAPRE AESA Adapter Support	PO	516th SWES : Hill AFB, UT	-	0.000		0.231	Dec 2022	0.000		-		0.000	Continuing	Continuing	-
Direct Cite Civilian Pay	Various	AFLCMC/FZA : WPAFB, OH	-	4.725	Oct 2021	6.430	Oct 2022	6.593	Oct 2023	-		6.593	Continuing	Continuing	-
Subtotal			-	8.411		16.243		8.593		-		8.593	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Edwards AFTC	PO	Edwards AFB : Edwards AFB, CA	-	4.900	Dec 2021	9.805	Dec 2022	11.750	Dec 2023	-		11.750	Continuing	Continuing	-
AFOTEC Support	PO	AFOTEC : Kirtland AFB, NM	-	0.000		0.950	Mar 2023	1.000	Mar 2024	-		1.000	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675056 / <i>B-52 Radar Modernization Program (RMP)</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Radar Modernization Program</i>	
EMD	
Developmental Testing	
MS C DP#1	
MS-C DP#2	
IOC	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675056 / <i>B-52 Radar Modernization Program (RMP)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Radar Modernization Program</i>				
EMD	1	2022	2	2027
Developmental Testing	4	2023	4	2026
MS C DP#1	1	2025	1	2025
MS-C DP#2	3	2025	3	2025
IOC	3	2027	3	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675057 / B-52 Low Cost Improvement (LCI)
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675057: B-52 Low Cost Improvement (LCI)	-	0.058	0.702	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.760
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This program will include projects to facilitate future B-52 capabilities. Scope of work may involve, but is not limited to, Avionics, Navigation, Situational Awareness (SA) and Defensive Systems. Develop and integrate emerging technologies for specialized B-52 missions to include Intelligence Surveillance and Reconnaissance (ISR), Targeting and Weapons, future prototyping efforts, Diminishing Manufacturing Sources and Material Shortages (DMSMS) efforts to include removal of end-of-life software/hardware within simulators systems, and common open system architecture that is sustainable and cyber-resilient. Funds may be used to address requirements including, but not limited to, emerging and short-notice DMSMS for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0M was expended for civilian pay expenses in this program element, and in FY23 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: B-52 Low Cost Improvements	0.058	0.702	0.000
Description: Develop and integrate emerging technologies for specialized B-52 missions to include ISR, targeting, and weapons. This includes performing demonstrations and experimentation of emerging and advanced technologies, as well as supporting external agency projects of the technology in a relevant environment.			
FY 2023 Plans: Integrate secure communications pod onto the B-52. Perform demonstrations and experiment with emerging and advanced technologies and external agency technology projects in relevant environment.			
FY 2024 Plans: N/A			
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to completing the Low Cost Improvement projects.			
Accomplishments/Planned Programs Subtotals	0.058	0.702	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675057 / B-52 Low Cost Improvement (LCI)
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line item B05200: BP11 Production	6.525	0.545	0.662	-	0.662	2.731	2.788	2.841	2.900	Continuing	Continuing

Remarks

D. Acquisition Strategy

Studies and analyses will be conducted by various Air Force Life Cycle Management Center and Air Force Global Strike Command organizations.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675057 / B-52 Low Cost Improvement (LCI)

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Low Cost Improvements	
Low Cost Improvements Studies and Analyses	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675057 / <i>B-52 Low Cost Improvement (LCI)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Low Cost Improvements</i>				
Low Cost Improvements Studies and Analyses	1	2022	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675129 / B-52 CERP			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675129: B-52 CERP	-	385.640	379.401	576.016	0.000	576.016	650.523	539.080	364.894	425.370	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

B-52 Commercial Engine Replacement Program (CERP) name was revised to B-52 CERP Rapid Virtual Prototyping (RVP) to differentiate from the future Middle Tier of Acquisition (MTA) effort as outlined in the program's acquisition strategy. B-52 CERP will be transitioning from an MTA to a Major Capability Acquisition program at the completion of the RVP MTA.

A. Mission Description and Budget Item Justification

The B-52 Commercial Engine Replacement Program (CERP) supports nuclear and conventional operations by replacing the current TF33-PW-103 engine on the B-52H aircraft. The TF33-PW-103 engine is increasingly difficult to sustain due to diminished manufacturing sources and obsolescent technologies; the AF Propulsion Directorate projects the engine will become unsustainable by 2030. This program will replace the current TF33-PW-103 engine with new military derivative commercial Rolls-Royce F130 engines of similar size, weight, and thrust characteristics. Along with the new engines, CERP will replace associated subsystems, such as engine struts and nacelles, the electrical power generation system, and cockpit displays. The development, production and installation of new engines and related subsystems will replace the legacy equipment on all 76 B-52H aircraft. Any B-52H aircraft modified with the new commercial engines and associated subsystems are designated as B-52J.

B-52 CERP will take advantage of advances in technology and on-going development efforts to acquire engines and integrate them into the B-52. The use of new technology will increase both the overall reliability/maintainability of the propulsion system and produce additional electrical power generation capabilities for emerging requirements. The B-52 CERP will allow the operational command (Air Force Global Strike Command) to fully utilize the capabilities of the B-52 aircraft to employ an array of nuclear and conventional weapons while increasing fuel efficiency and extending the range/loiter capabilities of the aircraft. In addition, applicable training devices must also be developed, modified and/or upgraded in conjunction with the aircraft modifications. This upgrade will also require corresponding modification to the B-52 training systems. As B-52 CERP brings additional capability to the B-52, emerging security/certification requirements (nuclear hardening, cyber security, program protection, etc.) will also need to be addressed. Several concurrent aircraft upgrades during the B-52 CERP may necessitate temporary facilities or facility upgrades/modifications. In addition, it may necessitate studies be performed to determine optimal engine installation and deployment options. Additionally, funds will be used to procure long lead components for test aircraft to include engines and all required associated components in the B-52 CERP configuration baseline.

Cost includes any other analysis or documentation and related expenses necessary to establish a program of record and support the B-52 Weapon System. Cost includes Program Management Administration (PMA) costs, centralized support and initiatives for digital engineering and anticipated weapon system enhancements, to include efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total cost of ownership.

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675129 / <i>B-52 CERP</i>
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accommodate PMA and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

The total cost of the B-52 CERP Middle Tier of Acquisition effort is 1,320.87 million, including RDT&E. The B-52 CERP is fully funded across the Future Years Defense Program.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 13.031M was expended and in FY23 16.422M is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Title: B-52 CERP</p> <p>Description: This program will replace the current TF33-PW-103 engine with new military derivative commercial Rolls-Royce F130 engines of similar size, weight, and thrust characteristics. The development, production and installation of new engines and related subsystems will replace the legacy equipment on all 76 B-52H aircraft. B-52 CERP will take advantage of advances in technology and on-going development efforts to acquire engines and integrate them into the B-52.</p> <p>FY 2023 Plans: Continue B-52 CERP Rapid Virtual Prototyping (RVP) MTA and Rapid Prototype Phase 1 (RP1) contract. Complete system preliminary design and begin system critical design. Continue Rapid Prototype Material (RPM - long lead material) contracts and continue engine critical design on engine contract. Plan to begin ordering hardware for the two test aircraft. Accomplish Milestone B.</p> <p>FY 2024 Plans: Complete the RVP MTA and deliver Virtual System Prototype (VSP) Increment 2. Continue the RP1 contract, system critical design, and the RPM (long lead material) contracts. Continue ordering hardware for two test aircraft to include engines. Complete engine critical design on the Engine contract.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to additional resources required to complete sub-system critical design reviews, fabricate test components, develop software, order long-lead test material, and buy test engines.</p>	385.640	379.401	576.016
Accomplishments/Planned Programs Subtotals	385.640	379.401	576.016

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675129 / B-52 CERP
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 0101113F: B-52 SQUADRONS	-	-	-	-	-	7.958	20.718	734.093	706.839	Continuing	Continuing

Remarks

D. Acquisition Strategy

Rapid Virtual Prototyping (RVP), utilizing the Middle Tier of Acquisition (MTA) pathway, is the first phase of B-52 CERP development. It reduces the design, development, and integration risks associated with replacing the current TF33-PW-103 engines with Rolls-Royce F130 engines. RVP delivers a virtual System Prototype (vSP) and brings the B-52 CERP modification design to Milestone B maturity. B-52 CERP will transition to the Major Capability Acquisition (MCA) pathway after PDR and completion of Milestone B. Following Milestone B completion, B-52 CERP will build test hardware and modify two test aircraft, then conduct ground and flight testing to verify capability requirements are met. After Milestone C, B-52 CERP will enter the Production and Deployment phase.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675129 / B-52 CERP
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Rapid Prototyping Phase 1	SS/CPIF	The Boeing Co : Oklahoma City, OK	-	176.309	Jan 2022	188.205	Mar 2023	235.830	Jan 2024	-		235.830	Continuing	Continuing	-
Engine Contract	C/FFP	Rolls Royce : Indianapolis, IN	-	78.957	Feb 2022	10.794	Dec 2022	102.140	Apr 2024	-		102.140	Continuing	Continuing	-
Rapid Prototyping Material 0	SS/CPIF	The Boeing Co : Oklahoma City, OK	-	79.438	Jan 2022	94.310	Mar 2023	119.839	Dec 2023	-		119.839	Continuing	Continuing	-
Rapid Prototyping Material 1	SS/CPIF	The Boeing Co : Oklahoma City, OK	-	20.000	Jun 2022	32.105	Mar 2023	49.919	Jan 2024	-		49.919	Continuing	Continuing	-
Subtotal			-	354.704		325.414		507.728		-		507.728	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Documentation - Technical Support	MIPR	Booz Allen Hamilton : Oklahoma City, OK	-	3.908	Jun 2022	6.000	Jan 2023	8.200	Nov 2023	-		8.200	Continuing	Continuing	-
557th	PO	557th : Oklahoma City, OK	-	0.232	Jun 2022	0.636	Dec 2022	0.480	Oct 2023	-		0.480	Continuing	Continuing	-
Direct Cite Authorization for CERP Civilian Personnel	Allot	AFLCMC/FZA : TBD	-	13.032	Oct 2021	16.422	Oct 2022	16.767	Oct 2023	-		16.767	Continuing	Continuing	-
Subtotal			-	17.172		23.058		25.447		-		25.447	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Edwards AFTC	PO	412TW : Edwards AFB, CA	-	10.000	Jun 2022	7.637	Mar 2023	11.476	Nov 2023	-		11.476	Continuing	Continuing	-
Digital Engineering	Various	Various : TBD	-	1.212	Sep 2022	8.492	Apr 2023	5.380	Nov 2023	-		5.380	Continuing	Continuing	-
Mock Up A/C and AMARG	PO	Various : TBD	-	0.004	May 2022	0.667	Feb 2023	-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675129 / B-52 CERP
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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AEDC	PO	AEDC/Flight Systems CTF : Arnold AFB, TN	-	0.224	Aug 2022	3.280	Nov 2022	2.000	Oct 2023	-		2.000	Continuing	Continuing	-
47th CTS Cyber Test	PO	47th CTS : Edwards AFB, CA	-	-		0.202	Dec 2022	0.250	Oct 2023	-		0.250	Continuing	Continuing	-
AFSEO	PO	AFSEO : Eglin AFB, FL	-	-		0.094	Dec 2022	0.427	Oct 2023	-		0.427	Continuing	Continuing	-
AFOTEC	MIPR	AFOTEC : Edwards AFB, CA	-	-		0.440	Jan 2023	0.440	Nov 2023	-		0.440	Continuing	Continuing	-
Subtotal			-	11.440		20.812		19.973		-		19.973	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Administration, A&AS Support, Centralized Support, TDY, OGC	Various	Various : Various	-	2.324	Mar 2022	10.117	Jan 2023	22.868	Dec 2023	-		22.868	Continuing	Continuing	-
Subtotal			-	2.324		10.117		22.868		-		22.868	Continuing	Continuing	N/A

Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	385.640	379.401	576.016	-	576.016	Continuing	Continuing	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675129 / <i>B-52 CERP</i>
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>B-52 CERP</i>	
Rapid Prototype Phase 1 Contract	
Rapid Prototype Material Contract	
Engine Contract	
Milestone B	
Engineering and Manufacturing Development Contract	
Virtual System Prototype Increment 2	
Integrated (Developmental/Operational) Testing	
Milestone C	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675129 / <i>B-52 CERP</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>B-52 CERP</i>				
Rapid Prototype Phase 1 Contract	1	2022	2	2025
Rapid Prototype Material Contract	1	2022	4	2028
Engine Contract	1	2022	4	2028
Milestone B	4	2023	4	2023
Engineering and Manufacturing Development Contract	1	2025	4	2028
Virtual System Prototype Increment 2	1	2024	1	2024
Integrated (Developmental/Operational) Testing	3	2027	4	2028
Milestone C	2	2028	2	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675160 / B-52 Crypto Modernization			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675160: B-52 Crypto Modernization	-	16.153	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.153
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

B-52 Crypto Modernization upgrades aircraft with Mobile User Objective System (MUOS) capable ARC-210 radio systems that prevent loss of beyond line of sight (BLOS) voice and data communications capability. The program will integrate upgrade the B-52 aircraft with secure voice and data communications via SATURN (Second Generation Anti-Jam Technical UHF Radio for NATO) network, MUOS (Mobile User Objective System) Satellite constellation, and DAMA-IW (Demand Assigned Multiple Access - Integrated Waveform) SATCOM connection. These updates are required by the National Security Agency (NSA), DoD mandates, and directives.

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0M was expended for civilian pay expenses in this program element, and in FY23 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: B-52 Crypto Modernization	6.957	0.000	0.000
Description: Upgrades aircraft with secure ARC-210 radio systems and associated hardware/software to prevent loss of beyond line of sight (BLOS) voice and data communications capability.			
FY 2023 Plans: N/A			
FY 2024 Plans: N/A			
FY 2023 to FY 2024 Increase/Decrease Statement: N/A			
Title: B-52 Radar Modernization Program	9.196	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675160 / B-52 Crypto Modernization

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: Support nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H aircraft. Development and production of new systems to replace the legacy equipment and to be installed on all 76 B-52H aircraft.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>			
Accomplishments/Planned Programs Subtotals	16.153	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APAF 05 Line item B05200: BP11 Production	3.452	33.034	21.944	-	21.944	22.992	4.160	4.934	5.037	Continuing	Continuing
• APAF 06 000999: Initial Spares/Repair Parts	-	4.293	1.214	-	1.214	1.249	1.281	-	-	0.000	8.037

Remarks

D. Acquisition Strategy

Per the National Security Agency mandate, the B-52 Crypto Modernization program will upgrade the aircraft with secure radio devices (ARC-210 Gen 6) that meet the requirement for secure beyond line of sight voice and data communications. The program is currently in the Engineering Manufacturing and Development (EMD) phase and forecasted to meet to Milestone C by FY2025. During the EMD phase, the program will procure radio systems that meet the NSA timeline while furthering aircraft integration supporting Mobile User Objective System. Milestone C is scheduled for FY2024.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675160 / B-52 Crypto Modernization
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Crypto Modernization: Development and Integration Activities	SS/CPIF	OEM : Oklahoma City, OK	-	5.337	Jan 2022	-		-		-		-	0.000	5.337	-
Radar Modernization Program: Engineering & Manufacturing Development (EMD) Phase	SS/CPIF	OEM : Oklahoma City, OK	-	9.196	Nov 2021	-		-		-		-	0.000	9.196	-
Subtotal			-	14.533		-		-		-		-	0.000	14.533	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Administration	MIPR	Not specified. : TBD	-	0.545	May 2022	-		-		-		-	0.000	0.545	-
Subtotal			-	0.545		-		-		-		-	0.000	0.545	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	PO	Various : TBD	-	0.975	Feb 2022	-		-		-		-	0.000	0.975	-
Subtotal			-	0.975		-		-		-		-	0.000	0.975	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	Various	Not specified. : TBD	-	0.100	Jan 2022	-		-		-		-	0.000	0.100	-
Subtotal			-	0.100		-		-		-		-	0.000	0.100	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675160 / <i>B-52 Crypto Modernization</i>
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	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	16.153	-	-	-	-	0.000	16.153	N/A

Remarks
 Crypto Mod and RMP are two distinct development efforts. An accounting error resulted in 9.196M of FY22 RMP (BPAC 675056) funding being misaligned under Crypto Mod (BPAC 675160).

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675160 / B-52 Crypto Modernization
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Crypto Modernization</i>	
EMD	[REDACTED]
IQT/FQT	[REDACTED]
DT/OT	[REDACTED]
MS C	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675160 / <i>B-52 Crypto Modernization</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Crypto Modernization</i>				
EMD	1	2022	2	2025
IQT/FQT	3	2022	1	2023
DT/OT	1	2024	2	2024
MS C	1	2025	1	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675165 / B-52 Quad Crew			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675165: B-52 Quad Crew	-	0.003	8.119	30.652	0.000	30.652	41.964	0.000	0.000	0.000	0.000	80.738
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Quad Crew program supports upgrading the ALQ-172 Electronic Warfare Countermeasure System on the B-52 aircraft. The program will transition the ALQ-172 electronic warfare system to the B-52 Navigator Station supporting situational awareness, self-protection, and survivability in a contested environment. In addition, the Quad Crew program will include expansion of frequency bands within the ALQ-172 system.

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.00M is forecasted for civilian pay expenses in this program element, and in FY23 0.00M is forecasted for civilian pay expenses in this program element.

Milestone/Development Status
 Materiel Development Decision (MDD) 1QFY23
 Milestone B Decision 3QFY23

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

	FY 2022	FY 2023	FY 2024
Title: B-52 Quad Crew	0.003	8.119	30.652
Description: The B-52 Quad Crew effort transitions Electronic Warfare display and functionality to the existing B-52 navigator station, which will reduce the aircrew from five to four crew members. In addition, the Quad Crew program will expand the Electronic Warfare frequency band functionality.			
FY 2023 Plans: Start Quad Crew Engineering and Manufacturing Development design and testing activities, procure hardware, and prepare for Developmental and Operational Test.			
FY 2024 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675165 / B-52 Quad Crew
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Continue Engineering and Manufacturing Development activities that will include aircraft structure and design efforts, development of aircraft technical documentation, kit development, and procurement of long lead material.			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding increased due to supporting design and integration activities, procuring long-lead test material, and updating technical documentation. 8M FY23 Quad Crew funding is in BPAC 675039 due to a database error. Total FY23 funding for Quad Crew is 16.119M (8M in BPAC 675039 and 8.119M in BPAC 675165).			
Accomplishments/Planned Programs Subtotals	0.003	8.119	30.652

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 06 0101113F: B-52 SQUADRONS	-	-	-	-	-	-	44.980	73.094	74.615	Continuing	Continuing

Remarks

D. Acquisition Strategy
The Quad Crew program supports upgrading the ALQ-172 Electronic Warfare Countermeasure System on the B-52 aircraft. The program will transition the ALQ-172 electronic warfare system to the B-52 Navigator Station supporting situational awareness, self-protection, and survivability in a contested environment. The program will meet a 4QFY23 Milestone B Decision, then award an Engineering Manufacturing and Development contract.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675165 / B-52 Quad Crew
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Quad Crew	
EMD	[REDACTED]
Milestone C	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675165 / <i>B-52 Quad Crew</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Quad Crew				
EMD	4	2023	4	2024
Milestone C	1	2025	1	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 676039 / B-52 Airspace Compliance
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
676039: B-52 Airspace Compliance	-	0.000	0.000	5.012	0.000	5.012	41.035	32.799	33.397	34.651	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
This program, BA 7, PE 0101113F, project , Airspace Compliance (M-Code), is a new start.

A. Mission Description and Budget Item Justification

The B-52 Airspace Compliance Program ensures the B-52 meets regulatory Airspace Compliance, DoD and FAA mandates by integrated required hardware, software and firmware updates onto the fleet.

The scope of work may include, but not limited to, the development of an Analysis of Alternatives (AoA), studies and analyses, and/or any additional analyses or documentation necessary to establish a Programs of Record (POR) the meet mandated functions. Funds may also be used to address emerging and short-notice Diminishing Manufacturing and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/Operational Testing (OT), safety of flight issues, and associated components of the B-52 baseline configurations. DMSMS efforts may include removal of end-of-life/obsolete software and hardware due to the future emergence of Modular Open Systems Approach (MOSA) implementation.

This also includes the new Global Positioning System (GPS) Military Code (M-Code) signal design that provides a robust signal for the B-52 Fleet, enhancing Anti-Jam/Anti-Spoof capabilities and improving security to the GPS data message as military applications, technology, and mission requirements evolve.

This Program may also include necessary civilian pay expenses required to manage, execute, and deliver M-Code GPS signal capability, as well as PM Administration (PMA) and support, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022 0M was expended for civilian pay expenses in this program element, and in FY 2023 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: Airspace Compliance (M-Code)	0.000	0.000	5.012
Description: The new Military Code (M-Code) signal design provides a robust signal acquisition for the B-52 Fleet, enhancing Anti-Jam/Anti-Spoof capabilities and improving security to the GPS data message as military applications, technology, and mission requirements evolve.			
FY 2023 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 676039 / B-52 Airspace Compliance

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
N/A			
FY 2024 Plans: Program will start initial studies and analysis to integrate the Global Positioning System (GPS) Military Code (M-Code) signal design on the B-52 aircraft.			
FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to starting the initial integration efforts of M-Code compliant hardware and software.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	5.012

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 0101113F: B-52 SQUADRONS	-	-	-	-	-	14.480	14.416	14.436	14.725	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Milestone Decision Authority (MDA) for B-52 M-Code is the Senior Materiel Leader (SML) for the B-52 System Program Office (AFLCMC/WBD). The Prime contractor will be responsible for the integration of the M-Code capable components. The Acquisition Strategy is to gain MDA approval to enter at Milestone B in FY2025.

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 676039 / <i>B-52 Airspace Compliance</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Airspace Compliance</i>				
TMRR	4	2024	2	2025
MS B	2	2025	2	2025
EMD	3	2025	2	2028
MS C	2	2028	2	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101122F / <i>Air-Launched Cruise Missile (ALCM)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.436	0.571	0.290	0.000	0.290	0.541	0.556	0.566	0.587	Continuing	Continuing
674797: <i>ALCM Upgrades</i>	-	0.436	0.571	0.290	0.000	0.290	0.541	0.556	0.566	0.587	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AGM-86B, Air Launched Cruise Missile (ALCM), is a subsonic, air-to-surface strategic nuclear missile, operational since 1982. Armed with a W-80 warhead, it is designed to evade air and ground-based defenses in order to strike targets at any location within any enemy's territory. The ALCM is designed for B-52H internal and external carriage.

RDT&E funds support development of new tests and evaluation procedures, software, and equipment. RDT&E funds also provide sustainment solutions for Line Replaceable Units (LRU) and technology insertion to ensure ALCM sustainability supports Air Force strategic nuclear deterrence and Global Strike mission requirements through 2030. Additionally, RDT&E funds support aging and surveillance analysis to pro-actively identify components which will degrade system reliability.

The ALCM Test Plan Development and Evaluation program develops plans and procedures for testing nuclear systems, and implements those procedures as directed by the Chairman, Joint Chiefs of Staff (CJCS) and to satisfy the recurring requirements to test Chemical, Biological, Radiological, and Nuclear (CBRN) susceptibility.

An extensive Service Life Extension Program (SLEP) is in place to address age related issues and to ensure reliability and sustainability through 2030. Technology insertion is anticipated to address serviceability of components at or near end of life.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0M was expended for civilian pay expenses in this program element, and in FY23 0M is forecasted for civilian pay expenses in this program element.

This FY 2024 funding request was reduced by \$0.240 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0101122F I Air-Launched Cruise Missile (ALCM)
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B. Program Change Summary (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	0.453	0.571	0.529	0.000	0.529
Current President's Budget	0.436	0.571	0.290	0.000	0.290
Total Adjustments	-0.017	0.000	-0.239	0.000	-0.239
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.017	0.000			
• Other Adjustments	0.000	0.000	-0.239	0.000	-0.239

Change Summary Explanation

No significant changes

C. Accomplishments/Planned Programs (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>
Title: ALCM Test Plan Development and Evaluation	0.436	0.571	0.290
Description: Develop test procedures to implement CJCS-directed requirement for Electromagnetic (EM) testing for nuclear systems.			
FY 2023 Plans: Execution of Pylon/Common Strategic Rotary Launcher Neutron Test			
FY 2024 Plans: Planning for Survivability Test Execution in FY25			
FY 2023 to FY 2024 Increase/Decrease Statement: Minor funding decrease due to conducting planning activities in 2024			
Accomplishments/Planned Programs Subtotals	0.436	0.571	0.290

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• MPAF 03 Line Item MALCBG: ALCM, Missile Modifications	46.799	33.778	41.494	-	41.494	33.954	28.825	29.279	29.903	Continuing	Continuing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101122F / <i>Air-Launched Cruise Missile (ALCM)</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF 04 Line Item MALCBG: <i>ALCM, Replenishment Spares</i>	2.369	2.508	2.577	-	2.577	2.630	2.660	2.706	2.764	Continuing	Continuing
• MPAF 04 Line Item 999/Replen <i>Spa...: ALCM, Initial Spares</i>	0.428	0.452	0.360	-	0.360	0.365	0.370	0.376	0.384	Continuing	Continuing

Remarks

E. Acquisition Strategy

Previously, the Air Launched Cruise Missile (ALCM) was assessed in the nuclear environment for Chemical, Biological, Radiological and Nuclear (CBRN) Survivability for High Altitude Electromagnetic Pulse (HEMP) and Total Ionizing Dose at White Sands Missile Range (WSMR).

Follow-on test development will assess the neutron and gamma component in the nuclear environment for CBRN survivability. Test development and execution will utilize organic and contractor agencies.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101122F / Air-Launched Cruise Missile (ALCM)	Project (Number/Name) 674797 / ALCM Upgrades
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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CBRN Test Plan Development & Evaluation	Various	WSMR, Boeing : NV	-	0.316	Mar 2022	0.446	Mar 2023	0.290	May 2024	-		0.290	Continuing	Continuing	-
Subtotal			-	0.316		0.446		0.290		-		0.290	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 and Engineering Services for research, development, test and evaluation on ALCM	C/CPAF	Not specified. : TBD	-	0.100	Jul 2022	0.105	Jul 2023	-		-		-	Continuing	Continuing	-
PMA - Government Costs	Various	Various : Various	-	0.020	Jun 2022	0.020	Jul 2023	-		-		-	Continuing	Continuing	-
Subtotal			-	0.120		0.125		-		-		-	Continuing	Continuing	N/A

Remarks
Test Development and Evaluation PMA is for Supplies and Travel in support of project number 674797

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.436	0.571	0.290	-	0.290	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101122F / <i>Air-Launched Cruise Missile (ALCM)</i>	Project (Number/Name) 674797 / <i>ALCM Upgrades</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

CBRN Test	
CBRN Test Plan Development	[REDACTED]
CBRN Test Execution	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101122F / <i>Air-Launched Cruise Missile (ALCM)</i>	Project (Number/Name) 674797 / <i>ALCM Upgrades</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CBRN Test				
CBRN Test Plan Development	2	2022	4	2025
CBRN Test Execution	2	2023	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	37.951	20.044	12.619	0.000	12.619	17.926	2.023	0.008	0.008	0.000	90.579
675344: <i>B-1B Modernization</i>	-	37.951	20.044	12.619	0.000	12.619	17.926	2.023	0.008	0.008	0.000	90.579
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The B-1B Lancer is a swing-wing, supersonic, long-range conventional bomber. It carries the largest payload of both guided and unguided weapons in the AF inventory. The multi-mission B-1B is the backbone of America's long-range conventional bomber force and can rapidly deliver massive quantities of precision (and non-precision) weapons against any adversary, anywhere in the world, at any time.

The B-1B modernization projects alleviate aircraft obsolescence issues due to Diminishing Manufacturing Sources and Material Shortages (DMSMS) while at the same time providing improved capabilities to the B-1B weapon system that require significant hardware and software development and testing.

MULTIFUNCTIONAL INFORMATION DISTRIBUTION SYSTEM - JOINT TACTICAL RADIO SYSTEMS (MIDS-JTRS):

MIDS-JTRS replaces the existing MIDS-LVT (1) (Low Volume Terminal) Link 16 terminal to meet the 2022 NSA Crypto Modernization (CM) Device Cease Key as well as DoD Link 16 mandate/directive and Federal Aviation Administration (FAA)/National Telecommunications and Information Administration (NTIA) Frequency Remap mandate.

These requirements must be met to replace the existing MIDS-LVT (1) to resolve all LVT (1) deficiencies as well as add combat capability enhancements by implementing Link 16 Enhanced Throughput (LET) and Concurrent Multi-Netting (CMN-4) with Concurrent Retention Receive (CRR). MIDS-JTRS will provide enhanced data link capability, improving situational awareness and allowing rapid in-flight re-targeting in a cooperative combat environment. Program focuses on eliminating LVT (1) deficiencies as well as delivering all mandates and directives.

RADIO-CRYPTO MODERNIZATION:

The B-1B Radio Crypto program originates from JROCM 040-11, VACM Cease Key CED-026-11, UHF SATCOM (Ultra-High Frequency Satellite Communication) Decommission and Cease Key for Demand Assigned Multi Access (DAMA) Orderwire, HAVE QUICK II Cease use date, and DoD CIO Mobile User Objective System (MUOS) transition directive. If the requirements/directives are not met, B-1B will lose its secure line of sight, beyond line of sight, and anti-jam communication with ground and air forces. The initiative will replace the existing ARC-210 (Gen 3/4) ARC-210 (Gen 6) next generation radios. Additionally, the program will provide MUOS Satellite Communication capability that supports the DoD Chief Information Officer (CIO) directive to move all DoD assets to MUOS constellation (70% by FY26). This effort will lay in Ethernet cable required by MUOS Data (J-REAP C), install MUOS ancillaries (HPA/LNA), and additional software to execute MUOS capability on the aircraft.

HYPERSONIC INTEGRATION (HWICC)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force Date: March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / <i>B-1B Squadrons</i>
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The FY22 and FY23 Conference Appropriations, detailed in the Congressional Conference Reports of Interest added 20M (10M in FY22 and 10M in FY23) RTD&E appropriation for B-1B hypersonic weapon integration. This appropriation develops an external carry-enabled B-1B as a testbed to facilitate rapid integration of priority hypersonic weapons to support national security objectives, leading to a potential investment opportunity for weapons programs. Additionally, this provides an opportunity to significantly reduce risk for an operational external carry capability on the B-1B if directed.

B-1B AFMC TEST ASSETS:

The B-1B AFMC Test Assets project will provide funding for the test aircraft, manpower, and facilities at the Air Force Test Center located at Edwards Air Force Base (AFB), California. This will support the developmental testing and sustainment needs of the B-1B weapon system. It funds support for Programmed Depot Maintenance (PDM) for test aircraft, which is performed at Tinker AFB, Oklahoma. Funds also support analysis, documentation, and related activities necessary to establish a program of record and support the B-1B weapon system. Additionally, other costs include Program Management Administration (PMA) and centralized support as well as initiatives for anticipated weapon system enhancements (to include efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, digital engineering and total cost of ownership).

GAP AND INTEGRATION ANALYSIS:

Program funds cover engineering/planning studies, related engineering efforts, and the auxiliary equipment needed for development projects that have not yet been fielded. Funds may be used to resolve emerging safety of flight and DMSMS issues, accommodate technology insertion, and fulfill FAA (or other) mandates necessary to ensure continued aircrew safety and mission effectiveness. Costs include PMA costs, total ownership cost, as well as initiatives for anticipated weapon system enhancements (to include efforts for improving weapon system operational capabilities, safety, supportability, maintainability, reliability, digital engineering and total cost of ownership). All B-1B development projects support planned requirements for unique identification in their production phases.

B-1B funding also supports innovation activities to include studies, analyses, requirements definition, digital engineering initiatives and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion, and future acquisition programs.

The BY2024 funding request was reduced by \$3 million to account for the availability of prior year execution balances

Funds may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness. Funds may be used to address emerging and short-notice DMSMS issues.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 2.8M was expended for civilian pay expenses in this program element, and in FY23 1.8M is forecasted for civilian pay expenses in this program element.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / <i>B-1B Squadrons</i>
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	39.127	13.144	14.084	0.000	14.084
Current President's Budget	37.951	20.044	12.619	0.000	12.619
Total Adjustments	-1.176	6.900	-1.465	0.000	-1.465
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-3.100			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	10.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.176	0.000			
• Other Adjustments	0.000	0.000	-1.465	0.000	-1.465

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

Project: 675344: *B-1B Modernization*

Congressional Add: *HYPERSONIC INTEGRATION*

Congressional Add Subtotals for Project: 675344

Congressional Add Totals for all Projects

	FY 2022	FY 2023
	9.699	10.000
Congressional Add Subtotals for Project: 675344	9.699	10.000
Congressional Add Totals for all Projects	9.699	10.000

Change Summary Explanation

FY23:

Congressional directed reductions: -\$3.1M for Radio Crypto Delays

Congressional Add: \$10M for Hypersonic Integration

FY24:

-\$1.465M was reprogrammed for higher priority Air Force efforts.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
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C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: B-1 AFMC Test Assets</p> <p>Description: The B-1 Test Asset effort will provide funding for the test aircraft, manpower, and facilities at the Air Force Test Center located at Edwards Air Force Base (AFB), California. This will support the developmental testing and sustainment needs of the B-1B weapon system. It funds support for Programmed Depot Maintenance (PDM) for test aircraft, which is performed at Tinker AFB, Oklahoma.</p> <p>Funds also support analysis, documentation, and related activities necessary to establish a program of record and support the B-1B weapon system. Additionally, other costs include PMA and centralized support as well as initiatives for anticipated weapon system enhancements (to include efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, digital engineering and total cost of ownership) are included.</p> <p>Funding may be used to resolve or address emerging safety of flight and Diminishing Manufacturing Sources (DMS) issues, accommodate technology insertion and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>	16.947	0.000	0.000	0.000	0.000
<p>Title: RADIO-CRYPTO</p> <p>Description: The B-1B Radio Crypto program originates from JROCM 040-11, VACM Cease Key CED-026-11, UHF SATCOM (Ultra-High Frequency Satellite Communication) Decommission and Cease Key for Demand Assigned Multi Access (DAMA) Orderwire, HAVE QUICK II Cease use date, and DoD CIO Mobile User Objective System (MUOS) transition directive. If the requirements/directives are not met, B-1B will lose its secure line of sight, beyond line of sight, and anti-jam communication with ground and air forces. The initiative</p>	10.015	10.044	12.619	0.000	12.619

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>will replace the existing ARC-210 (Gen 3/4) ARC-210 (Gen 6) next generation radios. Additionally, the program will provide MUOS Satellite Communication capability that supports the DoD Chief Information Officer (CIO) directive to move all DoD assets to MUOS constellation (70% by FY26). This effort will lay in Ethernet cable required by MUOS Data (J-REAP C), install MUOS ancillaries (HPA/LNA), and additional software to execute MUOS capability on the aircraft.</p> <p>FY 2023 Plans: Award EMD Contract (EA-11468) for CDR through Flight Test.</p> <p>FY 2024 Base Plans: Continue EMD activities (EA-11468) through Flight Test to complete the EMD phase.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased to accelerate EMD activities to meet mandates.</p>					
<p>Title: MIDS-JTRS</p> <p>Description: Multifunctional Information Distribution System-Joint Tactical Radio System (MIDS-JTRS) replaces the existing MIDS-LVT (1) (Low Volume Terminal) Link 16 terminal to meet the 2022 NSA Crypto Modernization (CM) Device Cease Key as well as DoD Link 16 mandate/directive and FAA/NTIA Frequency Remap mandate. The current MIDS-LVT (1) system became non-compliant on 1 Jan 22. MIDS-JTRS resolves all LVT (1) deficiencies and adds substantial combat capability enhancements to Link 16 Enhanced Throughput (LET) and Concurrent Multi-Netting (CMN-4) with Concurrent Retention Receive (CRR). MIDS-JTRS also provides multi-datalink capability, improving situational awareness and allowing rapid in-flight re-targeting in a cooperative combat environment. The B-1B does not have voice communication over Link-16 if the MIDS-JTRS program is not implemented.</p> <p>Program efforts will focus on delivering all mandates and directives, which includes integrations of MIDS-JTRS terminal and all associated software, wiring, and hardware updates.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans:</p>	1.290	0.000	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Completed activities related to MIIDS-JTRS RDTE funding.					
Accomplishments/Planned Programs Subtotals	28.252	10.044	12.619	0.000	12.619

	FY 2022	FY 2023
Congressional Add: HYPERSONIC INTEGRATION	9.699	10.000
FY 2022 Accomplishments: Boeing Engineering Project for Hypersonic Airworthiness and Integration plan awarded June 2022.		
FY 2023 Plans: Award Boeing Engineering Assignment for Load Adaptive Modular (LAM) Integration (completed December 2022), and follow-on Boeing Engineering Assignment contract award for additional hardpoint integration. Continued Airworthiness analysis, purchase LAM pylons, and demonstration ground and flight testing.		
Congressional Adds Subtotals	9.699	10.000

D. Other Program Funding Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APAF 05 Line Item	0.771	0.101	0.500	-	0.500	0.512	0.520	0.532	0.888	0.000	3.824
B01B00: <i>Training Support to Units, Mods PE 0809731F</i>											
• APAF 05 B01B00: B-1B	27.406	36.313	12.757	-	12.757	3.315	2.743	1.001	1.367	0.000	84.902
• APAF 05 B00100: B-1	-	-	-	-	-	-	-	-	-	0.000	0.000
• APAF 05 Line Item B01B00	0.000	0.000	0.000	-	0.000	-	-	-	-	0.000	0.000
Spares: <i>B-1B Squadrons, Spares</i>											

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force Date: March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / <i>B-1B Squadrons</i>
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E. Acquisition Strategy

B-1 AFMC Test Assets will utilize funding for Programmed Depot Maintenance (PDM) for the test aircraft at Tinker AFB, OK.

Radio Crypto acquisition strategy addresses National Security Agency (NSA) as well as DoD mandates and directives executing EMD and production with a Sole Source, Cost Plus Fixed Fee (CPFF) EMD contract effort followed by a two-year Production and installation effort.

MIDS-JTRS acquisition strategy addresses the (2022) NSA and (2025) Federal Aviation Administration (FAA)/National Telecommunications and Information Administration (NTIA) mandates by replacing the MIDS-LVT 1 with MIDS-JTRS terminal through a five-year, Sole Source (SS), Cost Plus Fixed Fee (CPFF) EMD contract effort followed by a two-year Production and Installation effort.

The Hypersonic Weapons Integration strategy addresses national security objectives and is designed to achieve the end result of an external carry-enabled testbed facilitating rapid integration of priority hypersonic weapons through a two-year Sole Source (SS), Cost Plus Fixed Fee (CPFF) Engineering Assignment effort. An additional 18 month SS CPFF term Engineering Assignment effort will continue the integration of Load Adaptive Modular (LAM) pylon for demonstrating carry and release capability of various stores and working toward utilizing additional hardpoints.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons	Project (Number/Name) 675344 / B-1B Modernization
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
B-1 AFMC Test Assets (PDM)	MIPR	Tinker AFB : OKC, OK	-	16.947	Mar 2022	-		-		-		-	0.000	16.947	-
Radio Crypto Compliance (EA-11494 & 11468)	SS/CPFF	Boeing : OKC, OK	-	8.162	Dec 2022	8.210	Mar 2023	8.794	Nov 2023	-		8.794	0.000	25.166	35.000
Hypersonic Weapons Integration	SS/CPFF	Boeing : OKC, OK	-	9.699	Sep 2022	10.000	Mar 2023	-		-		-	0.000	19.699	-
Subtotal			-	34.808		18.210		8.794		-		8.794	0.000	61.812	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BAH (A&AS)	MIPR	GSA : OKC, OK	-	0.372	May 2022	0.000	Jun 2023	1.338	May 2024	-		1.338	0.000	1.710	-
Subtotal			-	0.372		0.000		1.338		-		1.338	0.000	1.710	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Radio Crypto Testing (DT/OT)	PO	Edwards : CA	-	-		-		0.600	Oct 2023	-		0.600	0.000	0.600	-
Subtotal			-	-		-		0.600		-		0.600	0.000	0.600	N/A

Remarks
Radio Crypto Project Order (PO) for Flight testing is to the 419th Test Squadron.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA/DCA	Various	Various : OKC, OK	-	2.771	Jan 2022	1.834	Jan 2023	1.887	Jan 2024	-		1.887	0.000	6.492	-
Subtotal			-	2.771		1.834		1.887		-		1.887	0.000	6.492	N/A

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons	Project (Number/Name) 675344 / B-1B Modernization
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Hypersonic Integration (HIWCC)</i>	
Demo Planning	██████████
Demo Ground Test	██████████
Demo Flight Test	██████████
Additional Hardpoint Development	████████████████████
<i>Radio Crypto</i>	
EMD	██
PDR/CDR	██████████
DT/OT	██████████
MS-C	██████████
<i>MIDS-JTRS</i>	
EMD	████████████████████
DT/OT	██████████
MS-C	██████████
BU1-BU3 Regression Testing	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons	Project (Number/Name) 675344 / B-1B Modernization
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Hypersonic Integration (HIWCC)</i>				
Demo Planning	4	2022	2	2023
Demo Ground Test	2	2023	3	2023
Demo Flight Test	3	2023	4	2023
Additional Hardpoint Development	4	2023	4	2024
<i>Radio Crypto</i>				
EMD	1	2022	4	2025
PDR/CDR	1	2024	2	2024
DT/OT	4	2024	1	2025
MS-C	2	2025	3	2025
<i>MIDS-JTRS</i>				
EMD	1	2022	3	2023
DT/OT	1	2022	3	2022
MS-C	4	2022	1	2023
BU1-BU3 Regression Testing	1	2023	3	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	123.749	101.790	87.623	0.000	87.623	33.136	0.004	0.004	0.004	Continuing	Continuing
675345: <i>B-2 Modernization</i>	0.000	109.089	86.354	85.468	0.000	85.468	33.136	0.004	0.004	0.004	0.000	314.059
676021: <i>BASELINE SUPPORT</i>	0.000	14.660	15.436	2.155	0.000	2.155	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The B-2 is currently undergoing modernization of avionics, communications systems, cockpit displays, armament systems, low observable components, core training system components, aircraft supportability improvements, and support equipment development.

The Air Force will also study multiple structural, avionics, and engine modifications, as well as advanced weapons integration and advanced communications, that could improve the performance of the aircraft and engines and reduce maintenance man-hours and the logistics footprint of the fleet. Focus of the studies will be on non-mission capable (maintenance) drivers, safety issues, and obsolescence issues through modernization of key components in the airframe, avionics, and engines resulting in improved aircraft availability of a high demand/low density fleet.

The B-2 Display Modernization program is a modernization of the B-2 multi-purpose display units (MDUs) and includes removal of the Defensive Management System-Modernization (DMS-M) modification from the B-2 fleet test aircraft and lab environment. This is not a new start, but a continuation of RDT&E scope that was part of the previous DMS-M program. FY 2021 and prior years DMS-M efforts were in PE 0605931F.

B-2 Advanced Communications (formerly known only as Adaptable Communications Suite) supports and enhances the aircraft's communications capabilities to keep the B-2 ready, effective, and survivable by complying with growing crypto mandates and mitigating end of life systems. Requirements include but are not limited to, Secure Beyond-Line-of-Sight (BLOS) communications, Line-of-Sight (LOS) communications, and the ability communicate and operate in the Joint All-Domain Command and Control (JADC2) environment throughout all mission phases. Multiple modernization efforts are underway to achieve the requirements including, but not limited to, Adaptable Communications Suite (ACS) Increment 4.0, Airborne Integrated Terminal Group (AITG) Replacement and B-2 Collaborative Combat Communications (B2C3).

The Low Observable Signature and Supportability Modifications (LOSSM) program supports the B-2 ability to penetrate anti-access combat environments, performing missions directed by the National Command Authority while ensuring aircrew survivability. The LOSSM program reduces low observable (LO) maintenance drivers, and signature degradation, while maintaining LO reliability / Maintainability / Supportability, and provides high signature confidence to combatant commanders.

The B-2 Identification Friend or Foe (IFF) Mode 5/S modification program replaces the current IFF transponder with a new Mode 5 and Mode S capable transponder ensuring compliance with DoD Combat Identification mandates and global Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) requirements. Mode 5 is the DoD standard for secure combat identification and provides improved discrimination between closely spaced platforms, while reducing interference with civil air traffic control transponders, enabling the B-2 fleet to accomplish its anti-access and global strike mission. Mode 5 replaced the obsolete Mode 4 combat

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101127F / <i>B-2 Squadrons</i>	
<p>identification. Mode S is a civil air traffic control secondary surveillance radar process that allows selective interrogation of aircraft according to the unique 24-bit address. Mode S provides improved accuracy and altitude resolution and reduced interference from closely spaced aircraft through selective interrogation of assigned transponder addresses.</p> <p>The B-2 Training System upgrades include updates to training device hardware and components, simulation software, courseware and academic materials, instructional system design architectures, engineering drawings, and system documentation that is not driven by a funded aircraft modification.</p> <p>This budget supports B-2 nuclear certification activities to include certification testing, analysis, and support related costs to ensure the weapon system's nuclear mission remains intact. B-2 funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/ demonstrations to accelerate planning for technology transition, technology insertion, and future acquisition programs.</p> <p>Additionally, program funds may be used for Airframe Hardware Supportability Modifications (AHSM). The AHSM program increases aircraft availability and ensures mission effectiveness by targeting flight control, defensive management, communication, armament, and other system components that are the greatest contributors to aircraft downtime and/or ineffective system performance through lack of spares, extensive man-hours to troubleshoot and repair, and/or high failure rates. This program addresses current and forecasted obsolescence, Diminishing Manufacturing Sources/Material Shortages (DMSMS), and effective and timely repairs at both the field and depot levels. It also targets components whose failure rates, mean time to repair (MTTR) hours, and performance levels fail to meet established baseline targets/ specifications. This program includes multiple efforts including, but not limited to, the Radio Frequency Switching Unit, Radar Receiver Exciter, Radar Signal Processor, Flight Control Computer, Band 1 Radio Frequency Front End (RFFE), Air Turbine Starter Control Valve.</p> <p>The BY2024 funding request was reduced by \$12.744 million to account for the availability of prior year execution balances</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0M was expended for civilian pay expenses in this program element, and in FY23 0M is forecasted for civilian pay expenses in this program element.</p> <p>This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	131.647	111.990	112.890	0.000	112.890
Current President's Budget	123.749	101.790	87.623	0.000	87.623
Total Adjustments	-7.898	-10.200	-25.267	0.000	-25.267
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-15.200			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	5.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-3.850	0.000			
• SBIR/STTR Transfer	-4.048	0.000			
• Other Adjustments	0.000	0.000	-25.267	0.000	-25.267

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

Project: 675345: *B-2 Modernization*

Congressional Add: *B-2 Modernization*

	FY 2022	FY 2023
	0.000	5.000
Congressional Add Subtotals for Project: 675345	0.000	5.000
Congressional Add Totals for all Projects	0.000	5.000

Change Summary Explanation

FY22 reduced -4.048 million for SBIR; -3.850 million as source on FY22-11PA reprogramming

FY23: Congressional directed reductions: -\$10.2M for Adaptable Communication Suite (ACS) program carryover, and -\$5M for B-2 Display Modernization (BDM) program excess to need; also Congressional Add: \$5M for B-2 modernization

FY24: -\$25.267M addressed higher priority Air Force efforts and DAF underexecution issues.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons				Project (Number/Name) 675345 / B-2 Modernization			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675345: B-2 Modernization	0.000	109.089	86.354	85.468	0.000	85.468	33.136	0.004	0.004	0.004	0.000	314.059
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-2 is currently undergoing modernization of avionics, communications systems, cockpit displays, armament systems, low observable components, core training system components, aircraft supportability improvements, and support equipment development.

The Air Force will also study multiple structural, avionics, and engine modifications, as well as advanced weapons integration and advanced communications, that could improve the performance of the aircraft and engines and reduce maintenance man-hours and the logistics footprint of the fleet. Focus of the studies will be on non-mission capable (maintenance) drivers, safety issues, and obsolescence issues through modernization of key components in the airframe, avionics, and engines resulting in improved aircraft availability of a high demand/low density fleet.

The B-2 Display Modernization program is a modernization of the B-2 multi-purpose display units (MDUs) and includes removal of the Defensive Management System-Modernization (DMS-M) modification from the B-2 fleet test aircraft and lab environment. This is not a new start, but a continuation of 3600 scope that was part of the previous DMS-M program. FY 2021 and prior years DMS-M efforts were in PE 0605931F.

B-2 Advanced Communications (formerly known only as Adaptable Communications Suite) supports and enhances the aircraft's communications capabilities to keep the B-2 ready, effective, and survivable by complying with growing crypto mandates and mitigating end of life systems. Requirements include but are not limited to, Secure Beyond-Line-of-Sight (BLOS) communications, Line-of-Sight (LOS) communications, and the ability communicate and operate in the Joint All-Domain Command and Control (JADC2) environment throughout all mission phases. Multiple modernization efforts are underway to achieve the requirements listed above and in the AFGSC1067(s), including, but not limited to, Adaptable Communications Suite (ACS) Increment 4.0, Airborne Integrated Terminal Group (AITG) Replacement and B-2 Collaborative Combat Communications (B2C3).

The Low Observable Signature and Supportability Modifications (LOSSM) program supports the B-2 ability to penetrate anti-access combat environments, performing missions directed by the National Command Authority while ensuring aircrew survivability. The LOSSM program reduces low observable (LO) maintenance, and stabilizes and improves the combat-ready LO signature for the B-2 fleet. This program encompasses multiple improvement projects including, but not limited to, improved LO materials (electrically conductive materials, adhesives, electrically resistive materials, radar absorbing material, fastener fills, coatings, welds, material removal tools, and improved processes), LO structures (radar radomes, antennas, hot trailing edges and tiles, intermediate section doors, tailpipes, windows, lib bay panels, leading edge, permanent fasteners, exhaust pockets, gust load alleviation system, inlets, radar absorbing structures, overall signature stability, and Alternate High Frequency Material expansion), and radio frequency (RF) diagnostic tools, evaluation systems, and other key support equipment (Tier One Material Inspection System, Signature Diagnostic System, next generation Tier II and Tier III systems, Test Article 0998 (a B-2 test asset) optimization, conductivity probes, tailpipe inspection tools, LO-related special test equipment, data archival, and communications tools). LOSSM yields a high Return On Investment (ROI) and provides signature confidence for war time readiness posturing.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 675345 / B-2 Modernization
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The B-2 Identification Friend or Foe (IFF) Mode 5/S program replaces the current IFF transponder with a new Mode 5 and Mode S capable transponder ensuring compliance with DoD Combat Identification mandates and global Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) requirements. Mode 5 is the DoD standard for secure combat identification and provides improved discrimination between closely spaced platforms, while reducing interference with civil air traffic control transponders, enabling the B-2 fleet to accomplish its anti-access and global strike mission. Mode 5 replaced the obsolete Mode 4 combat identification. Mode S is a civil air traffic control secondary surveillance radar process that allows selective interrogation of aircraft according to the unique 24-bit address. Mode S provides improved accuracy and altitude resolution and reduced interference from closely spaced aircraft through selective interrogation of assigned transponder addresses.

The B-2 Training System upgrades include, but are not limited to, updates to training device hardware and components, simulation software, courseware and academic materials, instructional system design architectures, engineering drawings, and system documentation that is not driven by a funded aircraft modification. Upgrades may include Diminishing Manufacturing Sources efforts to include removal of end-of-life software/hardware within simulator systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Additional Training System Upgrades may also include efforts to implement requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

Continuation of B-2 Armament upgrades integrate new and/or advanced weapons on the B-2 to attack a wider array of target sets, to include hardened, deeply buried targets, as well as destroy more targets per sortie. Studies and efforts will refine B-2 targeting accuracy using GPS guided weapons. Nuclear modernization will continue with software and crypto modifications.

B-2 funding may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness. Funding may also support innovation activities including, but not limited to, studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion, and future acquisition programs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 \$0M was expended for civilian pay expenses in this program element, and in FY23 \$0M is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Title: Low Observable Signature and Supportability Mods and Trainers</p> <p>Description: B-2 Low Observable Signature and Supportability Modifications (LOSSM) pursues multiple low-cost development upgrades for Low Observable (LO) materials, diagnostics and procedures to enhance LO signature and/or improve aircraft supportability, as well as other development or study efforts for training system improvements.</p> <p>FY 2023 Plans: Continue development of on-going LOSSM and Training System core upgrades. Continue development efforts for advanced LO materials, structures, procedures, and other enhanced diagnostics and measurement systems. Address any safety issues for</p>	9.279	5.268	0.200

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 675345 / B-2 Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Test Article 0998. Finalize Signature Diagnostic System Spiral 12 integration of the new software baseline to optimize the Next Generation Zonal Radar.</p> <p>FY 2024 Plans: Continue development of on-going LOSSM and Training System core upgrades.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease as a result of development efforts for LOSSM decreasing in scope.</p>			
<p>Title: B-2 Advanced Communications -- formerly known as Adaptable Communications Suite (ACS) and Communications Upgrade</p> <p>Description: ACS 4.0 provides secure beyond line-of-sight SATCOM Command and Control connectivity. ACS 4.0 will involve replacing the current radios and ancillaries to transition B-2 SATCOM to Mobile User Objective System due to the sunset of the current Ultra High Frequency Follow-On satellite constellation. Along with the aircraft system, the ACS ground systems and infrastructure will be redesigned to support this requirement. Significantly, ACS 4.0 will allow for simultaneous use of SATCOM voice and data.</p> <p>AITG provides Line-of-Sight UHF and Very High Frequency (VHF) anti-jam, encrypted, and unencrypted voice communications. AITG Replacement will include the replacement of the AN/ARC-234 radio which will reach end-of-life effective 01 Oct 2026. AITG replacement will also implement the SATURN Waveform for anti-jam voice communications; this is a transition from the HAVE QUICK Waveform which will be retired effective 01 Oct 2024.</p> <p>B2C3 integrates an independent OMS avionics architecture integrated on the B-2. B2C3 objective is to identify, leverage, and integrate existing capabilities (such as ACS 4.0 & AITG) to meet B-2 communications requirements. B2C3 is a compilation of multiple efforts (can be thought of as an integration effort) designed to deliver the Open Mission Systems (OMS) architecture (domain) within the B-2. By controlling this interface, new technologies can be rapidly developed and fielded. This will provide an integrated concept that merges BLOS and LOS Link-16 data into the cockpit display and provides a single consolidated Tactical Situation Display (TSD) centrally located for the aircrew.</p> <p>FY 2023 Plans: ACS 4.0: Complete Milestone B.</p> <p>AITG: Continue planning for Engineering and Manufacturing Development (EMD).</p> <p>B2C3: Complete Spiral 1 Critical Design Review (CDR) and initiate Developmental Test and Evaluation (DT&E).</p> <p>FY 2024 Plans:</p>	22.726	23.987	45.579

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 675345 / B-2 Modernization		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
ACS 4.0: Complete CDR, DT&E and Operational Test and Evaluation (OT&E), Production Readiness Review, and Milestone C.				
AITG: Complete System Functional Review/Preliminary Design Review, Milestone B, and CDR.				
B2C3: Complete Milestone C and begin Spiral 1 production.				
FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 increased due to ramp-up of RDT&E activities within the projects.				
Title: B-2 Identification Friend or Foe (IFF) Mode 5/S Program		9.309	0.000	0.000
Description: The B-2 IFF Mode 5/S Program is part of B-2 Integrated Functional Capability (IFC) drop P6.6, which also includes software sustainment updates and form, fit, function hardware replacement. The IFC Process is the framework within which B-2 modernization and sustainment improvements are designed, developed, integrated, tested, and delivered. B-2 IFF Mode 5/S Program replaces the current IFF transponder with a new Mode 5 and Mode S capable transponder ensuring compliance with DoD Combat Identification mandates and global communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) requirements. Mode 5 is the DoD standard for secure combat identification and provides improved discrimination between closely spaced platforms, while reducing interference with civil air traffic control transponders, enabling the B-2 fleet to accomplish its anti-access and global strike mission. Mode 5 replaced the obsolete Mode 4 combat identification. Mode S is a civil air traffic control secondary surveillance radar process that allows selective interrogation of aircraft according to the unique 24-bit address. Mode S provides improved accuracy and altitude resolution and reduced interference from closely spaced aircraft through selective interrogation of assigned transponder addresses.				
FY 2023 Plans: Continue DT&E in the Weapon System Support Center (WSSC) lab, and certification of hardware/software for aircraft installs. Begin on-aircraft ground/flight DT&E and OT&E, and Aircraft Monitoring And Control (AMAC) testing. Initiate Milestone C decision for ordering long-lead parts.				
FY 2024 Plans: Complete on-aircraft ground/flight DT&E and OT&E, and Aircraft AMAC testing, and complete Milestone C for Full-Rate Production.				
FY 2023 to FY 2024 Increase/Decrease Statement: N/A				
Title: B-2 Display Modernization (BDM)		67.263	51.558	37.056
Description: The B-2 Display Modernization program is a modernization of the B-2 multi-purpose display units (MDUs) and includes removal of the Defensive Management System-Modernization (DMS-M) modification from the B-2 fleet test aircraft and				

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 675345 / B-2 Modernization		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
lab environment. This is not a new start, but a continuation of 3600 scope that was part of the previous DMS-M program. FY 2021 and prior years DMS-M efforts were in PE 0605931F.				
FY 2023 Plans: Continue development and software integration of MDU Replacements (MDU-R). Advance development on lab support activities and continue engineering for modification of the B-2 Test Aircraft, A/C 1087, (currently configured for DMS-M). Conduct technical and test reviews to support restructured program.				
FY 2024 Plans: Continue development and software integration of MDU Replacements (MDU-R). Advance development on lab support activities and completion of modification of the B-2 Test Aircraft, A/C 1087, (currently configured for DMS-M). Conduct technical and test reviews to support restructured program. Start flight test activities.				
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to scope of development activities in FY24.				
Title: B-2 Trainers Modernization		0.512	0.541	2.633
Description: The B-2 Training System upgrades include, but are not limited to, updates to training device hardware and components, simulation software, courseware and academic materials, instructional system design architectures, engineering drawings, and system documentation that is not driven by a funded aircraft modification. Upgrades may include Diminishing Manufacturing Sources efforts to include removal of end-of-life software/hardware within simulator systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Additional Training System Upgrades may also include efforts to implement requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative. Support to include, but not limited to, Program Management Administration (PMA), Advisory and Assistance Services (A&AS), and travel to enable mission requirements.				
FY 2023 Plans: FY23 Funding for Trainers Division/Directorate PMA, A&AS, and travel costs.				
FY 2024 Plans: Work with the BDM program to provide concurrency data and capability to the Training System.				
FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 increased due to additional efforts to provide BDM concurrency capabilities to the platform training system.				
Accomplishments/Planned Programs Subtotals		109.089	81.354	85.468

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 675345 / B-2 Modernization

	FY 2022	FY 2023
Congressional Add: B-2 Modernization	0.000	5.000
FY 2022 Accomplishments: N/A		
FY 2023 Plans: Funds will be used in support of the Air Force Global Strike Command (AFGSC) Commercial Capabilities Integration and Transition capability, which will explore, prototype, and invest in commercial technologies to include autonomous robotics perimeter defense system, 5G testing support, and advanced software tools.		
Congressional Adds Subtotals	0.000	5.000

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 B00200: B-2A	23.278	89.217	107.980	-	107.980	57.162	51.707	52.370	15.780	0.000	397.494
• APAF 06 000999: <i>Initial Spares/Repair Parts</i>	-	9.242	-	-	-	-	-	-	-	0.000	9.242
• APAF 07 B00200: B-2A	1.651	1.802	1.838	-	1.838	1.881	1.914	-	-	0.000	9.086
• APAF 07 B002B0: B-2B	39.929	36.325	15.207	-	15.207	15.680	15.996	16.825	17.175	0.000	157.137
• APAF 07 000075: <i>Other Production Charges</i>	17.636	20.320	18.839	-	18.839	19.322	19.661	-	-	0.000	95.778
• OPAF 03 833140: <i>Strategic Command And Control</i>	0.536	0.517	0.533	-	0.533	0.577	0.590	0.611	0.623	0.000	3.987

Remarks

D. Acquisition Strategy

The B-2 is currently undergoing modernization of avionics systems, communication systems, cockpit displays, low observable components and training systems as well as the integration of advanced weapons. Most, but not all B-2 modernization programs utilize a sole source contract with the prime/integrating contractor (Northrop Grumman). Key elements of the acquisition strategy include: use of cost plus incentive fee and fixed price incentive fee development contracts, as well as the combination of developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and number of fielded configurations.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 675345 / B-2 Modernization
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Low Observable Signature and Supportability Mods	Various	Various : Various	0.000	9.279	Aug 2022	4.459	Jun 2023	-		-		-	Continuing	Continuing	-
B-2 Advanced Communications	Various	Various : Various	0.000	22.726	Aug 2022	19.914	Apr 2023	39.407	Dec 2023	-		39.407	66.338	148.385	-
B-2 IFF Mode 5/S	Various	Northrop Grumman : Various	0.000	9.309	May 2022	-		-		-		-	0.000	9.309	-
B-2 Display Modernization (BDM)	Various	Northrop Grumman : Various	0.000	58.415	Apr 2022	48.206	May 2023	25.925	Jan 2024	-		25.925	30.206	162.752	-
Aircrew Training	Various	Northrop Grumman : Various	0.000	0.512	Feb 2022	0.476	Feb 2023	2.627	Feb 2024	-		2.627	Continuing	Continuing	-
Subtotal			0.000	100.241		73.055		67.959		-		67.959	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	SS/ Various	Northrop Grumman : Various	0.000	2.309	Jan 2022	1.573	Jan 2023	2.399	Jan 2024	-		2.399	0.000	6.281	-
Subtotal			0.000	2.309		1.573		2.399		-		2.399	0.000	6.281	N/A

Remarks
This support is the Enterprise Support Delivery Order (ESDO) under the B-2 Flexible Acquisition and Sustainment Team (FAST) II umbrella contract with Northrop Grumman.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	Various	Various : Various	0.000	0.397	Sep 2022	3.767	Oct 2022	12.860	Oct 2023	-		12.860	0.000	17.024	-
PMA	Various	DCS Corporation : Various	0.000	6.142	Oct 2021	7.959	Oct 2022	2.250	Oct 2023	-		2.250	22.442	38.793	-
Subtotal			0.000	6.539		11.726		15.110		-		15.110	22.442	55.817	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 675345 / B-2 Modernization
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	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	109.089	86.354	85.468	-	85.468	Continuing	Continuing	N/A

Remarks
Award dates listed are the first incremental funding opportunity associated with each cost category.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 675345 / B-2 Modernization
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

B-2 Modifications Schedule																												
Low Observable Signature and Supportability Mods and Trainers																												
IFF Mode 5/S EMD Phase																												
B-2 Display Modernization (BDM) Displays EMD Phase																												
Advanced Communications-Adaptable Communications Suite (ACS)																												
Advanced Communications-Airborne Integrated Terminal Group (AITG)																												
Advanced Communications-B-2 Collaborative Combat Communications (B2C3) Spiral 1																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 675345 / B-2 Modernization
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>B-2 Modifications Schedule</i>				
Low Observable Signature and Supportability Mods and Trainers	1	2022	4	2023
IFF Mode 5/S EMD Phase	1	2022	2	2024
B-2 Display Modernization (BDM) Displays EMD Phase	1	2022	4	2025
Advanced Communications-Adaptable Communications Suite (ACS)	1	2022	4	2024
Advanced Communications-Airborne Integrated Terminal Group (AITG)	1	2024	1	2026
Advanced Communications-B-2 Collaborative Combat Communications (B2C3) Spiral 1	4	2022	1	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons				Project (Number/Name) 676021 / BASELINE SUPPORT			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
676021: <i>BASELINE SUPPORT</i>	0.000	14.660	15.436	2.155	0.000	2.155	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Baseline Support maintains and upgrades the B-2 unique flight test aircraft as well as hardware/software and test equipment to support developmental systems integration, and flight test, reducing the need for additional operational aircraft and accelerating deployment of advanced operational capabilities to the warfighter.

Baseline Support also provides for other B-2 unique government costs and includes assorted studies of aircraft performance and cost trades as well as acquisition planning activities, up to and including proposal preparation, for future aircraft, engine, weapon, communication, navigation or other capabilities.

B-2 funding may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness. Funding may also support innovation activities including, but not limited to, studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion, and future acquisition programs.

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

	FY 2022	FY 2023	FY 2024
<p>Title: Baseline Support Acq Plan/Studies/Integr Test Support</p> <p>Description: Baseline Support provides for other B-2 unique government costs, including acquisition planning activities for future capabilities, long range planning, studies, and program integration activities, as well as integration and test support of upgraded crypto components as needed.</p> <p>FY 2023 Plans: Continue Baseline Support activities including acquisition planning for future capabilities, long range planning, studies, and program integration activities.</p> <p>FY 2024 Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY2024 test activities are decreasing to coincide with the conclusion of the funded modification efforts.</p>	0.290	0.290	0.000
<p>Title: Baseline Support Flight Test</p>	14.370	15.146	2.155

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 676021 / BASELINE SUPPORT

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: Baseline Support Flight Test maintains and upgrades the B-2 unique flight test aircraft as well as hardware/software and test equipment to support developmental systems integration and flight test, reducing the need for additional operational aircraft and accelerating deployment of advanced operational capabilities to the warfighter.</p> <p>FY 2023 Plans: Continue B-2 Flight Test activities, maintaining and upgrading the B-2 unique flight test aircraft as well as hardware/software and test equipment, to support developmental systems integration and flight test.</p> <p>FY 2024 Plans: Continue to support and complete B-2 test activities.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY2024 test activities are decreasing to coincide with the conclusion of the funded modification efforts.</p>			
Accomplishments/Planned Programs Subtotals	14.660	15.436	2.155

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

N/A

Remarks

D. Acquisition Strategy

Key elements of the acquisition strategy include: use of a sole source contract with a prime/integrating contractor (Northrop Grumman) for most but not all B-2 programs; use of cost plus incentive fee (CPIF) development contracts; and the combination of developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 676021 / BASELINE SUPPORT
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	SS/ Various	Northrop Grumman : Various	0.000	0.256	Jan 2022	0.004	Jan 2023	-		-		-	0.000	0.260	-
Other Government Costs	Various	Various : Various	0.000	12.972	Oct 2021	14.189	Oct 2022	1.941	Oct 2023	-		1.941	Continuing	Continuing	-
Subtotal			0.000	13.228		14.193		1.941		-		1.941	Continuing	Continuing	N/A

Remarks
 This support is the Enterprise Support Delivery Order (ESDO) under the B-2 Flexible Acquisition and Sustainment Team (FAST) II umbrella contract with Northrop Grumman.
 Other Government Costs covers the flight test cadre Contract Line Item Number (CLIN) on the ESDO.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management Services	C/CPAF	Not specified. : TBD	0.000	0.813		0.625		-		-		-	0.000	1.438	-
PMA	Various	Various : TBD	0.000	0.619	Oct 2021	0.618	Dec 2022	0.214	Dec 2023	-		0.214	Continuing	Continuing	-
Subtotal			0.000	1.432		1.243		0.214		-		0.214	Continuing	Continuing	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	14.660	15.436	2.155	-	2.155	Continuing	Continuing	N/A

Remarks
 Award dates listed are the first incremental funding opportunity associated with each cost category.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 676021 / BASELINE SUPPORT
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>B-2 Baseline Support</i>	
FY 2022 Flight Test Core Support Annual Contract Award	
FY 2023 Flight Test Core Support Annual Contract Award	
FY 2024 Flight Test Core Support Annual Contract Award	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 676021 / BASELINE SUPPORT

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>B-2 Baseline Support</i>				
FY 2022 Flight Test Core Support Annual Contract Award	1	2022	1	2023
FY 2023 Flight Test Core Support Annual Contract Award	1	2023	1	2024
FY 2024 Flight Test Core Support Annual Contract Award	1	2024	1	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	111.754	73.650	33.237	0.000	33.237	3.133	3.148	3.148	3.261	Continuing	Continuing
672983: <i>MM Ground and Comm Equipment</i>	0.000	16.128	6.781	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.909
672984: <i>MM III Baseline Support</i>	0.000	92.623	53.414	33.237	0.000	33.237	3.133	3.148	3.148	3.261	Continuing	Continuing
672985: <i>MM Support Equip</i>	0.000	0.000	13.455	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.455
672986: <i>MM Crypto Mods</i>	0.000	3.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.003

A. Mission Description and Budget Item Justification

The MM Ground and Comm Equipment program replaces obsolete/unsupportable ground-based weapon system equipment located at Launch Control Centers (LCCs) and Launch Facilities (LFs) necessary to continue Minuteman III (MM III) operations until replaced by Sentinel. Current efforts include development, qualification, integration, and testing of replacement equipment for the LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP).

MM III Baseline Support program replaces or upgrades obsolete/unsupportable flight test unique equipment installed on the missile during flight test, used to test MM III systems on the ground, or located at test facilities to collect, process, and analyze test data. Flight test equipment supports test and evaluation of MM III capabilities, and MM III Operational Test Launches (OTLs) to determine ICBM force readiness, reliability and capability shortfalls. Efforts include development, qualification, integration and testing of replacement equipment such as LGM-30G Flight Test Telemetry and Termination System (FT3) and LGM-30G Higher Authority Command Test System (HACTS) 2.0. These programs will also implement processes, procedures and data systems to mitigate the transition risk from MM III to Sentinel. As other similar equipment is identified for replacement, it will be added to this program. MM III Baseline Support also provides for other MM III unique government costs, studies of system performance, contract closeout costs, cost trades and acquisition planning activities, up to and including proposal preparation, for future capabilities. Efforts also include any minor needs required to prepare for full acquisition purposes.

MM Support Equipment program designs, develops, and tests replacement of obsolete/non-serviceable weapon system support equipment. These programs will also implement processes, procedures and data systems to mitigate the transition risk from MM III to Sentinel. Efforts include design, development, and testing of support equipment such as MM III Acquisition of Transportation and Handling (T&H) and Support Equipment (MATH) effort. Programs will execute Diminishing Manufacturing Sources and Material Shortages/Program Management Administration support through the ISC 2.0 contract established to support the ICBM enterprise through the life of MM III.

MM Crypto Mods executes United States Strategic Command, Air Force Global Strike Command, and Air Force Safety Center requirements by implementing the KS-60 capabilities in LGM-30G ICBM Cryptography Upgrade II (ICU II) of remote key/code change and irreversible transformation as mandated in the approved Capabilities Development Document (dated 4 Jan 05) and addresses Nuclear Weapon System Safety Group Operational Safety Review requirements 98-2, 00-1, and 02-2. It also incorporates continuous signal lockout capabilities to prevent the widespread loss of status monitoring. These features will greatly increase security during code changes by reducing the frequency of open sites by 75 days annually and will reduce associated resource costs for 450 LFs and 45 LCCs.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>
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This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$0.697M was expended for civilian pay expenses in this program element, and in FY 2023 \$0.708M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	113.622	69.650	33.005	0.000	33.005
Current President's Budget	111.754	73.650	33.237	0.000	33.237
Total Adjustments	-1.868	4.000	0.232	0.000	0.232
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	4.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	1.979	0.000			
• SBIR/STTR Transfer	-3.847	0.000			
• Other Adjustments	0.000	0.000	0.232	0.000	0.232

Change Summary Explanation

FY 2022 decrease of \$3.847M for SBIR.

FY 2023 Congressional Add for \$4.000M to support Multi-Domain Command and Control.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity	R-1 Program Element (Number/Name)					Project (Number/Name)						
3600 / 7	PE 0101213F / Minuteman Squadrons					672983 / MM Ground and Comm Equipment						
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
672983: MM Ground and Comm Equipment	0.000	16.128	6.781	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.909
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MM Ground and Comm Equipment program replaces obsolete/unsupportable ground-based weapon system equipment located at Launch Control Centers (LCCs) and Launch Facilities (LFs) necessary to continue Minuteman III operations until replaced by Sentinel. Current efforts include development, qualification, integration, and testing of replacement equipment such as the LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP).

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

	FY 2022	FY 2023	FY 2024
Title: LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP)	16.128	6.781	0.000
Description: The FRBP provides security functions for the Personnel Access System (PAS) of the LFs. It is a 14,000 pound cylinder with 12 locking pins used to deny/delay access to intruders during LF maintenance activities.			
This effort includes critical hardware and software modifications to address high obsolescence risk and reliability issues affecting the operational wings.			
FY 2023 Plans:			
• Functional Configuration Audit			
• Systems Integration Test			
• Production Readiness Review			
FY 2024 Plans:			
No FY24 planned			
FY 2023 to FY 2024 Increase/Decrease Statement:			
Program projected to complete EMD in FY23			
Accomplishments/Planned Programs Subtotals	16.128	6.781	0.000

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

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• MPAF 03 Line Item	0.000	9.682	11.637	-	11.637	15.380	4.031	0.000	0.000	0.000	40.730
M30MLG: MM III Modifications											

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672983 / <i>MM Ground and Comm Equipment</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF 04 Line Item 00098A: <i>Msl Sprs / Repair Parts (Initial)</i>	0.000	0.778	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.778

Remarks

D. Acquisition Strategy

Ground and communication equipment replacement efforts are reviewed to determine the best method for execution; including vendor qualification and procurement with no development required; develop and/or modify organic depot capabilities with industry. Industry development for ground and communication equipment efforts will be executed through contracts under the Future ICBM Sustainment and Acquisition Construct (FISAC) or competitive source selections. Nuclear Surety Cross Check Analysis (NSCCA) and Independent Verification and Validation (IV&V) efforts are contracted separately. Nuclear Surety and Vulnerability analysis requirements are covered in the Acquisition Strategy.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672983 / MM Ground and Comm Equipment
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Fast Rising B-plug Service Life Extension Program (FRBP SLEP) EMD SIBR	C/CPAF	Select Engineering Serv : Layton, UT	0.000	0.762	May 2022	4.722	Oct 2022	-		-		-	Continuing	Continuing	-
LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP) EMD	C/CPFF	Northrop Grumman : Salt Lake City, UT	0.000	12.683	Oct 2021	-		-		-		-	Continuing	Continuing	21.949
Subtotal			0.000	13.445		4.722		-		-		-	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP) Test & Evaluation	Various	Various : Various	0.000	0.123	Oct 2021	0.198	Oct 2022	-		-		-	Continuing	Continuing	0.000
Subtotal			0.000	0.123		0.198		-		-		-	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP) A&AS	C/FP	BAE : Layton, UT	0.000	1.229	Oct 2021	1.162	Oct 2022	-		-		-	Continuing	Continuing	3.692
LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP) PSC	Various	Various : Various	0.000	1.331	Jan 2022	0.699	Jan 2023	-		-		-	Continuing	Continuing	0.000
Subtotal			0.000	2.560		1.861		-		-		-	Continuing	Continuing	N/A

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672983 / <i>MM Ground and Comm Equipment</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MM Ground and Comm Equipment</i>				
FRBP SLEP Engineering & Manufacturing Development Phase	3	2022	2	2024
FRBP SLEP Milestone C (Aug 2023)	4	2023	4	2023
FRBP SLEP Production & Deployment Phase	1	2024	4	2026
FRBP SLEP FOC (Sept 2026)	4	2026	4	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>				Project (Number/Name) 672984 / <i>MM III Baseline Support</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
672984: <i>MM III Baseline Support</i>	0.000	92.623	53.414	33.237	0.000	33.237	3.133	3.148	3.148	3.261	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Project 672984, LGM-30G Arm/Disarm Switch Replacement (ADSR), is expected to complete EMD by 3QFY23.

A. Mission Description and Budget Item Justification

MM III Baseline Support program replaces or upgrades obsolete/unsupportable flight test unique equipment installed on the missile during flight test, used to test MM III systems on the ground, or located at test facilities to collect, process, and analyze test data. Flight test equipment supports test and evaluation of MM III capabilities, and MM III Operational Test Launches (OTLs) to determine ICBM force readiness, reliability and capability shortfalls. Efforts include development, qualification, integration and testing of replacement equipment such as LGM-30G Flight Test Telemetry and Termination System (FT3) and LGM-30G Higher Authority Command Test System (HACTS) 2.0. As other similar equipment is identified for replacement, it will be added to this program. MM III Baseline Support also provides for other MM III unique government costs, studies of system performance, contract closeout costs, cost trades and acquisition planning activities, up to and including proposal preparation, for future capabilities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022 \$0.697M was expended for civilian pay expenses in this program element, and in FY 2023 \$0.708M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: LGM-30G Arm Disarm Switch Replacement (ADSR)	1.612	0.000	0.000
<p>Description: The ADSR program designs, develops, fabricates and tests replacements for the aging Arm/Disarm (A/D) switches currently on the MM III Missile fleet. The A/D switch is responsible for completing or interrupting ordnance electrical circuits. A/D switches are placed at five key locations in the system: Interstage I-II, Stage II Liquid Injection Thrust Vector Control (LITVC) and Roll Control, Interstage II-III, PSRE Staging, and PSRE Isolation Valves. Aging and surveillance is an ongoing study to generate a trade-off curve between reliability/availability and cost.</p> <p>Reliability/availability are monitored by periodic testing to discover unforeseen issues. Because not all existing A/D switches can be repaired/refurbished, the number in inventory will eventually be inadequate to meet the need of the PDM cycle. Supply is estimated to deplete by approximately FY24 with repair/refurbish mitigation. Repair/refurbish is a reliable mitigation plan to meet the ongoing needs of the fleet while a manufacturer is selected and the manufacturing system is selected to develop a replacement A/D switch that meets requirements and production quantities through 2036.</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>FY 2023 Plans: N/A</p> <p>FY 2024 Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>			
<p>Title: LGM-30G Flight Test Telemetry and Termination System (FT3)</p> <p>Description: The FT3 Program replaces the Mod 7 Instrumentation Wafer and associated Signal Conditioner Monitor Group, and All Ordnance Destruct System (AODS) with a flight test kit. In addition, a replacement of the Launch Support System (LSS) is required to deploy the flight test kit. The flight test kit which consists of the Flight Destruct System (FDS) and an Integrated Instrumentation System (IIS). In addition, replacement of the IIS is necessary to meet Space Launch Delta 30th Space Wing Range Safety and Air Force Global Strike Command (AFGSC) requirements and resolve obsolescence concerns/issues.</p> <p>The AODS, Mod 7 Instrumentation Wafer, and LSS include components that are not economically available, are no longer compliant with applicable Range Safety requirements, or are in need of technical modernization. Replacement of the Vandenberg Space Force Base (VSFB) flight test unique equipment is necessary to sustain future AFGSC Operational Test Launches (OTL), supporting USSTRATCOM requirements starting in FY22.</p> <p>The OTLs are critical to validating the continued accuracy and reliability of the MMIII ICBM Weapon System until the Sentinel is fielded by providing valuable data to ensure a safe, secure, and effective nuclear deterrent. The FT3 systems will perform the same function as the existing systems with upgraded design features in order to comply with U.S. Space Force Range Safety User Requirements, Range Commander's Council (RCC) 319, Flight Termination Systems Commonality Standard, and RCC 324, Global Positioning and Inertial Measurements Range Safety Tracking Systems' Commonality Standard.</p> <p>As of February 2020, the FT3 Program is executing to a Rapid Fielding plan to meet a requirement to be first launch ready, September 2022. Rapid Fielding requires concurrent activities in order to meet required first launch ready date; failure to be first flight ready in September 2022 jeopardizes the MMIII OTL schedule. Rapid Fielding execution has increased concurrency of technical milestones, delaying some noncritical activities to post first flight (September 2022). Successful first flight (GT 244) on 7 September 2022.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> • Review post flight studies/reports of system performance • Obtain Milestone C Production Decision • Obtain Full Rate Production Decision 	85.222	34.539	26.800

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> • Plan and initiate Launch Facility 09 installation activities • Complete Missile Alert Facility 01-A Launch Support System (LSS) install • Conduct and complete Technical Order Validation/Verification and Type I Training • Complete Maintenance Mockup Trainer build and install • Component requalification efforts • Conduct and close out SVR #2 • Take Delivery of LRIPs 3 and 4 (of 8) • Support LRIP flights 2 and 3 (GT 245 and GT 247) <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> • Take Delivery of LRIPs 5 through 8 (of 8) • Support LRIP flights 4 and 5 (GT 249 and GT 250) • Continue component requalification efforts • Transition to Sustainment • Contract close-out activities <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to ramp-down of program activities and EMD contract close-out actions.</p>				
<p>Title: LGM-30G Higher Authority Command Test System (HACTS) 2.0</p> <p>Description: The MM HACTS 2.0 program replaces obsolete/unsupportable communication system test equipment located at test facilities. HACTS laptops are past their vendor support life and require battery replacement. Due to its battery being non-user serviceable, the need for battery factory service makes the laptop units candidates for replacement. Although the HACTS laptop processor is "ruggedized", its design life is only approximately four years. The replacement must be compatible with Operating System updates as mandated by the Risk Management Framework. Incorporating the Weapons System Console Equipment Simulator into the HACTS enables a single hardware platform to execute both software functions thus reducing the number of hardware devices the Government must maintain.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> • Award Engineering Manufacturing and Development (EMD) contract • Complete Milestone B <p>FY 2024 Plans: Not receiving 3600 funding in FY24</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>		0.000	9.875	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
HACTS 2.0 is planning to receive all of it's funding in FY23 and none in FY24. This drives the decrease from 9.875M to 0.0M from FY23 to FY24			
Title: LGM-30G Baseline Support	5.789	9.000	6.437
Description: This program provides for other MM III unique government costs, studies of system performance, contract closeout costs, cost trades, and acquisition planning activities, up to and including proposal preparation, for future capabilities.			
FY 2023 Plans: <ul style="list-style-type: none"> • Conduct studies of system performance. • Conduct cost trades and acquisition planning activities, up to and including proposal preparation, technology for future capabilities. • Congressional add 			
FY 2024 Plans: <ul style="list-style-type: none"> • Conduct studies of system performance. • Conduct cost trades and acquisition planning activities, up to and including proposal preparation, technology for future capabilities. 			
FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to increase in number of system performance studies and acquisition planning activities			
Accomplishments/Planned Programs Subtotals	92.623	53.414	33.237

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF 03 Line Item	3.901	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.901
M30MLG: <i>MM III Modifications</i>											
• MPAF 01 00099L: <i>Missile Replacement Eq-Ballistic</i>	0.000	0.000	0.000	-	0.000	4.338	0.000	0.000	0.000	0.000	4.338
• MPAF 04 000999: <i>Initial Spares/Repair Parts</i>	20.415	17.531	19.745	-	19.745	28.563	28.486	31.731	32.563	Continuing	Continuing
• MPAF 04 Line Item 00098A: <i>Msl Sprs/Repair Parts (Initial)</i>	0.000	0.860	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.860

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>
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D. Acquisition Strategy

Baseline Support equipment replacement efforts are reviewed to determine the best method for execution; including vendor qualification and procurement with no development required; develop and/or modify organic depot capabilities with industry. Industry development for ground and communication equipment efforts will be executed through contracts under the Future ICBM Sustainment and Acquisition Construct (FISAC) or competitive source selections. Nuclear Surety Cross Check Analysis (NSCCA) and Independent Verification and Validation (IV&V) efforts are contracted separately. Nuclear Surety and Vulnerability analysis requirements are covered in the Acquisition Strategy.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672984 / MM III Baseline Support
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Arm Disarm Switch Replacement (ADSR)	C/CPFF	MOOG/ BIONETICS/ EBAD : Moorpark, CA. Blacksburg VA. Heath OH, CA	0.000	1.360		-		-		-		-	0.000	1.360	8.587
LGM-30G Flight Test Telemetry and Termination System (FT3) TMRR/EMD	C/CPIF	Boeing : Clearfield, UT	0.000	70.577	Dec 2021	26.014	Dec 2022	22.202	Nov 2023	-		22.202	0.000	118.793	387.071
LGM-30G Higher Authority Command Test System (HACTS) 2.0	C/CPAF	TBD : TBD	0.000	-		9.875	Oct 2022	-		-		-	0.000	9.875	-
Subtotal			0.000	71.937		35.889		22.202		-		22.202	0.000	130.028	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Arm Disarm Switch Replacement (ADSR) Support	C/Variou	Hill AFB : Clearfield, UT	0.000	-		-		-		-		-	0.000	0.000	-
LGM-30G Arm Disarm Switch Replacement (ADSR) Civilian Pay	C/FP	Hill AFB : Clearfield, UT	0.000	0.182		-		-		-		-	0.000	0.182	-
LGM-30G Flight Test Telemetry and Termination System (FT3) Support	C/Variou	Various : Clearfield, UT	0.000	5.599	Nov 2021	3.757	Nov 2022	1.094	Mar 2024	-		1.094	0.000	10.450	-
LGM-30G Flight Test Telemetry and Termination System (FT3) Civilian Pay	C/FP	Hill AFB : Clearfield, UT	0.000	0.515		1.090	Oct 2022	1.117	Oct 2023	-		1.117	0.000	2.722	-
LGM-30G Baseline Support	C/Variou	Various : Various	0.000	5.789	Mar 2022	9.000	Mar 2023	6.437	Mar 2024	-		6.437	0.000	21.226	-
Subtotal			0.000	12.085		13.847		8.648		-		8.648	0.000	34.580	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672984 / MM III Baseline Support
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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Flight Test Telemetry and Termination System (FT3) Lead Developmental Test Organization	MIPR	AEDC/TST : AAFB, TN	0.000	0.344	Nov 2021	0.099	Nov 2022	0.008	Nov 2023	-		0.008	0.000	0.451	-
Subtotal			0.000	0.344		0.099		0.008		-		0.008	0.000	0.451	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G Arm Disarm Switch Replacement (ADSR) PSC	Various	Various : Various	0.000	0.070		-		-		-		-	0.000	0.070	-
LGM-30G Flight Test Telemetry and Termination System (FT3) PSC	Various	Various : Various	0.000	6.436	Nov 2021	1.653	Nov 2022	1.835		-		1.835	0.000	9.924	-
LGM-30G Flight Test Telemetry and Termination System (FT3) A&AS	TBD	Various : Clearfield, UT	0.000	1.751	Nov 2021	1.926	Nov 2022	0.544		-		0.544	0.000	4.221	-
Subtotal			0.000	8.257		3.579		2.379		-		2.379	0.000	14.215	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		0.000	92.623	53.414	33.237	-	33.237	0.000	179.274	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>MM III Baseline Support</i>	
ADSR Engineering and Manufacturing Development Phase	
ADSR Milestone C (May 2023)	
ADSR Production and Deployment Phase	
FT3 Engineering and Manufacturing Development Phase	
FT3 Milestone C (Mar 2023)	
FT3 Production and Deployment Phase	
FT3 Operations and Support Phase	
HACTS 2.0 Milestone B (May 2023)	
HACTS 2.0 Engineering and Manufacturing Development Phase (May 2023)	
HACTS 2.0 Milestone C (Jun 2025)	
HACTS 2.0 Production and Deployment (Jun 2025)	
HACTS 2.0 Full Operational Capability (Feb 2026)	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672984 / <i>MM III Baseline Support</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MM III Baseline Support</i>				
ADSR Engineering and Manufacturing Development Phase	1	2022	4	2022
ADSR Milestone C (May 2023)	3	2023	3	2023
ADSR Production and Deployment Phase	3	2023	4	2023
FT3 Engineering and Manufacturing Development Phase	1	2022	3	2024
FT3 Milestone C (Mar 2023)	2	2023	2	2023
FT3 Production and Deployment Phase	1	2023	4	2025
FT3 Operations and Support Phase	2	2023	4	2028
HACTS 2.0 Milestone B (May 2023)	3	2023	3	2023
HACTS 2.0 Engineering and Manufacturing Development Phase (May 2023)	3	2023	3	2025
HACTS 2.0 Milestone C (Jun 2025)	3	2025	3	2025
HACTS 2.0 Production and Deployment (Jun 2025)	3	2025	3	2026
HACTS 2.0 Full Operational Capability (Feb 2026)	2	2026	2	2026

Note

FT3 Program:

- FT3 Acquisition Strategy drives an overlap in the EMD and P&D phases. FT3 uses RDT&E to fund LRIP units. As flight test units are consumed, the program replaces those units with replenishment spares. The order of replenishment spares overlaps EMD to deliver spares at a rate that keeps pace with consumption.
- MS C Decision (previously projected for Jun 22) delayed due to unforeseen changes to cybersecurity profile, delaying the Program's capability to coordinate and obtain approval for both Cybersecurity Strategy and subsequently, Clinger-Cohen Act (CCA) until Dec 22.
- P&D Phase will end when the first FRP unit is delivered and P&D exit criteria are met, 4QFY25.
- O&S Phase begins when FT3 systems sustainment activities begin, 2QFY23.
- Sustainment includes LSS and associated FT3 support equipment (3400) through the life of MMIII OTL Program.
- Plan is to purchase up to 20 replenishment spares (up to 4 per year through 2030) which will support the MMIII OTL mission.

ADSR Program:

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force Date: March 2023

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
3600 / 7	PE 0101213F / <i>Minuteman Squadrons</i>	672984 / <i>MM III Baseline Support</i>

- Qualification testing took longer than expected due to failures on switch causing a delay to MS C.

HACTS 2.0 Program:

- Previous schedule didn't account for new start funding initial distribution occurring mid Feb.
- Overall program slipped to the right due to RFP contract type change.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672985 / MM Support Equip			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
672985: MM Support Equip	0.000	0.000	13.455	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.455
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

MM Support Equipment program designs, develops, and tests replacement of obsolete/non-serviceable weapon system support equipment. These programs will also implement processes, procedures and data systems to mitigate the transition risk from MM III to Sentinel. Efforts include design, development, and testing of support equipment such as LGM-30G MM III Acquisition of Transportation & Handling (T&H) and Support Equipment (MATH) effort.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022 \$.697M was expended for civilian pay expenses in this program element, and in FY 2023 \$.708M is forecasted for civilian pay expenses in this program element.”

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

	FY 2022	FY 2023	FY 2024
<p>Title: LGM-30G MM III Acquisition of Transportation and Handling and Support Equipment (MATH)</p> <p>Description: The MATH program ensures the sustainment of the MM III and concurrent transition to Sentinel through 2036 without any disruption to the nuclear deterrence mission. The current T&H will not sustain MM III through end of life. Current T&H technical data package (TDP) is out of date; several items have obsolescence issues. Engineering is needed to provide adequate and complete technical data to support acquisition of MM III T&H. Items include the following:</p> <ul style="list-style-type: none"> a. Propulsion System Rocket Engine (PSRE) tractor and trailer (PST); b. Rocket motor semi-trailer; c. Support Equipment (SE) <p>MATH engineering efforts will include a Critical Design Review (CDR) to evaluate the proposed TDP and first article testing to validate the TDPs. Technical support documents will be updated as necessary.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> • Initiate program at Milestone B • Award Engineering and Manufacturing Development contract • Update Technical Data Package 	0.000	13.455	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672985 / <i>MM Support Equip</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
• Complete Critical Design Review (CDR)			
FY 2024 Plans: N/A			
FY 2023 to FY 2024 Increase/Decrease Statement: FY23 funds are sufficient to complete EMD			
Accomplishments/Planned Programs Subtotals	0.000	13.455	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF 01 Line Item 00099L: <i>Missile Replacement Eq- Ballistic</i>	0.000	0.000	0.000	-	0.000	15.845	17.670	8.012	0.000	0.000	41.527

Remarks

D. Acquisition Strategy

Support and test equipment efforts are reviewed to determine the best method for execution including vendor qualification and procurement with no development required; develop and/or modify with organic depot capabilities, or development with industry. Industry development efforts for support equipment will be executed through contracts available under the Future ICBM Sustainment and Acquisition Contract (FISAC) or competitive source selections. Nuclear Surety Cross Check Analysis (NSCCA) and Independent Verification and Validation (IV&V) efforts are conducted separately. Nuclear Surety and Vulnerability analysis requirements are covered in the Acquisition Strategy.

The MATH program intends to conduct minimal necessary Engineering and Manufacturing Development (EMD) design work to develop up-to-date Technical Data Packages immediately followed by Production and Deployment (P&D). MATH will prioritize warfighter needs and accelerate design work on individual equipment items as necessary.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672985 / MM Support Equip
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MM III Transportation/ Handling MATH (PSRE Semi Trailer)	TBD	TBD : TBD	0.000	-		7.186	Jun 2023	-		-		-	Continuing	Continuing	-
MM III Transportation/ Handling MATH (Rocket Motor Semitrailer)	TBD	TBD : TBD	0.000	-		5.031	Jun 2023	-		-		-	Continuing	Continuing	-
MM III Transportation/ Handling and Support Equipment MATH (Support Equipment)	TBD	TBD : TBD	0.000	-		0.100	Mar 2023	-		-		-	0.000	0.100	-
Subtotal			0.000	-		12.317		-		-		-	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MM III Transportation/ Handling MATH PSC	TBD	TBD : TBD	0.000	-		0.484	Feb 2023	-		-		-	0.000	0.484	-
MM III Transportation/ Handling MATH A&AS	C/FFP	TBD : TBD	0.000	-		0.654	Feb 2023	-		-		-	0.000	0.654	-
Subtotal			0.000	-		1.138		-		-		-	0.000	1.138	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
	Project Cost Totals		0.000	-	13.455	-	-	Continuing	Continuing

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672985 / MM Support Equip
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
MM Support Equipment																												
MATH Milestone B (Mar 2023)					■																							
MATH Engineering and Manufacturing Development Phase									■	■	■	■	■	■	■	■												
MATH SE MTA Rapid Prototyping					■	■	■	■	■	■	■	■																
MATH SE MTA Rapid Fielding													■	■	■	■												
MATH Milestone C (Jun 2025)															■	■												
MATH Production and Deployment Phase (Actual end 2Q 2029)																	■	■	■	■	■	■	■	■	■	■	■	■
MATH PSRE Trailer IOC (Oct 2025)																												
MATH PSRE Trailer FOC (Jun 2027)																											■	■
MATH RMS Trailer IOC (Jan 2027)																											■	■
MATH RMS Trailer FOC (Actual FOC Feb 2029)																												■

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672985 / <i>MM Support Equip</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MM Support Equipment</i>				
MATH Milestone B (Mar 2023)	2	2023	2	2023
MATH Engineering and Manufacturing Development Phase	4	2023	4	2025
MATH SE MTA Rapid Prototyping	2	2023	4	2024
MATH SE MTA Rapid Fielding	1	2025	1	2026
MATH Milestone C (Jun 2025)	3	2025	3	2025
MATH Production and Deployment Phase (Actual end 2Q 2029)	3	2025	4	2028
MATH PSRE Trailer IOC (Oct 2025)	1	2026	1	2026
MATH PSRE Trailer FOC (Jun 2027)	3	2027	3	2027
MATH RMS Trailer IOC (Jan 2027)	1	2027	1	2027
MATH RMS Trailer FOC (Actual FOC Feb 2029)	4	2028	4	2028

Note

MATH Program:

- Program transitioned to new PM team in July '22. New PM team discovered all docs required for RFP needed a complete overhaul to support a strong contract. As a result RFP release, and thus contract award, slipped approximately 6-7 months.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672986 / MM Crypto Mods			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
672986: MM Crypto Mods	0.000	3.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.003
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

MM Crypto Mods executes United States Strategic Command, Air Force Global Strike Command, and Air Force Safety Center requirements by implementing the KS-60 capabilities in LGM-30G ICBM Cryptography Upgrade II (ICU II) of remote key/code change and irreversible transformation as mandated in the approved Capabilities Development Document (dated 4 Jan 05) and addresses Nuclear Weapon System Safety Group Operational Safety Review requirements 98-2, 00-1 and 02-2. It also incorporates Continuous Signal Lockout capabilities to prevent the widespread loss of status monitoring. These features will greatly increase security during code changes by reducing the frequency of open sites by 75 days annually and will reduce associated resource costs for 450 Launch Facilities (LFs) and 45 Launch Control Centers (LCCs).

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

	FY 2022	FY 2023	FY 2024
Title: LGM-30G ICBM Cryptography Upgrade II (ICU II)	3.003	0.000	0.000
Description: ICU II completes design and development, and implements KS-60 remote key/code change, irreversible transformation capabilities, and prevents continuous signal lockout.			
FY 2023 Plans: N/A			
FY 2024 Plans: N/A			
FY 2023 to FY 2024 Increase/Decrease Statement: N/A			
Accomplishments/Planned Programs Subtotals	3.003	0.000	0.000

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

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• MPAF 03 Line Item	11.213	7.054	0.000	-	0.000	0.000	0.000	0.000	-	0.000	18.267
M30MLG: MM III Modifications											
• MPAF 04 Line Item 00098A: Msl Spares/Repair Parts (Initial)	1.796	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	1.796

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672986 / <i>MM Crypto Mods</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

LGM-30G ICBM Cryptography Upgrade II (ICU II) program utilizes the ICBM Prime Integration Contract (IPIC) services of Northrop Grumman (NG), which were competitively awarded for the design and development of the ICU II capability. The contract type of the ICU II Engineering and Manufacturing Development (EMD) contract is Cost Plus Incentive Fee. Also, ICU II EMD uses a separate contract for Nuclear Safety Cross Check Analysis/Performance Analysis and Technical Evaluation (NSCCA/PATE) Independent Validation & Verification (IV&V). This contract is driven by critical nuclear safety requirements to perform an independent assessment of all modifications to nuclear-certified software. The Support Equipment effort includes EMD development of Depot Support Equipment, Guided Missile Launch Electronic Circuit (GMLEC) interface modification, and Acoustic Microscope System. Nuclear Safety and Vulnerability analysis requirements are covered in the Acquisition Strategy.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672986 / MM Crypto Mods
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G ICBM Cryptography Upgrade II EMD	C/CPIF	Northrop Grumman : Clearfield, UT	0.000	-		-		-		-		-	0.000	0.000	160.400
LGM-30G ICBM Cryptography Upgrade II Support Equipment development	C/CPFF	Northrop Grumman : Clearfield, UT	0.000	-		-		-		-		-	0.000	0.000	29.300
LGM-30G ICBM Cryptography Upgrade II Support GMLEC	C/CPFF	Northrop Grumman : Clearfield, UT	0.000	2.226	Jan 2022	-		-		-		-	0.000	2.226	8.367
Subtotal			0.000	2.226		-		-		-		-	0.000	2.226	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LGM-30G ICBM Cryptography Upgrade II PSC	Various	Various : Various	0.000	0.375	Jan 2022	-		-		-		-	0.000	0.375	-
LGM-30G ICBM Cryptography Upgrade II A&AS	C/FFP	BAE Systems : Clearfield, UT	0.000	0.402	Dec 2021	-		-		-		-	0.000	0.402	0.475
Subtotal			0.000	0.777		-		-		-		-	0.000	0.777	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	3.003	-	-	-	-	0.000	3.003	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672986 / <i>MM Crypto Mods</i>
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>MM Crypto Mods</i>	
ICU II Engineering and Manufacturing Development Phase (GMLEC)	
ICU II Production and Deployment Phase	
ICU II Required Assets Available (RAA) for Initial Operational Capability (IOC) (Jan 2022)	
ICU II Required Assets Available (RAA) for Full Operational Capability (FOC) (Jan 2024)	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / <i>Minuteman Squadrons</i>	Project (Number/Name) 672986 / <i>MM Crypto Mods</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MM Crypto Mods</i>				
ICU II Engineering and Manufacturing Development Phase (GMLEC)	1	2022	2	2023
ICU II Production and Deployment Phase	1	2022	2	2024
ICU II Required Assets Available (RAA) for Initial Operational Capability (IOC) (Jan 2022)	2	2022	2	2022
ICU II Required Assets Available (RAA) for Full Operational Capability (FOC) (Jan 2024)	2	2024	2	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	11.712	22.708	24.653	0.000	24.653	22.779	22.519	14.477	8.032	0.000	126.880
671820: <i>Strategic Automated Command and Control System</i>	-	11.712	22.708	24.653	0.000	24.653	22.779	22.519	14.477	8.032	0.000	126.880
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Worldwide Joint Strategic Communication efforts include Nuclear Command, Control, and Communications (NC3) systems to include the Defense Injection Reception Emergency Action Message (EAM) C2 Terminals (DIRECT) and the Strategic Automated Command and Control System (SACCS). Funding may be used to modernize these, and other, NC3 systems. Funding may also be used for research, testing, validation, certification, configuration management, and assessment of the Air Force NC3 Weapon System.

SACCS is a dedicated, high speed, multi-level secure, data transmission, processing, and display system. SACCS provides the primary non-survivable command and control capability for receiving and disseminating secure Emergency Action Messages (EAM), Force Direction Messages (FDM), Force Status Reporting (FSR), and exchanging information type messages from USSTRATCOM. SACCS provides messages for effective deployment of strategic bombers, reconnaissance aircraft, mobilization aircraft, tanker support aircraft, and the Intercontinental Ballistic Missile (ICBM) force to include Minuteman III (MM III) and Sentinel.

SACCS has equipment that has reached its end of life and is no longer repairable due to diminished manufacturing sources and parts obsolescence. This jeopardizes Air Force Global Strike Command's (AFGSC) ability to meet mission requirements as required by Chairman Joint Chiefs of Staff Nuclear Technical Performance Criteria and Operational Standards (CJCSI 6811.01). In order to mitigate the risk of SACCS inability to operate once the current spares are completely diminished and ensure the system remains secure against modern/future threats, the Air Force is developing a replacement system (SACCS-R). SACCS-R is currently pursuing Technology Maturation and Risk Reduction (TMRR) efforts to transition from Time-Division Multiplexing (TDM) to Internet Protocol (IP) architecture, monitor and secure the new IP-based network, and provide requisite support to Sentinel fielding plans.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver SACCS capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.700M was expended for civilian pay expenses in this program element, and in FY23 0.300M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	15.202	22.725	2.597	0.000	2.597
Current President's Budget	11.712	22.708	24.653	0.000	24.653
Total Adjustments	-3.490	-0.017	22.056	0.000	22.056
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-3.000	0.000			
• SBIR/STTR Transfer	-0.490	0.000			
• Other Adjustments	0.000	-0.017	22.056	0.000	22.056

Change Summary Explanation

FY22 reduced by -.490 million for Small Business Innovative Research (SBIR) and -\$3 million for reprogramming source on FY22-51PA
 FY24 increase fully funds SACCS-R 1.2 Build, which includes the continuation of the Internet Protocol (IP) backbone upgrade as well as the development of the Cybersecurity Operations Cell.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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<p>Title: SACCS Replacement</p> <p>Description: Design and develop replacement Strategic Automated Command Control System (SACCS-R). Transition architecture from Time Division Multiplexing to Internet Protocol (TDM-IP). Replace legacy components with supportable networking and information system hardware. The new system mitigates cybersecurity risks; improves Mean Time Between Failure rates; improves reliability and availability; improves user interface; decreases annual sustainment costs; addresses Diminishing Manufacturing Sources and Material Shortages and obsolescence challenges; supports a bridge connection to Sentinel through Sentinel NC3 Terrestrial Integration (SNTI); and supports meeting the Chairman Joint Chiefs of Staff Nuclear Technical Performance Criteria and Operational Standards (CJCSI 6811.01).</p> <p>FY 2023 Plans: Port Expansion Processor (PEP) Refresh - Port Expansion Processor (PEP) Replacement (PEP-R) - Complete TMRR efforts in support of the new PEPs to support SACCS-R efforts - Continue to update the SACCS core to facilitate PEP-R - Continue updating and deliver training to onsite teams on use of PEP hardware - Document and maintain the Configuration Management (CM) for all designs, drawings, and publications</p>	11.712	22.708	24.653
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Purchase hardware in support of PEP-R - Perform site modifications in support of PEP-R <p>1.2 Program</p> <ul style="list-style-type: none"> - Continue TMRR efforts to facilitate the 1.2 program to include a temporary modification to address near term obsolescence issues - Continue transition of TDM circuits to IP circuits through the System Program Office (SPO)/Defense Information Systems Agency (DISA) process for establishing new circuits - Continue development of Cybersecurity Operations Cell and Test Readiness Review (TRR) - Continue to facilitate Cross Domain Solution (CDS) - Continue to update the SACCS core to facilitate the 1.2 program - Document and maintain the CM for all designs, drawings, and publications - Initiate fielding of all aspects of Cybersecurity Operations Cell - Facilitate Cybersecurity penetration testing of Cybersecurity Operations Cell - Purchase hardware in support of the 1.2 program - Perform site modifications in support of the 1.2 program - Design of Black IP Transport (Storm Cloud) for implementation in SACCS <p>Sentinel NC3 Terrestrial Integration (SNTI) Program</p> <ul style="list-style-type: none"> - Continue TMRR efforts to include a temporary modification to address near term obsolescence issues - Support fielding of SACCS-R SNTI efforts as a bridge to Sentinel to facilitate the 2.0 program solution - Support preliminary design for the modifications to the Sentinel Trainer - Continue to update the SACCS core to facilitate SNTI - Purchase hardware in support of SNTI <p>2.0 Program</p> <ul style="list-style-type: none"> - Develop requirement documents to support design and development efforts - Continue programmatic efforts to finalize 1.2/SNTI programs - Continue transition of TDM circuits to IP circuits through DISA process for establishing new circuits - Order circuits through DISA storefront - Continue last mile installation of new circuits from DISA point of presence to the SACCS terminal - Continue design of updated Navy Modernized Hybrid Solution (NMHS) interface changes - Continue design of Black IP Transport (Storm Cloud) for implementation in SACCS - Start design of software to modernize core message processing 			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>- Document and maintain the configuration management for all designs, drawing, and publications associated with SACCS-R</p> <p>FY 2024 Plans:</p> <p>1.2 Program</p> <ul style="list-style-type: none"> - Continue TMRR efforts to facilitate 1.2 program to include a temporary modification to address near term obsolescence issues - Continue transition of TDM circuits to IP circuits through SPO/DISA process - Continue development of Cybersecurity Operations Cell and TRR - Continue to facilitate CDS solution - Continue to update the SACCS core to facilitate 1.2 program - Document and maintain the CM for all designs, drawings, and publications - Initiate fielding of all aspects of Cybersecurity Operations Cell - Facilitate Cybersecurity penetration testing of Cyber Security Operation Cell - Purchase hardware in support of 1.2 program - Perform site modifications in support of 1.2 program - Continue design of Black IP Transport (Storm Cloud) for implementation in SACCS <p>SNTI Program</p> <ul style="list-style-type: none"> - Continue TMRR efforts to include a temporary modification to address near term obsolescence issues - Support fielding of SACCS-R SNTI efforts as a bridge to Sentinel to facilitate 2.0 program solution - Support preliminary design for the modifications to the Sentinel Trainer - Continue to update the SACCS core to facilitate SNTI program - Purchase hardware in support of SNTI program <p>2.0 Program</p> <ul style="list-style-type: none"> - Continue to develop requirement documents to support design and development efforts - Continue transition of TDM circuits to IP circuits through DISA process for establishing new circuits - Order circuits through DISA storefront - Complete last mile installation of new circuits from DISA point of presence to the SACCS terminal - Continue design of updated Navy Modernized Hybrid Solution (NMHS) interface changes - Continue design of Black IP Transport (Storm Cloud) for implementation in SACCS - Start design of software to modernize core message processing - Document and maintain the configuration management for all designs, drawing, and publications associated with SACCS-R - Develop documentation in support of MS-B / EMD - Update Cybersecurity Operations Cell design to include all SACCS 2.0 equipment/sites 			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
- Continue development and testing of Cybersecurity Operations Cell - Update SACCS core to modernize message processing and SACCS Ops Center - Develop/implement two-factor authentication for all SACCS end users FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase due to the additional implementation of Sentinel connectivity capability, as well as, continuing to test/implement SNTI/1.2 Program/PEP solution.			
Accomplishments/Planned Programs Subtotals	11.712	22.708	24.653

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF 03 PE 0101316F: <i>Strategic Command and Control (833140)</i>	29.751	31.993	25.096	-	25.096	26.842	27.871	28.278	28.879	0.000	198.710

Remarks

E. Acquisition Strategy
 Programmed funds continue to support TMRR efforts including a temporary modification to address near-term obsolescence issues (TDM-IP). The program is using a task order under the ICBM Ground Subsystems Support Contract and organic support from the 595 SCS and the 309 SWEG to conduct TMRR efforts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force													Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)							
3600 / 7				PE 0101316F / Worldwide Joint Strategic Communications					671820 / Strategic Automated Command and Control System							
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	
SACCS-R TMRR	SS/CPFF	Northrop Grumman : Layton, UT	-	7.678	Nov 2021	17.546	Nov 2022	16.173	Nov 2023	-		16.173	0.000	41.397	0.000	
Subtotal			-	7.678		17.546		16.173		-		16.173	0.000	41.397	N/A	
Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	
SACCS-R Engineering Development	Various	Various : Various	-	0.760	Nov 2021	0.670	Nov 2022	2.786	Nov 2023	-		2.786	0.000	4.216	0.000	
Subtotal			-	0.760		0.670		2.786		-		2.786	0.000	4.216	N/A	
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	
SACCS-R Development Test & Evaluation	Various	Various : Various	-	1.177	Dec 2021	0.645	Nov 2022	0.936	Nov 2023	-		0.936	0.000	2.758	0.000	
Subtotal			-	1.177		0.645		0.936		-		0.936	0.000	2.758	N/A	
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	
SACCS-R Other Program Support Costs (PSC)	Various	Various : Various	-	0.858	Nov 2021	2.273	Nov 2022	3.343	Nov 2023	-		3.343	0.000	6.474	0.000	
SACCS-R Integration Support	C/FFP	BAE Systems, Inc. : Hill AFB, UT	-	1.239	Nov 2021	1.574	Nov 2022	1.415	Nov 2023	-		1.415	0.000	4.228	-	
Subtotal			-	2.097		3.847		4.758		-		4.758	0.000	10.702	N/A	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>	Project (Number/Name) 671820 / <i>Strategic Automated Command and Control System</i>
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Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
Costs and services in support of program office management and administration processes such as: program oversight, resource justification, budget and programming, milestone and scheduling--PMA costs.

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	11.712	22.708	24.653	-	24.653	0.000	59.073	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>	Project (Number/Name) 671820 / <i>Strategic Automated Command and Control System</i>

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Strategic Automated Command and Control System</i>																												
SACCS-R Technology Maturation/Risk Reduction																												
SACCS-R TDM-IP 1.1																												
SACCS-R PEP Refresh																												
SACCS-R TDM-IP 1.2																												
SNTI																												
Milestone B (Apr 2025)																												
SACCS-R 2.0 Program																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101316F / <i>Worldwide Joint Strategic Communications</i>	Project (Number/Name) 671820 / <i>Strategic Automated Command and Control System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Strategic Automated Command and Control System</i>				
SACCS-R Technology Maturation/Risk Reduction	1	2022	3	2025
SACCS-R TDM-IP 1.1	1	2022	1	2023
SACCS-R PEP Refresh	1	2022	2	2023
SACCS-R TDM-IP 1.2	1	2022	1	2026
SNTI	1	2022	4	2028
Milestone B (Apr 2025)	3	2025	3	2025
SACCS-R 2.0 Program	4	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101318F / <i>Service Support to STRATCOM - Global Strike</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	7.562	0.000	7.562	7.317	6.939	7.063	7.318	Continuing	Continuing
675368: <i>Global Data Integration (GDI)</i>	-	0.000	0.000	7.562	0.000	7.562	7.317	6.939	7.063	7.318	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
 In FY 2024, PE 1201017SF, Global Sensor Integrated on Network [GSIN], Project 675368, GSIN [Global Integrated Sensor Network] efforts were transferred to PE 0101318F, Service Support to STRATCOM - Global Strike, Project 675368, Global Data Integration [GDI], in order to facilitate proper execution of funding.

A. Mission Description and Budget Item Justification

The missions of USSPACECOM and USSTRATCOM include establishing and providing full-spectrum, global strike, coordinated space and information operations capabilities to meet both deterrent and decisive national security objectives and to provide operational space support, integrated missile defense, Global Command Control, Communications, and Computers Intelligence Surveillance and Reconnaissance (C4ISR), and specialized planning expertise to the joint warfighter.

The Nation's strategic C2 sensors, and mission planning programs cannot rapidly exchange information across multiple missions creating ambiguity that delays time critical national C2 decision making processes. GSIN developed and established a unified schema that integrates disparate Missile Warning/Missile Defense (MW/MD) data into a single, exposed data set, providing redundant and unambiguous MW/MD data to national leadership. GSIN also enables existing radars and sensors to provide data in net-centric formats consumable by other authorized systems and mission areas, thus reducing the need to acquire more systems. Activities also include studies and analysis to support current program planning, execution, and future program planning.

GSIN directly supports USSPACECOM, USSTRATCOM and other Combatant Command and MAJCOM mission sets. GSIN meshes together selected systems and sensors (from tactical to strategic), including the Nation's most modern and capable assets, taking advantage of their larger numbers, improved algorithms, mobility, and forward deployment to provide earlier cross-cueing and expanded decision space when every second counts. Repurposing these traditionally stove-piped systems and sensors, GSIN enables the warfighter in several ways. GSIN enables creation of a User Defined Operating Picture (UDOP) to provide a single, unambiguous missile event picture allowing realtime collaboration for nuclear C2 and improved senior leader situational awareness (SA) for effective decision-making. GSIN also improves Space Situational Awareness (SSA) by tapping additional sensor capability and provides this data for the larger space order of battle capabilities. GSIN dramatically improves the ingestion of nontraditional, but readily available, non-US government and commercial data to the United States Space Force (USSF) satellite catalog. GSIN addresses NORTHCOM/STRATCOM's signed Joint Emergent Operational Need (JEON) ST-0010 request for uninterrupted traditional and non-traditional sensor data integration and the Global Threat Characterization Assessment (GTCA) Operational Planning Team report. GSIN provides critical and unique data to the USSPACECOM SSA data repositories to facilitate the large Space Battle Management Command and Control (BMC2) suite of capabilities/programs. Finally, GSIN provides Machine Learner and Data Analysis functions to optimize and operate situational awareness in the field.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101318F / <i>Service Support to STRATCOM - Global Strike</i>
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Space Acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) is transforming the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	7.562	0.000	7.562
Total Adjustments	0.000	0.000	7.562	0.000	7.562
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	7.562	0.000	7.562

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Radar, Sensor, Technical Intelligence [TI], and Allied Systems	-	-	0.500
Description: Radar, sensor, technical intelligence and Allied Systems: Designs, develops, exposes and integrates data from radar, sensors and technical intelligence systems in regions of the world where potential GDI users currently do not have coverage. Provide real time data from systems that previously reported in hours or days after critical events. Conduct studies/surveys/meetings as necessary to continually identify systems meeting GDI user data exposure needs. Designs, develops, tests, exposes, and integrates SDA data from previously untapped systems into space production systems and the Global Information Grid [GIG]. Develop implementation plans to mature data exposure capabilities.			
FY 2024 Plans:			
- Complete Integration and Testing of Radar 1 and support Initial Operational Capability [IOC]			
- Continue Production/Fielding of Radar 2			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0101318F / <i>Service Support to STRATCOM - Global Strike</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
- Rapidly implement system resiliency and situational awareness changes required to operate in the contested space domain				
FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred from PE 1201017S in 2024.				
Title: Global Data Integration [GDI] Development		-	-	7.062
<p>Description: : Effort title changed from "Global Data Integration (GDI)" to "Global Data Integration [GDI] Development" to differentiate major thrust from new project title. This is not a new start. Develop common Extensible Markup Language [XML] net-enabled data schemas and configuration management processes and procedures for Missile Warning, Missile Defense, Space, MASINT/Technical Intelligence, and Sensor data to manage the XML schema and associated XML messaging and services. Develop technical outreach for potential new GDI data consumers and providers who require GDI sensor data. Upgrade GDI capabilities as Defense Information Systems Agency [DISA] Enterprise Services evolve. Continue modifications to data services. Support integration of GDI sensor data into appropriate registries/catalogs. Continue development of GDI data services to enable visualization in a common operating picture. Conduct studies and demonstrations of SSA capabilities, data correlation, and assessment services for risk reduction evaluations.</p> <p>FY 2024 Plans:</p> <p>-DATABAHN: Continue pursuing accreditation. Develop and field a dedicated CDS and Cloud presence, including geographically separated, redundant nodes, providing greater operational resiliency. Provide capability to include new data consumers and providers who require GDI sensor data. Support integration of GDI sensor data into appropriate registries and catalogs. Continue development of GDI data services to enable visualization in a common operating picture.</p> <p>-FEAST: Develop a test bed for block-chain efforts and finalize replication of Secret Internet Protocol Routed Network [SIPRNET]-level FEAST capability on Joint Worldwide Intelligence Communications System [JWICS]. Integrate additional Top Secret/Special Compartmentalized Information [TS/SCI] data sources and algorithms.</p> <p>-ACE-M: Develop data fusion plans and capabilities, such as visual display of situational awareness data, analytic tools and algorithms, and historical playback of events, for new and existing GDI users</p> <p>-DI: Develop plans to incorporate new capabilities in AI and block-chain technology. Test and evaluate all GDI segments in support of data governance, provenance and discovery. Additionally, FY 2023 funding will allow the program to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to: studies, technical analysis, risk reduction experiments and prototyping, integration and test of command and control [C2], resiliency measures and mission partner interfaces, space test/combat range events, and office support etc.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101318F / <i>Service Support to STRATCOM - Global Strike</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Funding transferred from PE 1201017S in 2024.			
Accomplishments/Planned Programs Subtotals	-	-	7.562

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

N/A

Remarks

E. Acquisition Strategy

GDI uses existing government contract vehicles whenever available to develop and modernize the combined SDA/MW/MD/MASINT/TI data exposure architecture and solution. When appropriate contracts do not exist or not available to GDI, USSTRATCOM awards new contracts in support of responsive and consistent GDI goals.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101318F / <i>Service Support to STRATCOM - Global Strike</i>	Project (Number/Name) 675368 / <i>Global Data Integration (GDI)</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

DATABAHN	
Integration Testing	██████████
Full Operational Capability	██████████
ACE-M	
Cp,,pm Operating Picture [COP] in a Cross Domain Solution [CDS] Environment	██████████
DATABAHN Ingestion into COP	██████████████████
Resiliency Testing of GDI's Three Pillars	██
DI	
R&D Proof of Concept	██
Radar, Sensor, Technical Intelligence [TI] and Allied Systems	
RADAR 2 Design/Develop	████
RADAR 2 Production/Fielding	████████████████████
RADAR 2 Integration and Testing	██
RADAR 2 Initial Operational Capability	████
RADAR 3 Production/Fielding	████████████████████
RADAR 3 Integration and Testing	██
RADAR 3 Initial Operational Capability	████

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101318F / <i>Service Support to STRATCOM - Global Strike</i>	Project (Number/Name) 675368 / <i>Global Data Integration (GDI)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>DATABAHN</i>				
Integration Testing	1	2024	2	2024
Full Operational Capability	1	2024	2	2024
<i>ACE-M</i>				
Cp,,pm Operating Picture [COP] in a Cross Domain Solution [CDS] Environment	1	2024	2	2024
DATABAHN Ingestion into COP	1	2024	4	2024
Resiliency Testing of GDI's Three Pillars	1	2024	2	2027
<i>DI</i>				
R&D Proof of Concept	1	2024	4	2028
<i>Radar, Sensor, Technical Intelligence [TI] and Allied Systems</i>				
RADAR 2 Design/Develop	1	2024	1	2024
RADAR 2 Production/Fielding	1	2024	4	2025
RADAR 2 Integration and Testing	1	2024	3	2027
RADAR 2 Initial Operational Capability	4	2027	4	2027
RADAR 3 Production/Fielding	1	2024	4	2025
RADAR 3 Integration and Testing	4	2025	3	2027
RADAR 3 Initial Operational Capability	4	2027	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101324F / <i>Integrated Strategic Planning & Analysis Network</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	28.895	32.062	0.000	0.000	0.000	0.000	0.002	0.002	0.002	0.000	60.963
675029: <i>ISPAN Increment 5</i>	-	28.895	32.062	0.000	0.000	0.000	0.000	0.002	0.002	0.002	0.000	60.963
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note
 In FY 2024, PE 0101324F, Integrated Strategic Planning & Analysis Network (ISPAN), Project 675029, ISPAN Increment 5 efforts were transferred to PE 0304100F, Strategic Mission Planning & Execution System (SMPEs). SMPEs aligns legacy Nuclear Command Control and Communication PEs under a single PE to integrate efforts.

A. Mission Description and Budget Item Justification

This budget line funds the Integrated Strategic Planning and Analysis Network (ISPAN), Increment 5 (Inc5) program. Through Inc5, ISPAN provides full-spectrum global strike, and coordinated space, missile defense, and information operations capabilities to meet both deterrent and decisive national security objectives. ISPAN is one of the most complex classified computer systems in the Department of Defense (DoD), and the only national force level planning system. Located at U.S. Strategic Command (USSTRATCOM), ISPAN develops and delivers software for nuclear strategic deliberate and adaptive planning, as well as, supports the Nuclear Posture Review and Unified Command Plan. In coordination with other Combatant Commands, Services, and appropriate U.S. Government agencies, USSTRATCOM provides operational space support, integrated missile defense, global command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR), and specialized planning expertise to the joint warfighter to deter and detect strategic attacks against the U.S. and its allies.

Inc5 conducts continuous, ongoing agile software development activities to foster a secure software development environment. Inc5 funding enables the program office to purchase software licenses for developer tools and development environments for unclassified, secret, and top-secret agile software development. The agile software development staff maintains hardware, system configuration, storage, back-up and recovery for contractor development and systems integration. INC5 supports agile processes including code repositories, configuration management, continuous integration/continuous delivery (CI/ CD) pipelines, automated testing, automated validation and delivery. The agile developer environment meets classified security regulations/criteria and promotes competition.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver ISPAN Increment 5 capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.00M was expended for civilian pay expenses in this program element, and in FY23 0.00M is forecasted for civilian pay expenses in this program element

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101324F / <i>Integrated Strategic Planning & Analysis Network</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	29.564	3.180	0.003	0.000	0.003
Current President's Budget	28.895	32.062	0.000	0.000	0.000
Total Adjustments	-0.669	28.882	-0.003	0.000	-0.003
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	28.882			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.669	0.000			
• Other Adjustments	0.000	0.000	-0.003	0.000	-0.003

Change Summary Explanation

FY23 funding was returned from PE 0608158F after entrance into BA-08 Pilot Program was denied.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: ISPAN Increment 5	28.895	32.062	0.000	0.000	0.000
Description: ISPAN Increment 5 will modernize the Mission Planning and Analysis System (MPAS) that develops Joint Staff Level I through Level IV nuclear and conventional attack options for national and theater requirements.					
FY 2023 Plans: Activities supported with FY23 funding include, but are not limited to the following: -Will continue the lifecycle procurement of commercially based hardware and software components -Will develop and field MPAS modernization hardware and software architecture -Will further alternate site stand-up and cybersecurity improvement					
No OCO Requested					
FY 2024 Base Plans: See PE 0304100F, Strategic Mission Planning and Execution System.					
FY 2024 OCO Plans:					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101324F / <i>Integrated Strategic Planning & Analysis Network</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
No OCO requested					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> FY24 Funds transferred to PE 0304100F, Strategic Mission Planning and Execution System					
Accomplishments/Planned Programs Subtotals	28.895	32.062	0.000	0.000	0.000

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF 03 833560: <i>Integrated Strat Plan & Analy Network (ISPAN)</i>	4.845	4.740	-	-	-	-	-	-	-	0.000	9.585

Remarks
 FY24 funds transferred to PE 0304100F, Strategic Mission Planning and Execution System.

E. Acquisition Strategy
 The Service Acquisition Executive (SAE) designated ISPAN Increment 5 program a Middle Tier of Acquisition (MTA) Rapid Fielding effort on 7 Aug 2018. On 26 Nov 18, the SAE delegated Milestone Decision Authority (MDA) to the Air Force Program Executive Officer (PEO) Digital.

ISPAN Inc5 will provide new capabilities of resiliency and consequence of execution analysis for the combatant commanders using an Agile DevOps (CD/CI) acquisition strategy with development contracts that are negotiated and awarded in a competitive environment. The program management office will consider the best contract options to implement the Agile DevOps CD/CI strategy. Other activities are also accomplished by various contracting vehicles. Ongoing agile software development activities will produce a secure software development environment. While meeting the classification guidance, security regulations, and criteria, Inc5 software development will promote competition and collaboration.

Program management for the ISPAN Increment 5 program is under direction of PEO Digital, located at Hanscom AFB, MA. The Air Force Life Cycle Management Center (AFLCMC) located at Hanscom AFB, MA and the 55 Contracting Squadron at Offutt AFB, NE are the contracting authorities for the ISPAN Increment 5 program. AFLCMC provides contracting, legal, comptroller, programmatic, engineering, test, and logistics support.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101324F / <i>Integrated Strategic Plannin & Analysis Network</i>	Project (Number/Name) 675029 / <i>ISPAN Increment 5</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ISPAN Inc 5 - Global Strike and Air Vehicle Intelligence Product Development	Various	Various : Offutt AFB, NE	-	17.187	Jan 2022	22.100	Jan 2023	-		-		-	0.000	39.287	-
Rogue Blue Software Factory	Various	Various : Offutt AFB, NE	-	4.404	Jan 2022	3.309	Jan 2023	-		-		-	0.000	7.713	-
Subtotal			-	21.591		25.409		-		-		-	0.000	47.000	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DevOps Support	Various	Various : Offutt AFB, NE	-	1.330	Jan 2022	1.497	Jan 2023	-		-		-	0.000	2.827	-
Engineering and Technical Support	C/CPFF	Various : Offutt AFB, NE	-	4.445	Feb 2022	3.526	Feb 2023	-		-		-	0.000	7.971	-
Subtotal			-	5.775		5.023		-		-		-	0.000	10.798	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Joint Interoperability Test Command	Various	Various : Offutt AFB, NE	-	0.086	Nov 2021	0.086	Nov 2022	-		-		-	0.000	0.172	-
Subtotal			-	0.086		0.086		-		-		-	0.000	0.172	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering and Operations	Various	Various : Offutt AFB, NE	-	1.443	Nov 2021	1.544	Nov 2022	-		-		-	0.000	2.987	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101324F / <i>Integrated Strategic Planning & Analysis Network</i>	Project (Number/Name) 675029 / <i>ISPAN Increment 5</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>ISPAN Increment 5</i>				
ISPAN Inc 5 section 804 Beta Development Phase	1	2022	1	2024
Interim Progress Review (IPR)	4	2023	4	2023
Bi-Weekly Software Releases	1	2022	2	2024
Sustainment Decision IPR - Full Deployment Milestone	1	2024	2	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101328F / <i>ICBM Reentry Vehicles</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	185.856	100.463	115.616	475.415	0.000	475.415	657.623	766.946	874.571	863.862	Continuing	Continuing
674920: <i>Mk21A/W87-1</i>	185.856	100.463	115.616	459.880	0.000	459.880	641.529	687.664	642.804	544.771	0.000	3,378.583
675920: <i>Next Generation Reentry Vehicle</i>	0.000	0.000	0.000	15.535	0.000	15.535	16.094	79.282	231.767	319.091	Continuing	Continuing

Program MDAP/MAIS Code: 576

Note

This program, BA 7, PE 0101328F, project 675920, NGRV Early Acquisition Activities, is a new start.

A. Mission Description and Budget Item Justification

The Intercontinental Ballistic Missile (ICBM) Reentry Vehicles (RVs) activity will design, develop, produce, and deploy integrated RV systems capable of delivering the W87-1 warhead and future warheads when released from the Sentinel (GBSD) weapon system.

The Mk21A program will meet the requirements laid out in the Sentinel (GBSD) weapon system Capability Development Document (CDD) as directed by Air Force Global Strike Command, and will provide needed performance and security enhancements over the Mk21 RV to meet the upgraded requirements for the Department of Energy W87-1 warhead. The Mk21A RV includes: shape stable nose tip; high impulse transducer; arming and fuzing system (AFS); aeroshell forward section, body section, and rear cover; radio frequency subsystem with antennas; RV spin-up system; in-flight disconnect cable; and other electrical cables.

The Next Generation Reentry Vehicle (NGRV) program will ensure the Sentinel (GBSD) weapon system continues to meet CDD requirements in an evolving threat landscape by leveraging advanced capabilities matured by the Research & Development (R&D) and ICBM Demonstration/Validation communities in support of the Air Force's Reentry Vehicle Strategy. Future NGRV solutions will integrate with current and/or future warheads and will include acquisition of complementary countermeasures, embracing the modular and adaptable tenets of the Sentinel (GBSD) weapon system.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$934K was expended for civilian pay expenses in this program element, and in FY2023 \$0 is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	96.313	118.616	368.449	0.000	368.449
Current President's Budget	100.463	115.616	475.415	0.000	475.415
Total Adjustments	4.150	-3.000	106.966	0.000	106.966
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-3.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	7.499	0.000			
• SBIR/STTR Transfer	-3.349	0.000			
• Other Adjustments	0.000	0.000	106.966	0.000	106.966

Change Summary Explanation

FY22 budget increased from FY23 PB due to a \$7.499M reprogramming from ICBM Fuze Modernization (PE 0604933F) to support additional risk reduction activities on the Mk21A TMRR contract.

FY23 budget decreased from FY23 PB due to a \$3M Congressional Mark citing excess to need.

FY24 budget increased from the FY23 PB based on several factors. First Mk21A's recent cost estimates refined the Sentinel integration costs. Specifically, the cost increase is attributed to changes needed to the Payload Reentry System requirements (+\$43.4M). Secondly, Mk21A added another fight test due to the anomalous flight test in July 2022 (+\$48M). Lastly, NGRV funding was accelerated to begin early acquisition activities in FY 2024 (+\$15.5M).

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles				Project (Number/Name) 674920 / Mk21A/W87-1			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
674920: Mk21A/W87-1	185.856	100.463	115.616	459.880	0.000	459.880	641.529	687.664	642.804	544.771	0.000	3,378.583
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Mk21A Reentry Vehicle (RV) program will design, develop, produce, and deploy an integrated RV capable of delivering the W87-1 warhead when released from the Sentinel (GBSD) weapon system. The Mk21A program will provide needed performance and security enhancements over the Mk21 RV to meet the upgraded requirements for the Department of Energy (DOE) W87-1 warhead, while ensuring the time certain delivery of both the W87-1 and Mk21A programs. The Mk21A will also meet the requirements laid out in the Sentinel (GBSD) weapon system Capability Development Document (CDD) as directed by Air Force Global Strike Command. The Mk21A RV includes: shape stable nose tip; high impulse transducer; arming and fuzing system (AFS); aeroshell forward section, body section, and rear cover; radio frequency subsystem with antennas; RV spin-up system; in-flight disconnect cable; and other electrical cables.

The major activities in the Mk21A RV Technology Maturation and Risk Reduction (TMRR) phase include: (1) Trade Studies, (2) Prototype designs, (3) government systems engineering, analytics, and test capability development, (4) RV risk reduction, and (5) Weapon System (WS) integration risk reduction.

During the Engineering and Manufacturing Development (EMD) phase, the Mk21A program will include prime contractor development of a critical RV design, applicable support equipment, data, flight test hardware, infrastructure, and training materials while examining and mitigating weapon system integration risks, nuclear surety, hardness and certification, and system vulnerability assessments. Additionally, the program, in conjunction with the National Nuclear Security Administration, will develop test assets to ensure the integration and qualification of the Mk21A and W87-1 on Sentinel (GBSD) weapon system.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$934K was expended for civilian pay expenses in this program element, and in FY2023 \$0 is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: Mk21A Technology Maturation and Risk Reduction	100.463	82.409	-
<p>Description: The objectives of TMRR for Mk21A are as follows:</p> <ul style="list-style-type: none"> (1) Deliver one preliminary design and three prototypes for flight testing to inform Department of Energy (DOE)/National Nuclear Security Administration (NNSA) designs and further technology maturation (2) Incorporate a modular, open systems architecture (3) Implement Model Based System Engineering (MBSE) enabling the government to own the technical baseline (4) Demonstrate performance of weapon system capabilities through prototyping, modeling, simulation, and testing (5) Conduct flight test of prototype RVs in an ICBM-like environment 			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles	Project (Number/Name) 674920 / Mk21A/W87-1
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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<p>FY 2023 Plans:</p> <ul style="list-style-type: none"> • Conclude TMRR contract efforts • Modify, modernize, and expand the analytic environment and labs in ongoing TMRR support and the anticipated transition to EMD activities to enable full execution of the program's capability to own the technical baseline throughout the program life cycle • Finalize initial weapon system RV preliminary design and reduce integration risk by concluding trade studies, system engineering, test activities, and system modeling and simulation • Continue to develop, mature, and execute a unified certification strategy which meets nuclear surety, cyber security, and nuclear safety requirements • Conduct prototype RV flight test • Continue activities to mitigate RV development risks • Continue to expand and develop analytical, information technology, test, and data management capabilities to ensure access to weapon system design information is properly controlled and securely transmitted between government and contractors • Conduct planning and test activities in preparation to integrate the Mk21A onto Sentinel (GBSD) weapon system <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease due to the conclusion of the TMRR phase and transition to the EMD phase.</p>			
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<p>Title: Mk21A Engineering & Manufacturing Development</p> <p>Description: The objectives of EMD for Mk21A are as follows: (1) Develop and build a Mk21A RV capable of delivering DOE/NNSA W87-1 (2) Incorporate a modular, open systems architecture (3) Implement MBSE enabling the government to own the technical baseline (4) Demonstrate performance of weapon system capabilities through modeling, simulation, and testing of the EMD design (5) Integrate Mk21A/W87-1 into the Sentinel (GBSD) weapon system</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> • Award EMD contract • Execute the EMD contract to advance Mk21A major activities to include systems engineering activities, information technology, data management, analytical capabilities and delivery of mature, low risk reentry vehicle design • Develop test assets supporting the qualification of the Mk21A and W87-1 on Sentinel (GBSD) weapon system in conjunction with the DOE/NNSA • Begin Sentinel (GBSD) weapon system integration activities to support delivery of the Mk21A and W87-1 • Continue activities to mitigate RV development risks • Continue prototype RV/heatshield flight test preparation 	0.000	33.207	459.880
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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles	Project (Number/Name) 674920 / Mk21A/W87-1
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> • Continue to develop, mature, and execute a unified certification strategy which meets nuclear surety, cyber security, and nuclear safety requirements <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> • Execute EMD contract to continue advancing Mk21A major activities to include systems engineering activities, information technology, data management, analytical capabilities and delivery of mature, low risk reentry vehicle design • Develop and build test assets supporting the qualification of the Mk21A and W87-1 on Sentinel (GBSD) weapon system in conjunction with the DOE/NNSA • Continue Sentinel (GBSD) weapon system integration activities to support delivery of the Mk21A and W87-1 • Begin ground testing and flight test planning with the Sentinel (GBSD) weapon system to collect relevant environmental data to feed W87-1 development at DOE/NNSA • Continue activities to mitigate RV development risks including prototype RV/heatshield flight test • Continue to develop, mature, and execute a unified certification strategy which meets nuclear surety, cyber security, and nuclear safety requirements <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase due to the planned EMD contract award in 4th quarter FY23 and transition to first full year of EMD (contractor labor, hardware, and flight test execution) and Sentinel integration in order to maintain alignment with Sentinel and W87-1 programs.</p>			
Accomplishments/Planned Programs Subtotals	100.463	115.616	459.880

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 04 PE 0605230F: <i>Ground Based Strategic Deterrent</i>	2,464.875	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2,464.875
• RDTE 05 PE 0605238F: <i>Ground Based Strategic Deterrent EMD</i>	0.000	3,614.290	3,746.935	-	3,746.935	3,401.679	3,246.870	2,610.928	1,855.302	2,168.865	20,644.869
• MPAF 01 MGBSD0: <i>GBSD</i>	8.895	0.000	539.300	-	539.300	502.720	5,735.106	6,456.735	6,172.571	41,252.826	60,668.153
• RDTE 04 060351F/641022: <i>Dem/Val - RVAP</i>	27.679	13.042	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	40.721
• RDTE 04 0603851F: <i>Intercontinental Ballistic Missile - Dem/Val</i>	38.005	28.921	45.319	-	45.319	56.756	0.000	0.000	0.000	0.000	169.001

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force Date: March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles	Project (Number/Name) 674920 / Mk21A/W87-1
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D. Acquisition Strategy

The Mk21A RV program acquisition strategy delivers an integrated RV capable of delivering the W87-1 warhead to target beginning in FY30. For the TMRR phase, the Program Office competitively awarded one cost plus fixed fee contract in October 2019. The Air Force is responsible for developing, producing, and maintaining the RV. The DOE/NNSA develops/modifies the nuclear weapon inside the RV, including the Weapon Electrical System, which is the firing set that interfaces with the DoD fuze. Mk21A includes the use of Mk21 Mod 6 aeroshells which were originally developed as test vehicles for the legacy Peacekeeper ICBM and must be modified for use as war reserve aeroshells. Mk21A subsystems include the shape stable nose tip, high impulse transducer, arming and fuzing system (AFS), aeroshell forward section/body section and rear cover, radio frequency subsystem, antennas, spin generators, and cables.

The objectives of TMRR for Mk21A are as follows: (1) deliver one preliminary design and three prototypes; (2) incorporate a modular, open systems architecture; (3) implement MBSE enabling the government to own the technical baseline; (4) demonstrate performance of weapon system capabilities through prototyping, modeling, simulation, and testing; (5) conduct test flight of prototype RVs in an ICBM-like environment.

The TMRR phase includes a System Requirements Review, System Functional Review, Preliminary Design Review, and prototype RV flight test(s). The contractor performs risk reduction and testing on select components to further evolve the design during TMRR, to lower component integration risk during the EMD phase. The TMRR contract is a three year based contract plus a one year option with test related activities through 4QFY23.

The objectives of EMD for Mk21A are as follows: (1) develop and build a Mk21A RV capable of delivering the W87-1 Warhead; (2) incorporate a modular, open systems architecture; (3) implement MBSE enabling the government to own the technical baseline; (4) demonstrate performance of weapon system capabilities through prototyping, modeling, simulation, and testing of the EMD design; (5) integrate Mk21A/W87-1 into the Sentinel (GBSD) weapon system.

The EMD phase includes an EMD contractor update to the Preliminary Design Review, Critical Design Review, and a Production Readiness Review. Testing includes ground and flight test vehicles which support the integration on Sentinel (GBSD) weapon system. The contractor will convert Mod 6 (Mk21) to Mod 3 (War Reserve) RVs and perform integration of the W87-1 with the Mk21A and the Sentinel (GBSD) weapon system. The EMD/Production & Deployment contract is a thirteen year based contract with EMD efforts through 2QFY27. After Milestone B approval during 3QFY23, the EMD contract award is planned for 4QFY23.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles	Project (Number/Name) 674920 / Mk21A/W87-1
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mk21A EMD Contract	SS/CPIF	Lockheed Martin : King of Prussia, PA	0.000	-		31.123	Jul 2023	232.479	Nov 2023	-		232.479	1,057.909	1,321.511	-
Mk21A LGM-35A Sentinel (GBSD) Integration Contract	C/CPIF	Northrop Grumman Sys Corp : El Segundo, CA	0.000	-		2.863	Aug 2023	108.768	Nov 2023	-		108.768	286.005	397.636	-
Mk21A W87-1 Integration	MIPR	NNSA : Various	0.000	1.865	Sep 2022	14.335	Nov 2022	13.000	Nov 2023	-		13.000	3.569	32.769	-
Mk21A TMRR Contract	C/CPFF	Lockheed Martin : King of Prussia, PA	118.822	79.458	Nov 2021	51.402	Nov 2022	-		-		-	0.000	249.682	250.747
Subtotal			118.822	81.323		99.723		354.247		-		354.247	1,347.483	2,001.598	N/A

Remarks
 • Unless specifically noted, the efforts within this cost category cover both TMRR and EMD phases of the program.

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mk21A EMD Support	Various	TBD : TBD	0.000	-		0.286	Aug 2023	5.819	Nov 2023	-		5.819	467.975	474.080	-
Mk21A Integration Support: FFRDC/UARC	MIPR	Various : Various	0.987	0.661	Nov 2021	1.261	Jan 2023	3.219	Nov 2023	-		3.219	8.750	14.878	-
Mk21A Integration Support: ISC 1.0	C/FP	BAE : Hill AFB, UT	7.451	2.364	Oct 2021	2.734	Oct 2022	-		-		-	0.000	12.549	-
Mk21A Integration Support: ISC 2.0	C/CPAF	TBD : TBD	0.000	-		0.703	Jul 2023	6.661	Oct 2023	-		6.661	39.734	47.098	-
Mk21A Direct Cite Civilian Pay	Various	US Gov Civilians : Hill AFB, UT	4.277	0.934	Oct 2021	-		-		-		-	0.000	5.211	-
Mk21A Digital and Model Based System Engineering Support	TBD	TBD : TBD	0.000	-		-		3.589	Oct 2023	-		3.589	7.235	10.824	-
Mk21A Other Support: PMA	Various	Various : Various	0.585	0.261	Nov 2021	0.332	Nov 2022	-		-		-	9.554	10.732	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force											Date: March 2023				
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles					Project (Number/Name) 674920 / Mk21A/W87-1				

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mk21A Fuze Trade Study (TMRR)	MIPR	Sandia National Lab : Albuquerque, NM	1.913	-		-		-		-		-	0.000	1.913	-
Subtotal			15.213	4.220		5.316		19.288		-		19.288	533.248	577.285	N/A

Remarks

- Mk21A Fuze Effort incorporated into the Mk21A TMRR Contract starting in FY21.
- FFRDC/UARC costs began to be included as a separate line item under support costs beginning in FY21. Costs were previously included under Mk21A Test and Evaluation line item.
- Unless specifically noted, the efforts within this cost category cover both TMRR and EMD phases of the program.

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mk21A Test & Evaluation	Various	Various : Various	35.072	13.610	Nov 2021	3.819	Nov 2022	59.728	Nov 2023	-		59.728	0.000	112.229	-
Mk21A EMD Test Support	Various	TBD : TBD	0.000	-		1.798	Aug 2023	20.547	Oct 2023	-		20.547	628.168	650.513	-
Mk21A Test & Evaluation: Air Force and NNSA Demonstrator Initiative (ANDI) (TMRR)	MIPR	Various : Various	13.946	0.020	Oct 2021	-		-		-		-	0.000	13.966	-
Subtotal			49.018	13.630		5.617		80.275		-		80.275	628.168	776.708	N/A

Remarks

- FY22, FY23, and FY24 Test & Evaluation support includes developing ground test plans and flight test plans to support development of prototype test vehicles and conduct flight test(s). These test(s) will provide detailed, reliable data to inform EMD and to inform Mk21A development and risk reduction, and NNSA for the W87-1 development.
- The Mk21A Test & Evaluation line includes incremental funding to launch RV prototypes on Rocket Systems Launch Program (RSLP) missiles. The incremental funding allows contracts to be established for support and the build-up of the flight test vehicles and missiles in order to meet the scheduled tests. The additional \$48M in FY24 funding will be used to support the flight a test in FY25 (various efforts such as Lockheed Martin, not just RSLP, will be supported by that funding).
- Prototype RV Flight Test #2 costs in FY23 were shared between the Mk21A and ICBM Demonstration/Validation program elements to meet combined interests.
- Mk21A Test & Evaluation: Air Force and NNSA Demonstrator Initiative (ANDI) is a former ICBM Demonstration/Validation study that was transitioned to the Mk21A program office. The ANDI effort is expected to span over FY20, FY21, and FY22 and will provide critical information for EMD.
- Unless specifically noted, the efforts within this cost category cover both TMRR and EMD phases of the program.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles	Project (Number/Name) 674920 / Mk21A/W87-1
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Mk21A Reentry Vehicle (RV)	
TMRR Phase	
Prototype RV Flight Test #1 (Jul 2022)	
Milestone B (Jun 2023)	
EMD Phase	
EMD Contract Award (Jul 2023)	
Prototype RV Flight Test #2 (Nov 2023)	
Delta PDR (Jul 2024)	
Prototype RV Flight Test #3 (Nov 2024)	
Critical Design Review (Jul 2025)	
Milestone C (Oct 2025)	
Production and Deployment	
Prototype RV Flight Test #4 (Feb 2026)	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles	Project (Number/Name) 674920 / Mk21A/W87-1
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Mk21A Reentry Vehicle (RV)				
TMRR Phase	1	2022	4	2023
Prototype RV Flight Test #1 (Jul 2022)	4	2022	4	2022
Milestone B (Jun 2023)	3	2023	3	2023
EMD Phase	4	2023	3	2027
EMD Contract Award (Jul 2023)	4	2023	4	2023
Prototype RV Flight Test #2 (Nov 2023)	1	2024	1	2024
Delta PDR (Jul 2024)	4	2024	4	2024
Prototype RV Flight Test #3 (Nov 2024)	1	2025	1	2025
Critical Design Review (Jul 2025)	4	2025	4	2025
Milestone C (Oct 2025)	1	2026	1	2026
Production and Deployment	1	2026	4	2028
Prototype RV Flight Test #4 (Feb 2026)	2	2026	2	2026

Note

- TMRR Phase began in 1QFY20
- Flight test #2 is delayed to Nov 2023 (1QFY24), but will continue to be funded using FY23 dollars
- Flight test #3 is currently scheduled for Nov 2024 (1QFY25)
- Flight Test #4 is currently scheduled for Feb 2026 (2QFY26) and is a rideshare on the Experimental Flight Test 2 funded by PE 0603851F, ICBM Demonstration/ Validation
- Flight Tests: there have been delays in scheduled flight tests due to range availability, but the delays have not impacted the program.
- Due to differing level of complexity of the RV components, the program anticipates aeroshells will start production sooner, while subcomponents like the fuze may remain in development resulting in overlap of EMD and Production & Deployment (P&D). P&D phase continues beyond FY2028.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles				Project (Number/Name) 675920 / Next Generation Reentry Vehicle			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675920: Next Generation Reentry Vehicle	0.000	0.000	0.000	15.535	0.000	15.535	16.094	79.282	231.767	319.091	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 0101328F, project 675920, NGRV Early Acquisition Activities, is a new start.

A. Mission Description and Budget Item Justification

The Next Generation Reentry Vehicle program will design, develop, produce, and deploy new payload system suites (reentry vehicles and countermeasures) and integrate them into the Sentinel (GBSD) weapon system. Key next generation payload attributes include enhancements in accuracy, lethality, survivability, and ICBM Reentry System/Reentry Vehicle (RS/RV) interoperable operations. Next generation reentry vehicle and countermeasure technologies are based on emerging threats, AF priorities, and development capacity. Program activities will also include the employment of digital acquisitions through the application of digital engineering, agile software development, and open systems architectures.

FY2024 funding supports early acquisition activities that lead to competitive contract awards for a next generation reentry vehicle and countermeasures in support of strengthening the atrophying industrial base, posturing the nation and the AF to counter adversary threats both projected and unforeseen. These efforts support a Materiel Development Decision (MDD) in FY2024 and Milestone A in FY2026. The intent is to encourage a wide pool of industry involvement in the development of materiel solutions that support the mission requirements that combat future and immediate threats to drive ultimate effectiveness requirements for the weapon system. This includes program management support, operational concept exploration, technology trade studies, operational and system architecture development, maturation and risk reduction of RV related technologies including weapons systems and integrated system concept development and demonstration.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$0 was expended for civilian pay expenses in this program element, and in FY2023 \$0 is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: NGRV Early Acquisition Activities	0.000	0.000	15.535
Description: Next generation RV and countermeasure assessments and personnel requirements are critical to sufficiently standup the program management team and execute pre-Milestone A acquisition activities to avoid significant schedule risk. The NGRV Program Management Team will serve to integrate the results of the NGRV Requirements Study with a cogent acquisition strategy leading into MDD and Milestone A.			
FY 2023 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles	Project (Number/Name) 675920 / Next Generation Reentry Vehicle
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
N/A			
<i>FY 2024 Plans:</i>			
<ul style="list-style-type: none"> • Next generation reentry vehicle and countermeasure market research • Conduct pre-Milestone A operational concept and technology trade studies • Initiate initial integration study into the Sentinel Weapon System • Prepare for Materiel Development Decision (MDD) and Milestone A • Develop plan for additional industrial base development capacity 			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i>			
This project (675920 / Next Generation Reentry Vehicle) is a new start in FY 2024.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	15.535

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 04 0605230F: <i>Ground Based Strategic Deterrent</i>	2,464.875	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2,464.875
• RDTE 05 0605238F: <i>Ground Based Strategic Deterrent EMD</i>	0.000	3,614.290	3,746.935	-	3,746.935	3,401.679	3,246.870	2,610.928	1,855.302	2,168.865	20,644.869
• MPAF 01 MGBSD0: <i>Ground Based Strategic Deterrent</i>	8.895	0.000	539.300	-	539.300	502.720	5,735.106	6,456.735	6,172.571	41,252.826	60,668.153
• RDTE 04 0603851F/644209: <i>ICBM Dem/Val - LRP</i>	38.005	28.921	45.319	-	45.319	56.756	0.000	0.000	0.000	0.000	169.001

Remarks

D. Acquisition Strategy

The TMRR phase will include competitively awarded contracts, flight testing and continued engagement and synchronization with the Department of Energy (DOE)/ National Nuclear Security Administration (NNSA). The Air Force is responsible for developing, producing, and maintaining next generation payload systems. DOE/NNSA develops/modifies the nuclear weapon inside the RV and all internal systems and components of the nuclear weapon. EMD objectives are to develop and build a next generation payload suite leveraging model based systems engineering (MBSE), Modeling & Simulation, and Open System Architecture (OSA).

The program will employ agile contracting strategies for the next generation RV and countermeasures to fill capability gaps based on a rapidly evolving threat. This will include multiple competitive contract awards, options for agile and adaptive framework for onboarding and offboarding capabilities and maintaining a constant link with

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
3600 / 7	PE 0101328F / <i>ICBM Reentry Vehicles</i>	675920 / <i>Next Generation Reentry Vehicle</i>

DOE/NNSA to ensure continued weapon system effectiveness. Overall objectives are to bolster the Sentinel (GBSD) payload suite by continually leveraging MBSE, M&S, and OSA throughout the mission sets.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles	Project (Number/Name) 675920 / Next Generation Reentry Vehicle
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NGRV Operational Concepts and Technology Trade Studies	TBD	TBD : TBD	0.000	-		-		5.030	Mar 2024	-		5.030	Continuing	Continuing	-
Subtotal			0.000	-		-		5.030		-		5.030	Continuing	Continuing	N/A

Remarks
Program plans to explore agile contract vehicle strategies to develop technology trade space for the program, to include countermeasure development, through a widely distributed pool of industry players.

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NGRV Direct Cite Civilian Pay	Various	US Gov Civilians : Hill AFB, UT	0.000	-		-		2.432	Oct 2023	-		2.432	Continuing	Continuing	-
NGRV Integration Support: ISC	C/CPAF	TBD : TBD	0.000	-		-		1.518	Mar 2024	-		1.518	Continuing	Continuing	-
NGRV FFRDC/UARC Support	TBD	TBD : TBD	0.000	-		-		3.800	Mar 2024	-		3.800	Continuing	Continuing	-
NGRV Mission Modeling Framework Support	MIPR	MSIC : Huntsville, AL	0.000	-		-		1.505	Mar 2024	-		1.505	Continuing	Continuing	-
Subtotal			0.000	-		-		9.255		-		9.255	Continuing	Continuing	N/A

Remarks
Acronyms:
Missile and Space Intelligence Center (MSIC)

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NGRV IT Infrastructure	TBD	TBD : TBD	0.000	-		-		1.005	Mar 2024	-		1.005	Continuing	Continuing	-
NGRV PMA	Various	Various : Various	0.000	-		-		0.245	Mar 2024	-		0.245	Continuing	Continuing	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101328F / <i>ICBM Reentry Vehicles</i>	Project (Number/Name) 675920 / <i>Next Generation Reentry Vehicle</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NGRV				
Early Acquisition Activities	1	2024	2	2026
Milestone A	2	2026	2	2026
TMRR Phase	2	2026	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102110F / MH-139A
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	581.945	15.913	15.922	25.737	0.000	25.737	9.057	9.796	0.000	0.000	27.144	685.514
672021: <i>MH-139A</i>	581.945	15.913	9.818	17.279	0.000	17.279	0.000	0.000	0.000	0.000	0.000	624.955
672023: <i>MH-139A PE/PI</i>	0.000	0.000	6.104	8.458	0.000	8.458	9.057	9.796	0.000	0.000	27.144	60.559

Program MDAP/MAIS Code: 562

A. Mission Description and Budget Item Justification

The MH-139A Grey Wolf will replace the Air Force fleet of UH-1N aircraft, and offers a significant capability increase in areas of speed, range, endurance, payload, and survivability. The Air Force will acquire 80 MH-139A helicopters, training devices, and associated support equipment. The replacement aircraft will provide vertical airlift and support the requirements of five Air Force major commands and operating agencies: Air Force Global Strike Command (AFGSC), Air Force Reserve Command (AFRC), Air Education and Training Command (AETC), Air Force District of Washington (AFDW), and Air Force Material Command (AFMC). AFGSC is the Air Force lead command and operational capability requirements sponsor. This program is an element of the Air Force's nuclear enterprise reform initiatives.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver the MH-139A weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022, \$4.401 million was expended for civilian pay expenses in this program element, and in FY 2023, \$3.542 million is forecast for civilian pay expenses in this program element.

The FY 2024 funding request was reduced by \$2.208 million to account for the availability of prior year execution balances.

This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102110F / MH-139A
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	16.132	17.922	27.945	0.000	27.945
Current President's Budget	15.913	15.922	25.737	0.000	25.737
Total Adjustments	-0.219	-2.000	-2.208	0.000	-2.208
• Congressional General Reductions	0.000	-2.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.219	0.000			
• Other Adjustments	0.000	0.000	-2.208	0.000	-2.208

Change Summary Explanation

FY 2023 funding was reduced by \$2.000 million due to Congressional Directed Reduction "PE/PI ahead of need."

FY 2024 funding request was reduced by \$2.208 million to account for the availability of prior year execution balances (under-execution).

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0102110F / MH-139A				Project (Number/Name) 672021 / MH-139A			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
672021: MH-139A	581.945	15.913	9.818	17.279	0.000	17.279	0.000	0.000	0.000	0.000	0.000	624.955
Quantity of RDT&E Articles	6	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MH-139A program will replace the Air Force fleet of UH-1N aircraft with modern helicopters that will close significant mission capability gaps associated with the current fleet of UH-1N aircraft. The replacement aircraft will provide vertical airlift and support the requirements of five Air Force major commands and operating agencies: Air Force Global Strike Command (AFGSC), Air Force Reserve Command (AFRC), Air Education and Training Command (AETC), Air Force District of Washington (AFDW), and Air Force Material Command (AFMC). AFGSC is the Air Force lead command and operational capability requirements sponsor. This program is an element of the Air Force's nuclear enterprise reform initiatives.

Program includes, but is not limited to, continued funding for four test aircraft and two System Demonstration Test Article (SDTA) aircraft, support equipment, Interim Contractor Support (ICS), training system devices, Type I training and course ware, extension of NDI integration as a result of Identification Friend or Foe (IFF) and security forces communication capability, cyber test articles, associated Government support activities, completion of Development Test (DT) and live-fire test and evaluation (LFT&E), and remedy of developmental test deficiencies.

The FY 2024 development efforts will conclude systems engineering efforts for civil certifications, systems engineering tasks, and management services. Execution begins for initial training, Initial Operational Test and Evaluation (IOT&E), and military type certificate. Government test and evaluations efforts will complete DT and LFT&E, and transition to Phase 5 IOT&E and IOT&E support execution.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver the MH-139A weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022, \$4.401 million was expended for civilian pay expenses in this program element, and in FY 2023, \$3.542 million is forecast for civilian pay expenses in this program element.

MH-139A funding also supports obsolescence solutions and innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs.

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

	FY 2022	FY 2023	FY 2024
Title: MH-139A Development	14.141	5.618	11.279
Description: Development of MH-139A helicopter and integration of non-developmental item (NDI) hardware, software, and other capabilities into aircraft system, training systems, support elements and technical/manufacturing baselines to achieve MH-139A operational capability requirements.			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102110F / MH-139A	Project (Number/Name) 672021 / MH-139A

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>FY 2023 Plans: Continuing systems engineering efforts, government oversight, contractor and government systems engineering tasks and management services. Prepare for and successfully achieve Milestone C, and continue air worthiness certification.</p> <p>FY 2024 Plans: Will continue systems engineering efforts for civil certifications, systems engineering tasks, DT, LFT&E and management services. Includes extension of NDI integration as a result of Identification Friend or Foe (IFF) and security forces communication capability. Execution begins for initial training, IOT&E, and air worthiness certification.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to re-phasing of developmental test program to account for previous contractor delays and extension to the test program.</p>			
<p>Title: MH-139A Government Test and Evaluation</p> <p>Description: System and subsystem test and evaluation and remedy of deficiencies of the MH-139A aircraft.</p> <p>FY 2023 Plans: Continuing LFT&E, DT, Operational Assessment (OA), and Operational Test (OT) support execution.</p> <p>FY 2024 Plans: Will conclude DT, LFT&E, and transition to Phase 5 IOT&E and IOT&E support execution.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to re-phasing of developmental test program to account for previous contractor delays and extension to the test program.</p>	1.772	4.200	6.000
Accomplishments/Planned Programs Subtotals	15.913	9.818	17.279

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APAF 04 Line Item H0106O: <i>UH-1N Replacement</i>	141.360	186.192	228.807	-	228.807	317.287	494.374	442.527	419.218	362.600	2,592.365
• APAF 06 Line Item H0106O: <i>UH-1N Replacement Initial Spares/Repair Parts</i>	0.000	11.253	20.314	-	20.314	34.330	28.528	23.907	24.405	41.900	184.637
• MILCON 0: <i>UH-1N Replacement - Primary Facility</i>	0.000	0.000	12.000	-	12.000	0.000	0.000	0.000	10.100	0.000	22.100

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102110F / MH-139A	Project (Number/Name) 672021 / MH-139A
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The Air Force intends to procure an airworthiness-certified baseline helicopter that requires non-developmental item integration (e.g. Electro-Optical/Infrared Sensor, personnel recovery hoists, cockpit/cabin armor, etc.) and training systems to meet all operational capability requirements. The MH-139A acquisition approach is a single step to full capability. This provision is reflected in the acquisition strategy underpinning the basic contract and its pre-priced options. The current program scope is compliant with the requirements basis in the UH-1N Replacement Capability Production Document (CPD). The MH-139A program entered at pre-MS C to allow interested offerors an opportunity to integrate NDI into their existing, airworthiness-certified baseline Air Vehicle (AV) to meet all UH-1N Replacement requirements. The system will consist of non-proprietary or suitably licensed components and leverage non-developmental software to the extent possible within the constraints of the chosen system. Specific acquisition and contracting strategies for Research, Development, Test, and Evaluation (RDT&E) funded integration tasks and the test and evaluation program will be determined as part of the overall program strategy.

FAA certification approvals extended Developmental Test schedule and pushed Operational Test into FY 2024. Performance Enhancements and Product Improvement (PE/PI) efforts are beginning to solve deficiencies found throughout testing.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0102110F / MH-139A				672021 / MH-139A							
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
MH-139 weapon system integration and type/airworthiness certification	C/FFP	Boeing : Philadelphia, PA	473.550	7.266	Dec 2021	0.821	Dec 2022	6.807	Dec 2023	-		6.807	0.000	488.444	-
Subtotal			473.550	7.266		0.821		6.807		-		6.807	0.000	488.444	N/A
Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
MH-139 Other Government Costs	C/Various	Various : TBD	19.977	1.725	Jan 2022	1.255	Jan 2023	1.270	Jan 2024	-		1.270	0.000	24.227	-
MH-139 Direct Cite Authority CIV Pay	C/Various	Various : TBD	9.614	4.401	Jan 2022	3.542	Jan 2023	2.750	Oct 2023	-		2.750	0.000	20.307	-
Subtotal			29.591	6.126		4.797		4.020		-		4.020	0.000	44.534	N/A
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
MH-139 live fire, developmental, and operational test and evaluation, planning and technical support	Various	Various : TBD	38.069	1.772	Dec 2022	4.200	Dec 2022	6.000	Dec 2023	-		6.000	0.000	50.041	-
Subtotal			38.069	1.772		4.200		6.000		-		6.000	0.000	50.041	N/A
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
MH-139 Program Support Costs	Various	Various : TBD	7.522	0.491	Dec 2021	0.000	Dec 2022	0.452	Dec 2023	-		0.452	0.000	8.465	-

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102110F / MH-139A	Project (Number/Name) 672021 / MH-139A
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>MH-139A Program</i>	
MH-139A NDI Contract	
Initial Operational Test and Evaluation	
Developmental Test and Evaluation	
Live Fire Test	
Milestone C	
Subsystem Integration and Air Worthiness	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102110F / MH-139A	Project (Number/Name) 672021 / MH-139A

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MH-139A Program</i>				
MH-139A NDI Contract	1	2022	4	2025
Initial Operational Test and Evaluation	2	2024	3	2025
Developmental Test and Evaluation	1	2022	4	2024
Live Fire Test	1	2022	4	2024
Milestone C	2	2023	2	2023
Subsystem Integration and Air Worthiness	1	2022	3	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0102110F / MH-139A				Project (Number/Name) 672023 / MH-139A PE/PI			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
672023: MH-139A PE/PI	0.000	0.000	6.104	8.458	0.000	8.458	9.057	9.796	0.000	0.000	27.144	60.559
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MH-139A program will replace the Air Force fleet of UH-1N aircraft with modern helicopters that will close significant mission capability gaps associated with the current fleet of UH-1N aircraft. The replacement aircraft will provide vertical airlift and support the requirements of five Air Force major commands and operating agencies: Air Force Global Strike Command (AFGSC), Air Force Reserve Command (AFRC), Air Education and Training Command (AETC), Air Force District of Washington (AFDW), and Air Force Material Command (AFMC). AFGSC is the Air Force lead command and operational capability requirements sponsor. This program is an element of the Air Force's nuclear enterprise reform initiatives.

The MH-139A Performance Enhancements and Product Improvements Program is for the development of solutions to solve capability gaps found during the development and test of the MH-139A to include communication and gun systems deficiencies, improve mission planning capability, resolve usability concerns, and other critical capabilities, and includes associated Government test and support activities.

The program office will utilize the additional flight test aircraft in support of modernization efforts to address emerging threats and evolving mission needs.

During FY 2024 the MH-139A program plans to continue performance enhancement efforts to include gun system deficiencies, Joint Mission Planning System (JMPS), capability improvements, resolving usability concerns and other critical capabilities, establishing government oversight, contractor and government systems engineering tasks, non-recurring engineering, and demonstrations on various capability upgrades. FY 2024 will also include the beginning of test planning in support of capability upgrade efforts.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver the MH-139A weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022, \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2023, \$0.000 million is forecast for civilian pay expenses in this program element.

MH-139A funding also supports obsolescence solutions and innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs.

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

	FY 2022	FY 2023	FY 2024
Title: MH-139A Performance Enhancements	0.000	4.104	6.458

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102110F / MH-139A	Project (Number/Name) 672023 / MH-139A PE/PI

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: Development and integration of MH-139A helicopter solutions to solve capability gaps found during development and test to include communication and gun system deficiencies, JMPS, improve capability, resolve usability concerns and other critical capabilities.</p> <p>FY 2023 Plans: Begin systems engineering efforts including but not limited to communication and gun system deficiencies, JMPS, improve compatibility, resolve usability concerns and other critical capabilities. Establish government oversight, contractor and government systems engineering tasks, non-recurring engineering (NRE) and trial kit demonstrations on various capability upgrades.</p> <p>FY 2024 Plans: Continue systems engineering, integration and retrofit efforts to include but not limited to communication and gun system deficiencies, JMPS, improve capability, resolve usability concerns and other critical capabilities. Will continue government oversight, contractor and government systems engineering and integration tasks, non-recurring engineering (NRE), test and evaluation and production cut-in on various capability upgrades.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased for implementation of deficiency solutions.</p>			
<p>Title: MH-139A Government Test Planning, Test and Evaluation</p> <p>Description: Planning for system and subsystem test and evaluation and remedy of deficiencies found during testing of the Performance Enhancement and Product Improvement solutions.</p> <p>FY 2023 Plans: Begin test planning in support of capability upgrade efforts.</p> <p>FY 2024 Plans: Will support continued expertise at lead DT organization, continue test planning, and begin test execution in support of capability upgrade efforts.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>	0.000	2.000	2.000
Accomplishments/Planned Programs Subtotals	0.000	6.104	8.458

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APAF 04 H01060: MH-139A	141.360	186.192	228.807	-	228.807	317.287	494.374	442.527	419.218	362.600	2,592.365

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102110F / MH-139A	Project (Number/Name) 672023 / MH-139A PE/PI
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 06 H01060: UH-1N Replacement Program	0.000	11.253	20.314	-	20.314	34.330	28.528	23.907	24.405	41.900	184.637
• MILCON UH-1N Replacement: Primary Facility	0.000	0.000	12.000	-	12.000	17.000	0.000	0.000	10.100	0.000	39.100

Remarks

D. Acquisition Strategy

Acquisition and contracting strategies for RDT&E funded integration tasks and the test and evaluation program to be pursued as follow on programs with the acquisition strategies deemed most appropriate. Critical capability improvements will be planned for installation in future production lots or planned for integration into operational aircraft.

FAA certification approvals extended Developmental Test schedule and pushed Operational Test into FY 2024. Performance Enhancements and Product Improvement (PE/PI) efforts are beginning to solve deficiencies found throughout testing.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102110F / MH-139A	Project (Number/Name) 672023 / MH-139A PE/PI
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>MH-139A Performance Enhancements and Product Improvements</i>																												
Deficiency Reports Resolution																												
Test Planning																												
Gun Systems Upgrade Planning and Contract Award																												
Gun Systems Upgrade Development and Integration																												
Gun Systems T&E																												
JMPS Upgrade Planning and Contract Award																												
JMPS Upgrade Development and Integration																												
JMPS Upgrade T&E																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102110F / MH-139A	Project (Number/Name) 672023 / MH-139A PE/PI
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MH-139A Performance Enhancements and Product Improvements</i>				
Deficiency Reports Resolution	1	2023	3	2026
Test Planning	1	2024	4	2025
Gun Systems Upgrade Planning and Contract Award	1	2023	2	2024
Gun Systems Upgrade Development and Integration	2	2024	4	2025
Gun Systems T&E	1	2025	4	2025
JMPS Upgrade Planning and Contract Award	3	2023	2	2024
JMPS Upgrade Development and Integration	1	2024	3	2025
JMPS Upgrade T&E	2	2025	1	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102326F / <i>Region/Sector Operation Control Center Modernization Program</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.756	0.406	0.831	0.000	0.831	0.850	0.871	0.889	0.921	0.000	5.524
674592: <i>BA7 0102326F 674592 R/SAOC Modernization</i>	-	0.756	0.406	0.831	0.000	0.831	0.850	0.871	0.889	0.921	0.000	5.524
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Regional/Sector Operation Center Modernization program supports the NORAD/NORTHCOM homeland defense and air sovereignty mission for fixed Air Defense Sectors.

BATTLE CONTROL SYSTEM-FIXED (BCS-F): BCS-F is a bi-national development program with Canada. The BCS-F Program is an AF Homeland Defense battle management command and control system with the capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive air picture. BCS-F provides tactical communications and data link capabilities with other military and civil systems responsible for planning, directing, coordinating and controlling forces for air surveillance, air defense, and control of sovereign US air space. This integrated air picture enhances the capability to conduct peacetime air sovereignty operations and transition to active air defense operations in the event of aggression.

BATTLE CONTROL SYSTEM-FIXED MODIFICATION ONE (BCS-F Modification 1): BCS-F Modification 1 effort will support the implementation of Automatic Dependent Surveillance-Broadcast (ADS-B) data feeds and Earth Center Earth Fixed (ECEF). The BCS-F Modification 1 effort will be executed as a Cooperative Development Program between the US and Canada.

BATTLE CONTROL SYSTEM MODERNIZATION: BCS Modernization supports the Rapid Capability Office (RCO) effort to produce a BCS-F replacement system that is interoperable with the Advanced Battle Management System (ABMS) portfolio of capabilities across multiple Combatant Commands. A defined scope of key capability improvements delivered through an agile process to include but not limited to: Integrated Fire Control (IFC), course of action generation, predictive analytics, improved visualizations, an improved user interface and experience (UI/UX). This effort also includes the implementation of a suite of AI/ML products to improve kill-chain response times.

NATIONAL CAPITOL REGION - INTEGRATED AIR DEFENSE SYSTEM (NCR-IADS): NCR-IADS is a post-September 11, 2001 rapidly fielded capability that provides ground-based air defense of the NCR airspace by delivering an integrated air picture, air defense weapons, enhanced regional situational awareness, and forensic data collection capabilities. Life cycle replacement will be required to prevent system obsolescence, account for new cyber security requirements, and posture the program to seamlessly integrate future capabilities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102326F / <i>Region/Sector Operation Control Center Modernization Program</i>
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0606398F. In FY22 \$0.000M was expended for civilian pay expenses in this program element and in FY23 \$0.000M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	0.771	0.451	0.829	0.000	0.829
Current President's Budget	0.756	0.406	0.831	0.000	0.831
Total Adjustments	-0.015	-0.045	0.002	0.000	0.002
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.015	0.000			
• Other Adjustments	0.000	-0.045	0.002	0.000	0.002

C. Accomplishments/Planned Programs (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>
<p>Title: Battle Control System-Fixed Modification 1</p> <p>Description: Continue systems engineering, development, risk reduction, integration, test & evaluation and fielding of the BCS-F Modification 1 effort. The BCS-F Modification 1 effort will be executed as a Cooperative Program between the US and Canada.</p> <p>FY 2023 Plans: Activities include, but are not limited to: -Continue BCS-F Modification 1 ADS-B and ECEF test and evaluation, documentation, fielding and training at operational sites.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased as program transitions to support integration of CBC2.</p>	0.706	0.356	-
<p>Title: Battle Control System Modernization</p> <p>Description: Modernizing the BCS-F system by contributing to the Rapid Capability Office (RCO) led Cloud-Based Command and Control (CBC2) project. The CBC2 project will produce a BCS-F replacement system that interoperates with Advanced Battle Management System (ABMS) portfolio of capabilities. Anticipated activities include testing, documentation, training and feature development.</p>	0.050	0.050	0.831

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102326F / <i>Region/Sector Operation Control Center Modernization Program</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p><i>FY 2023 Plans:</i> Activities include, but are not limited to:</p> <ul style="list-style-type: none"> - Continue supporting CBC2 development and integration of the DI, JERIC20 and open architecture supporting incorporation of machine learning entity classification, artificial intelligence, and cloud-based operations. - Continued implementation of ACC's Combat Identification capability and continued foundation development for continuity of operations (COOP) between defense sectors. <p><i>FY 2024 Plans:</i> Activities include, but are not limited to:</p> <ul style="list-style-type: none"> - Continue supporting CBC2 development and integration of the DI, JERIC20 and open architecture supporting incorporation of machine learning entity classification, artificial intelligence, and cloud-based operations. - Continued implementation of ACC's Combat Identification capability and continued foundation development for continuity of operations (COOP) between defense sectors. <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding increased due to increased support for the modernization of the BCS-F system.</p>			
<p><i>Title:</i> National Capital Region - Integrated Air Defense System Camera Modernization</p> <p><i>Description:</i> NCR-IADS Camera System Tech Refresh of legacy camera system to address mission critical component Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues.</p> <p><i>FY 2023 Plans:</i> N/A</p> <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> N/A</p>	0.000	0.000	-
Accomplishments/Planned Programs Subtotals	0.756	0.406	0.831

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 833030: <i>Battle Control System - Fixed</i>	2.940	1.409	1.867	-	1.867	3.378	3.450	3.572	3.649	0.000	20.265

Remarks

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102326F / <i>Region/Sector Operation Control Center Modernization Program</i>
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E. Acquisition Strategy

Acquisition Strategy: The Program Management Office (PMO) completed a full and open competition for BCS-F Modification 1 efforts. The BCS-F PMO has finalized a Project Arrangement (PA) to establish a cooperative development program with Canada. These efforts will conclude with development and releases to the Air Defense Sectors.

Management Strategy: Efforts will be managed by BCS-F PMO in conjunction with PMO North, Ottawa and are under the purview of the Air Force Program Executive Office Digital. Air Force Life Cycle Management Center (AFLCMC) is the Contracting Authority.

Contracting Strategy: The BCS Capability modernization takes place under a variety of contract strategies including Other Transaction Authority.

NCR-IADS used a Middle Tier Acquisition (MTA) Rapid Prototyping strategy and leveraged an Other Transaction Authority (OTA) expedited contracting vehicle for the ERSA camera replacement. The ERSA software sustainment contract was modified to support required software development for the camera prototypes.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force												Date: March 2023				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)							
3600 / 7				PE 0102326F / Region/Sector Operation Control Center Modernization Program					674592 / BA7 0102326F 674592 R/SAOC Modernization							
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	
BCS-F Modification 1	Various	Various : Various	-	0.000	Apr 2022	0.000	Dec 2023	-		-		-	Continuing	Continuing	0.000	
BCS Modernization	Various	Various : Various	-	0.000	Mar 2022	0.000	Dec 2023	0.100	Dec 2024	-		0.100	Continuing	Continuing	-	
NCR-IADS Camera Modernization	Various	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-	
Subtotal			-	0.000		0.000		0.100		-		0.100	Continuing	Continuing	N/A	
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	
46th Test Wing/Other Test Act	Various	Various : Various	-	0.386	Jan 2022	0.000	Dec 2022	-		-		-	Continuing	Continuing	0.000	
Subtotal			-	0.386		0.000		-		-		-	Continuing	Continuing	N/A	
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	Various	Various : Hanscom AFB, MA	-	0.025	Dec 2021	0.306	Apr 2023	0.281	May 2024	-		0.281	Continuing	Continuing	-	
FFRDC	Various	Various : Hanscom AFB, MA	-	0.300	May 2022	-		0.350	Dec 2023	-		0.350	Continuing	Continuing	-	
Other	Various	Various : Hanscom AFB, MA	-	0.045	Aug 2022	0.100	May 2023	0.100	May 2024	-		0.100	Continuing	Continuing	-	
Subtotal			-	0.370		0.406		0.731		-		0.731	Continuing	Continuing	N/A	
Project Cost Totals			-	0.756		0.406		0.831		-		0.831	Continuing	Continuing	N/A	

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102326F / <i>Region/Sector Operation Control Center Modernization Program</i>	Project (Number/Name) 674592 / BA7 0102326F 674592 R/SAOC Modernization

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Battle Control System Modification 1																																
Air Force Systems Operability Test (AFSIT)				■																												
Developmental Testing (DT)							■																									
Operational Testing (OT)								■																								
Battle Control System Modernization																																
Agile Capabilities Development	■																															

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102326F / <i>Region/Sector Operation Control Center Modernization Program</i>	Project (Number/Name) 674592 / BA7 0102326F 674592 R/SAOC Modernization

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Battle Control System Modification 1</i>				
Air Force Systems Operability Test (AFSIT)	4	2022	4	2022
Developmental Testing (DT)	2	2023	2	2023
Operational Testing (OT)	3	2023	3	2023
<i>Battle Control System Modernization</i>				
Agile Capabilities Development	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102412F / <i>North Warning System (NWS)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.095	240.159	0.102	0.000	0.102	0.103	0.105	0.108	0.112	Continuing	Continuing
674592: <i>Region/Sector Operations Modernization Center (R/SAOC)</i>	-	0.095	240.159	0.102	0.000	0.102	0.103	0.105	0.108	0.112	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Portions of this requirement are classified. Additional information is available upon request. FY 23 will fund development and fielding of HLD OTHR. OTHR will fill critical gaps to detecting threats to the Homeland at ranges far exceeding current sensors and enables situations awareness and tactical decision making for defense of North America.

This program element may include necessary civilian pay expenses required to manage execute and deliver weapon system capability. The use of such programs funds would be in addition to civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, 0.00M was expended for civilian pay expenses in this program element, and in FY23, 1.00M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>
Previous President's Budget	0.099	76.910	63.035	0.000	63.035
Current President's Budget	0.095	240.159	0.102	0.000	0.102
Total Adjustments	-0.004	163.249	-62.933	0.000	-62.933
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	163.249			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.004	0.000			
• Other Adjustments	0.000	0.000	-62.933	0.000	-62.933

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102412F / <i>North Warning System (NWS)</i>
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Change Summary Explanation

FY23: Congressional add due to AF requested transfer from OPAF line 55

FY24: The loss of 62.933M is because the money has been re-flowed into PE 0102417. This was part of a larger programmatic decision to transfer the overall management of the HLD OTHR program out of the NWS PE [0102412F] and into the OTHR Backscatter Radar PE [0102417F] where there is a greater amount of subject matter expertise capable of handling a program of this size.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: North Warning System [NWS]	0.095	240.159	0.102	0.000	0.102
Description: The details of this program are classified. Details are available upon request.					
FY 2023 Plans: FY 23 Funds will be used to develop, field and test OTHR system for Homeland Defense.					
FY 2024 Base Plans: FY24 funds continue RDT&E of Talon Archer sensors.					
FY 2024 OCO Plans: No OCO plans.					
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to HLD OTHR dollars moved into OTHR Backscatter PE [0102417].					
Accomplishments/Planned Programs Subtotals					0.102

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

N/A

Remarks

E. Acquisition Strategy

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102412F / North Warning System (NWS)	Project (Number/Name) 674592 / Region/Sector Operations Modernization Center (R/SAOC)

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Talon Archer</i>																												
N/A																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102412F / <i>North Warning System (NWS)</i>	Project (Number/Name) 674592 / <i>Region/Sector Operations Modernization Center (R/SAOC)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Talon Archer</i>				
N/A	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	66.022	12.210	428.754	0.000	428.754	74.056	73.972	31.829	32.980	0.000	719.823
674592: <i>HLD - OTHR</i>	-	0.000	0.000	423.643	0.000	423.643	74.056	73.972	31.829	32.980	0.000	636.480
674865: <i>TACMOR Development</i>	-	66.022	12.210	5.111	0.000	5.111	0.000	0.000	0.000	0.000	0.000	83.343

A. Mission Description and Budget Item Justification

Homeland Defense Over the Horizon Radar (HLD - OTHR) efforts were funded in FY23, in PE 0102412F North Warning System (NWS) and were realigned in FY24 to PE 0102417F Over-the-Horizon Backscatter Radar to report all Department of the Air Force OTHR efforts in one R-1 line.

Efforts funded in this PE focus on development, testing, and fielding, of a long range early detection capability for airborne and surface targets of interest. Each line of effort acquires and fields a land based, high-frequency (HF) ionospheric backscatter radar for over the horizon detection and tracking of airborne and surface targets over wide geographic areas. Fielding of this capability will enable detection, tracking and reporting of airborne and surface targets that may be obscured from conventional line of sight radar systems by the curvature of the earth. Specific lines of effort funded include but are not limited to, Tactical Multi-Mission Over the Horizon Radar (TACMOR), Homeland Defense Over the Horizon Radar (HLD -OTHR) and support for a classified EUCOM requirement.

TACMOR capability is being developed for employment in the Republic of Palau (RoP) to provide enhanced Air Domain Awareness in the USINDOPACOM area of responsibility. TACMOR will be located in the RoP and operated by the United States in agreement with the RoP. Development, test and evaluation, and acquisition of the system and associated components will provide warfighters with the capability to close gaps in surveillance coverage in key regions of the Pacific area of interest to the United States and its Allies.

HLD - OTHR efforts focus on development of capability to extend current NWS surveillance of long range early warning for North America in response to emerging threats. The primary mission of the new HLD-OTHR systems will be to provide long-range sensor coverage of likely air and cruise missile threats to North America, with secondary and tertiary capability against Hypersonic Vehicles (HSVs), Hypersonic Glide Vehicles (HGVs), maritime surface vessels and additional tasking as required. The system will be comprised of four (4) sites in CONUS; Northeast, Northwest, Alaska and a Southern facing system. HLD - OTHR data will be distributed and integrated into existing air, missile and maritime defense early warning networks, as applicable.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in PE 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In PY22 0.0M was expended for civilian pay expenses in this program element, and in CY23 0.0M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	67.400	12.210	68.033	0.000	68.033
Current President's Budget	66.022	12.210	428.754	0.000	428.754
Total Adjustments	-1.378	0.000	360.721	0.000	360.721
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.378	0.000			
• Other Adjustments	0.000	0.000	360.721	0.000	360.721

Change Summary Explanation

FY24 \$360.7M increase to incrementally fund first two HLD-OTHR sites as prototypes.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>				Project (Number/Name) 674592 / <i>HLD - OTHR</i>			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
674592: <i>HLD - OTHR</i>	-	0.000	0.000	423.643	0.000	423.643	74.056	73.972	31.829	32.980	0.000	636.480
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Homeland Defense Over the Horizon Radar (HLD - OTHR) efforts were funded in FY23, in PE 0102412F North Warning System (NWS) and were realigned in FY24 to PE 0102417F Over-the-Horizon Backscatter Radar to report all Department of the Air Force OTHR efforts in one R-1 line.

HLD-OTHR development focuses on development of capability to extend current NWS surveillance to long range early warning for North America in response to emerging threats. Program will design, develop, test and field advanced generation OTHR systems operating at levels of transmit power and receiver sensitivity far exceeding current OTHR systems in operation. Program activities include C2 interface design and integration, HF sensor and digital receiver technology advancement, ionospheric characterization research, remote sensor management capability development, and sensor data fusion research. HLD-OTHR data will be distributed and integrated into existing integrated air, missile defense (IAMD) early warning networks, to include emerging Advanced Battle Management System and Cloud Based C2 architectures as applicable. Funds were added in FY24 to evaluate and develop improvements to the OTHR sensors tracking algorithms to increase probability of detection of high altitude air vehicles such as stratospheric balloons and other unidentified aerial phenomena.

Fielding involves land-based installation of Transmit and Receive site array's separated by 40 - 120 miles for bi-static operations. Transmit site requires 140 acres of land and consist of vertical log periodic elements in an array. The Receive site requires 1350 acres of land and will be be positioned in 7 to 10 rows; termed as a 2-dimensional array. Additional development will include the establishment of an Operational Control Center and associated Command and Control Battle Management capability to enable the dissemination of track data and other targets of interest for Air and Cruise Missile Defense of the Homeland (ACMD-H) air domain awareness requirements.

Program Element will also be utilized to fund any emerging or urgent joint operational needs as required.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In PY22 0.0M was expended for civilian pay expenses in this program element, and in CY23 0.0M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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

	FY 2022	FY 2023	FY 2024
Title: Homeland Defense OTHR Development	-	0.000	423.643

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674592 / <i>HLD - OTHR</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: HLD OTHR development focuses on radar system design, development, manufacture and acquisition of hardware and software for the Transmit and Receive Sites. Development of modeling and simulation tools, studies, and analyses to inform systems engineering, early developmental test activities. Modeling will validate key performance characteristics and metrics unique to each site's interaction with HF radar and the ionosphere. In addition, execution of risk reduction efforts for the development of advanced radar receivers as well as system integration design into the IAMD battle control system enterprise will be used to develop system requirements and technical specifications to inform Command and Control and Operation Control Center system acquisition.</p> <p>FY 2023 Plans: FY23 efforts funded out of PE 01012412F North Warning System PE</p> <p>FY 2024 Plans: - Expand site specific electromagnetic interference and ionospheric characterization work as access to additional land becomes available -Initiate OTHR track data software interface and integration activities into existing Battle Control Centers/C2 nodes - Continue to develop, manufacture, and acquire Rx & Tx antenna, associated infrastructure, and material components necessary to support initial developmental testing as sites becomes available -Continue advanced digital receiver signal processing development</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased in this R-1 due to transfer of HLD-OTHR funding from PE 0102142F into Over the Horizon Backscatter Radar PE 0102147F. Funding increased to account for component and material purchases, prototype antenna fabrication, and delivery (Sites 1&2).</p> <p>Request Technical Adjustment of 428.754M within line # 162, BA7 PE 0102417F, BPAC 674865 to BA5 PE 0102417F, BPAC 674865. Properly aligns program element funding with the budget activity representing the current phase of program development.</p>			
Accomplishments/Planned Programs Subtotals	-	0.000	423.643

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To	Total Cost
			Base	OCO	Total					Complete	
• OPAF 03 0102417F: <i>Over-the-Horizon Backscatter</i>	0.000	0.000	55.198	-	55.198	104.239	104.249	-	-	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674592 / <i>HLD - OTHR</i>

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

HLD-OTHR is executed by PEO Digital. Acquisition Strategy still in development; planned to seek Middle Tier Acquisition Rapid Prototyping to deliver first two systems for Initial Operating Capability over a 5-year timeline as sites become available.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force												Date: March 2023			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0102417F / Over-the-Horizon Backscatterer Radar				674592 / HLD - OTHR							
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Manufacture and acquisition of hardware components for HLD-OTHR Transmit and Receive sites.	TBD	AFLCMC/HBD : Hanscom, AFB, MA	-	-		-		360.143	Jan 2024	-		360.143	Continuing	Continuing	-
Modeling/Simulation and ionospheric characterization activities.	TBD	AFLCMC/HBD : Hanscom, AFB, MA	-	-		-		15.500	Jan 2024	-		15.500	Continuing	Continuing	-
Operational Control Center development and Battle Control Center Integration.	TBD	AFLCMC/HBD : Hanscom, AFB, MA	-	-		-		22.000	Jan 2024	-		22.000	Continuing	Continuing	-
Subtotal			-	-		-		397.643		-		397.643	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	AFLCMC/HBD : Hanscom, AFB, MA	-	-		-		2.000	Nov 2023	-		2.000	Continuing	Continuing	-
Subtotal			-	-		-		2.000		-		2.000	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Integration, Validation and Verification	TBD	AFLCMC/HBD : Hanscom, AFB, MA	-	-		-		10.000	May 2024	-		10.000	Continuing	Continuing	-
Subtotal			-	-		-		10.000		-		10.000	Continuing	Continuing	N/A

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674592 / <i>HLD - OTHR</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>HLD OTHR</i>				
Model Based Systems Engineering - Ionospheric and Siting	3	2022	3	2024
Requirements developments and system performance specification validation	3	2022	3	2023
Radar Rx risk-reduction design and technology advancement efforts	3	2023	1	2025
Battle Control System integration-interface design testing	3	2023	2	2025
Component and material purchases, prototype antenna fabrication, and delivery (sites 1&2)	4	2023	4	2025
Radar site 1- installation	1	2026	4	2027
Radar site 2 - installation	1	2026	3	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatterer Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
674865: <i>TACMOR Development</i>	-	66.022	12.210	5.111	0.000	5.111	0.000	0.000	0.000	0.000	0.000	83.343
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

TACMOR capability is being developed for employment in the Republic of Palau to provide enhanced Air Domain Awareness in the USINDOPACOM area of responsibility. TACMOR will be operated by the United States and located in the Republic of Palau, with the agreement of the government of Palau. Development, test and evaluation, and acquisition of the system and associated components will provide warfighters with the capability to close gaps in surveillance coverage in key regions of the Pacific area of interest to the United States and our Allies.

TACMOR efforts funded in this Program Element include but are not limited to: A Transmit site consisting of ten elements and high power amplifiers transmitting High Frequency [HF] Skywave Over-The-Horizon Radar [OTHR] waveforms. The transmit site will also consists of a HF vertical sounder antenna and a HF backscatter sounder providing ionosphere environmental information for optimizing frequency selection.

Also includes a Receive site consisting of 128 dual-monopole antenna elements receiving the over-the-horizon reflected energy from the transmit site. The receive site also contains the secure facilities for signal processing of the received data and real-time target extraction information.

This effort will also fund the communications infrastructure necessary to enable the data flow from the Transmit and Receive sites to an off-site operations control center. The operations control center plans and executes missions in support of the Combatant Command [CCMD] and provides real-time, target tracking information to all-source information fusion and dissemination systems. TACMOR data will also be accessible to and exploited by the National Air and Space Intelligence Center [NASIC] for detailed, post-event analysis.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 0 was expended for civilian pay expenses in this program element, and in FY2023 0 is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: Homeland Defense OTHR Development	25.100	0.000	0.000
Description: HLD OTHR efforts will focus on development of modeling and simulation aimed at conducting analysis for up to 4 CONUS sites. Modeling will provide key performance metrics unique to each site interaction with High Frequency Radar and the Ionosphere that will be used to finalize requirements and technical specifications to inform system acquisition.			
FY 2023 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
N/A				
FY 2024 Plans: N/A				
FY 2023 to FY 2024 Increase/Decrease Statement: N/A				
<p>Title: TACMOR Development</p> <p>Description: Will establish initial TACMOR prototype transition and development activities necessary to accept post production readiness system components and sub-components. Program re-phased to align with military construction schedule and site availability.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Execute re-phased assembly and integration activities for the major subsystems: receive subsystem, transmit subsystem, operations control center subsystems that include integration of the major subsystems within their appropriate containers and establishment of network connections necessary to enable Factory Acceptance Testing [FAT]. - Execute test plans, procedures, and procure FAT-unique test equipment necessary to collect data at multiple points within the TACMOR system to confirm subsystem components meet performance specifications - Execute FAT according to test plans, collect and analyze test data, and report on subsystem and component level successes and failures based on specifications and overall TACMOR system requirements flow down - Complete development of a System Integration Lab [SIL] capability to allow for early test and integration of TACMOR unique hardware and software to run in a maintenance environment. Allows for initial training of TACMOR maintainers to gain familiarity with the major systems and subsystem components. - Establish the Wideband Communications Architecture in the SIL environment to test, evaluate and verify the Primary, Alternate, Contingency, and Emergency communications architecture prior to fielding - Continue development and installation of communication infrastructure in support of offsite data transmission and dissemination. This includes associated authority to operate and cyber hardening - Begin development of initial operations training material in support of Initial Operational Test and Evaluation [IOT&E] process 		40.922	12.210	5.111

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>- Complete development of support documentation; i.e.; Technical Orders, Site Diagrams, and finalize requirements for specific contractor deliverables in support of IOT&E</p> <p>FY 2024 Plans:</p> <p>- Will continue assembly and integration activities for the major subsystems: receive subsystem, transmit subsystem, operations control center subsystems that include integration of the major subsystems within their appropriate containers and establishment of network connections necessary to enable Factory Acceptance Testing [FAT].</p> <p>- Will execute test plans, procedures, and procure FAT-unique test equipment necessary to collect data at multiple points within the TACMOR system to confirm subsystem components meet performance specifications</p> <p>- Will continue to execute FAT according to test plans, collect and analyze test data, and report on subsystem and component level successes and failures based on specifications and overall TACMOR system requirements flow down</p> <p>- Will complete development of a System Integration Lab [SIL] capability to allow for early test and integration of TACMOR unique hardware and software to run in a maintenance environment. Allows for initial training of TACMOR maintainers to gain familiarity with the major systems and subsystem components.</p> <p>- Will integrate the Wideband Communications Architecture in the SIL environment to test, evaluate and verify the Primary, Alternate, Contingency, and Emergency communications architecture prior to fielding</p> <p>- Will continue development and installation of communication infrastructure in support of offsite data transmission and dissemination. This includes associated authority to operate and cyber hardening</p> <p>- Will begin development of initial operations training material in support of Initial Operational Test and Evaluation [IOT&E] process</p> <p>- Will complete development of support documentation; i.e.; Technical Orders, Site Diagrams, and finalize requirements for specific contractor deliverables in support of IOT&E</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to FY24 completion of TACMOR development efforts.</p>			
Accomplishments/Planned Programs Subtotals	66.022	12.210	5.111

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>

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

N/A

Remarks

D. Acquisition Strategy

TACMOR will be executed out of the PEO Digital. For contracting efforts program will seek approval for rapid prototyping Middle Tier Acquisition to transition the Joint Concept Technology Demonstration to a program of record.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatterer Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Integration Lab development Communications Architecture Integration Facility	TBD	AFLCMC/HBG : Robins, AFB, GA	-	-		9.610	Feb 2024	-		-		-	Continuing	Continuing	-
Component and material purchases, prototype antenna fabrication; Wide Area Communications network services	MIPR	AFLCMC/HBG : Robins, AFB, GA	-	38.582	Aug 2023	-		-		-		-	Continuing	Continuing	-
Homeland Defense OTHR Modeling and Simulation, Site Analysis, Requirements and Performance Metrics Development	Various	AFLCMC/HBD : Hanscom, MA	-	23.040	Apr 2023	-		-		-		-	Continuing	Continuing	-
Initial Operations training material development; cyber security risk management frame work implementation	TBD	AFLCMC/HBG : Robins, AFB, GA	-	-		-		3.000	Feb 2024	-		3.000	Continuing	Continuing	-
Subtotal			-	61.622		9.610		3.000		-		3.000	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	Various	AFLCMC/HBG : Robins, AFB, GA	-	1.000	Mar 2022	1.000	Nov 2022	0.300	Nov 2023	-		0.300	Continuing	Continuing	-
Subtotal			-	1.000		1.000		0.300		-		0.300	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

HLD OTHR	
CONUS Site environmental site analysis	██████████
Model Based System Engineering	████████████████████
Requirements developments and system performance specification validation	██████████
Software Development Environment	██████████████████
TACMOR Development	
Full-scale prototype and FAT capability development	██████████████████████████████
Component and material purchases, prototype antenna fabrication, and delivery	██████████████████
Assembly and integration activities for major components and subsystems	██████████████████████████████
Test plan and test procedure development and data collection	██████████████████████████
FAT test plan execution	██████████████████
Communication infrastructure development	██████████████████████████
System Integration Lab development, software integration and communications testing	██████████████████████████
Cybersecurity Risk Management Framework Planning & Implementation	██████████████████████████
Training Material Development in support of IOT&E	██████████████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / <i>Over-the-Horizon Backscatter Radar</i>	Project (Number/Name) 674865 / <i>TACMOR Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>HLD OTHR</i>				
CONUS Site environmental site analysis	4	2022	3	2023
Model Based System Engineering	4	2022	4	2024
Requirements developments and system performance specification validation	3	2022	3	2023
Software Development Environment	3	2022	4	2023
<i>TACMOR Development</i>				
Full-scale prototype and FAT capability development	3	2023	4	2025
Component and material purchases, prototype antenna fabrication, and delivery	2	2024	2	2025
Assembly and integration activities for major components and subsystems	2	2024	4	2026
Test plan and test procedure development and data collection	3	2022	3	2024
FAT test plan execution	4	2024	4	2025
Communication infrastructure development	3	2023	4	2025
System Integration Lab development, software integration and communications testing	1	2024	4	2025
Cybersecurity Risk Management Framework Planning & Implementation	1	2024	4	2025
Training Material Development in support of IOT&E	2	2024	3	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0202834F / <i>Vehicles and Support Equipment - General</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	2.909	14.483	15.498	0.000	15.498	11.545	11.570	11.807	12.234	Continuing	Continuing
672800: <i>AVIATION SUPPORT EQUIPMENT MODERNIZATION</i>	-	2.909	14.483	15.498	0.000	15.498	11.545	11.570	11.807	12.234	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Aviation Support Equipment Modernization provides funding for the modernization of organizational and intermediate level support equipment for out-of-production and emerging aircraft, munitions and external stowage to maximize commonality of equipment, improve aircraft readiness/availability and to reduce life cycle sustainment costs. These items, common (used on more than one weapon system) and peculiar (unique to one weapon system), directly support aircraft maintenance, servicing, and sortie generation requirements.

To support aircraft generation requirements, support equipment may be studied, reviewed, modified and/or re-developed in order to maintain operational readiness. Examples of equipment under review and/or modernization includes, but not limited to, power generation, heating, ventilation, and air conditioning (HVAC), munition trailers/accessories, munition lifts/accessories, tow vehicles, munition test/maintenance stands, hydraulic equipment, and engine test stands. Any identified capability gaps may result in the design of new system.

This program element also includes program administrative cost for the Support Equipment and Vehicles program office and funds the cost of studies and research to support the aviation support equipment fleet.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Aviation Support Modernization for emergent or unanticipated weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 06058XXX.) In FY21 00.000M and in FY22 00.000M was expended for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0202834F / <i>Vehicles and Support Equipment - General</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	5.889	14.483	13.878	0.000	13.878
Current President's Budget	2.909	14.483	15.498	0.000	15.498
Total Adjustments	-2.980	0.000	1.620	0.000	1.620
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-2.980	0.000	1.620	0.000	1.620

Change Summary Explanation

This PEC took a reduction of \$2.909M in FY22 to be reprogrammed in FY24. FY24 forecasts additional funds to align with forecasted maturity of RDT&E projects and the associated Feasibility and Test and Evaluation activities, and the purchase of Low Rate Initial Production (LRIP) units to execute these activities.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Powered AGE Systems Modernization	1.618	3.664	5.745
Description: Ensures powered aerospace ground equipment (AGE) remains available and suitable to meet the requirements of legacy and 5th generation aircraft and force employment/basing strategies while providing reduced lifecycle sustainment costs, reduce operational footprint in support of agile combat operations, and providing improved user safety by reducing system emissions and noise. Powered AGE includes hydraulic, generators, lighting, heating/air conditioning, compressors/bleed-air, aerial stores lift trucks and other electrically driven systems used in and around the flight line for the generation and maintenance of aircraft.			
FY 2023 Plans: Efforts include the continued study, research, development, and operational feasibility testing of emerging technologies/systems to provide reliable clean power such as, but not limited to, hybrid, fuel cell, power grid, and battery systems. One or more contracts may be awarded to support efforts such as the design and test of a new large aircraft generator system, battery "powerhead" systems to reduce diesel consumption and replace aging/unsupportable fleet, as well a combined aircraft power/flight line lighting system to support agile basing applications for remotely piloted aircraft. Small business innovative research (SBIR) contract may be awarded to mature technology. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.			
FY 2024 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0202834F / <i>Vehicles and Support Equipment - General</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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<p>Efforts include the continued study, research, development, and operational feasibility testing of emerging technologies/systems to provide reliable clean power such as, but not limited to, hybrid, fuel cell, power grid, and battery systems. One or more contracts may be awarded to support efforts such as the design and test of a new large aircraft generator system, battery "powerhead" systems to reduce diesel consumption and replace aging/unsupportable fleet, as well a combined aircraft power/flight line lighting system to support agile basing applications for remotely piloted aircraft. Small business innovative research (SBIR) contract may be awarded to mature technology. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase of funds aligns with increased maturity of RDT&E projects and the associated Feasibility and Test and Evaluation activities forecasted.</p>			
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<p>Title: Munitions Materiel Handling Equipment (MMHE) Modernization</p> <p>Description: Ensures aerial lift trucks (jammers) and munitions trailers continue to safely meet lift & carry requirements as well as fill capability gaps resulting from new/emerging weapons and aircraft stowage, and new force employment/ basing strategies. RDT&E supports emerging opportunities, such as but not limited to, development of semi-autonomous loading systems, alternative electrical power/drive systems and exploring & implementing a Family-of-Jammers concept to address low observable aircraft loading challenges, agile operations in contested environment, and heavy-weight lift capabilities resulting from emerging weapons. Equipment may be studied, reviewed, modified and/or re-developed in order to maintain operational readiness</p> <p>FY 2023 Plans: Efforts include the continued study, research, development, and operational feasibility testing of emerging technologies/systems to ensure MMHE equipment continue to meet current and future requirements. One or more contracts may be awarded to develop a Family-of-Jammer(s) to meet AF lift requirements across all weight classes and/or development of a semi-autonomous/ autonomous loading system to improve user safety and generation timelines. Small business innovative research (SBIR) contract may be awarded to mature technology. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.</p> <p>FY 2024 Plans: Continuing to support mission generation Tow Systems Modernization requirements, support equipment may be studied, reviewed, modified and/or re-developed in order to maintain operational readiness. Examples of equipment under review include, but not limited to development of a Family-of-Tow Systems, "universal tow bar", aircraft positioners, emerging load limits, replace legacy (1955) tow systems, increase AGILE operations, reduction of deployment footprint and to reduce human and aircraft safety</p>	0.172	7.079	7.824
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0202834F / <i>Vehicles and Support Equipment - General</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>mishaps. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase of funds aligns with increased maturity of RDT&E projects and the associated Feasibility and Test and Evaluation activities forecasted.</p>				
<p>Title: Tow Systems Modernization</p> <p>Description: New Common Tow Systems Modernization across the aircraft fleet. RDT&E efforts support development, testing, and producibility of Tow Bar and Tow Systems.</p> <p>FY 2023 Plans: Continuing to support mission generation Tow Systems Modernization requirements, support equipment may be studied, reviewed, modified and/or re-developed in order to maintain operational readiness. Examples of equipment under review include, but not limited to development of a Family-of-Tow Systems, "universal tow bar", aircraft positioners, emerging load limits, replace legacy (1955) tow systems, increase AGILE operations, reduction of deployment footprint and to reduce human and aircraft safety mishaps. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.</p> <p>FY 2024 Plans: Continuing to support mission generation Tow Systems Modernization requirements, support equipment may be studied, reviewed, modified and/or re-developed in order to maintain operational readiness. Examples of equipment under review include, but not limited to development of a Family-of-Tow Systems, "universal tow bar", aircraft positioners, emerging load limits, replace legacy (1955) tow systems, increase AGILE operations, reduction of deployment footprint and to reduce human and aircraft safety mishaps. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY24 funding amount aligns with RDT&E strategy pivot from modernizing current capabilities to pursuing current/future commercially available solutions.</p>		1.119	3.740	1.929
Accomplishments/Planned Programs Subtotals		2.909	14.483	15.498

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0202834F / <i>Vehicles and Support Equipment - General</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 07 000071: <i>Aircraft Replacement Support Equip</i>	-	161.513	-	-	-	-	-	-	-	Continuing	Continuing

Remarks
The Support Equipment and Vehicles program office is responsible for developing, acquiring and sustaining common aircraft generation support equipment for the United States Air Force (USAF).

E. Acquisition Strategy

The acquisition strategy for the Munitions Materiel Handling Equipment (MMHE) Modernization project is expected to maximize OTA non-traditional contracts for development, test, and user evaluation. This includes, but not limited to PIA, Consortium, SBIR, DLA TLS, TACFI, etc. and may award to multiple vendors.

The acquisition strategy for the Powered Aerospace Ground Equipment (AGE) Modernization project is expected to maximize OTA non-traditional contracts for development, test, and user evaluation. This includes, but not limited to PIA, Consortium, SBIR, DLA TLS, TACFI, etc. and may award to multiple vendors.

The acquisition strategy for Tow Systems Modernization project is expected to maximize OTA non-traditional contracts for development, test, and user evaluation. This includes, but not limited to PIA, Consortium, SBIR, DLA TLS, TACFI, etc. and may award to multiple vendors.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0202834F / Vehicles and Support Equipment - General	Project (Number/Name) 672800 / AVIATION SUPPORT EQUIPMENT MODERNIZATION
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MMHE Contract	C/TBD	Not specified. : TBD	-	0.000	Mar 2022	6.990	Mar 2023	7.824	Mar 2024	-		7.824	Continuing	Continuing	-
Secondary Power Contract	C/TBD	Not specified. : TBD	-	0.978	Feb 2022	0.472	Feb 2023	3.485	Feb 2024	-		3.485	Continuing	Continuing	-
Tow Systems Contract	C/TBD	Not specified. : TBD	-	1.119	Feb 2022	1.349	Feb 2023	1.929	Feb 2024	-		1.929	Continuing	Continuing	-
Ground Power Contract	C/TBD	Not specified. : TBD	-	0.640		4.665		1.200		-		1.200	Continuing	Continuing	-
Subtotal			-	2.737		13.476		14.438		-		14.438	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Support	PO	Not specified. : TBD	-	-		0.952	Mar 2023	1.000	Mar 2024	-		1.000	Continuing	Continuing	-
Subtotal			-	-		0.952		1.000		-		1.000	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Office Management/Government Services	TBD	Not specified. : TBD	-	0.172	Feb 2022	0.055	Feb 2023	0.060	Feb 2024	-		0.060	Continuing	Continuing	-
Subtotal			-	0.172		0.055		0.060		-		0.060	Continuing	Continuing	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		-	2.909	14.483	15.498	-	15.498	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0202834F / <i>Vehicles and Support Equipment - General</i>	Project (Number/Name) 672800 / AVIATION SUPPORT EQUIPMENT MODERNIZATION

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Aviation Support Equipment Mod</i>	
Powered AGE Development	
MMHE Development	
Tow Systems Development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0202834F / <i>Vehicles and Support Equipment - General</i>	Project (Number/Name) 672800 / AVIATION SUPPORT EQUIPMENT MODERNIZATION

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Aviation Support Equipment Mod</i>				
Powered AGE Development	3	2022	3	2027
MMHE Development	2	2023	3	2028
Tow Systems Development	2	2022	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	76.847	145.499	81.123	0.000	81.123	44.938	46.050	46.993	48.694	72.881	563.025
675212: <i>MQ-9 SLAM</i>	0.000	33.786	92.898	80.846	0.000	80.846	44.679	45.754	46.691	48.380	71.828	464.862
675247: <i>Squadron Operations Centers (SOC)</i>	0.000	0.135	0.268	0.277	0.000	0.277	0.259	0.296	0.302	0.314	1.053	2.904
675249: <i>MQ-9 Upgrade</i>	0.000	42.926	52.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95.259

Program MDAP/MAIS Code: 424

A. Mission Description and Budget Item Justification

The basic MQ-9 Reaper system consists of the aircraft, sensors, Ground Control Station (GCS), communications equipment, weapon kits, support equipment, simulator and training devices, Readiness Spares Packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. The system is designed to be modular and open-ended. Mission-specific equipment is employed in a plug-and-play mission kit concept allowing specific aircraft and GCS configurations to be tailored to fit mission needs.

The MQ-9 Reaper system has four separate development programs. This PE includes:

1. MQ-9 System Lifecycle Agile Modernization (SLAM). This effort develops improvements for existing systems and fields new capabilities for the baseline MQ-9 fleet using an Agile Acquisition Strategy to include concept exploration.
2. MQ-9 Development and Fielding. This effort is for development and fielding of the baseline MQ-9 aircraft and GCSs and associated communications systems, sensors, payloads, simulators, support equipment, and resolving Diminishing Manufacturing Sources (DMS) issues. The last year of funding was FY2022.
3. Squadron Operations Centers (SOC). This effort is for development and fielding of standardized operations centers. SOCs contain the equipment necessary for remote split operations, to provide mission data and tasking information to aircrew, and to disseminate and/or exchange mission data with decision-makers and the intelligence community.
4. MQ-9 Upgrade. This effort develops improvements for existing systems and fields new capabilities for the baseline MQ-9 fleet using an Agile Acquisition Strategy.

The Air Force established the MQ-9 Multi-Domain Operation (M2DO) aircraft configuration which consisted of multiple projects intended to keep the platform viable in the wide-spectrum of armed conflict. The configuration included Anti-Jam Global Positioning System, Enhanced Power, Link 16, Open Mission System/Stellar Relay, enhanced data processing, and Command and Control Resiliency. The number of M2DO aircraft, and final capabilities within this configuration, are subject to change as requirements evolve.

MQ-9 Development funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV
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This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver MQ-9 Weapon System for emergent or unanticipated weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In PY \$2.874M and in CY \$2.935M was expended for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	79.121	98.499	80.940	0.000	80.940
Current President's Budget	76.847	145.499	81.123	0.000	81.123
Total Adjustments	-2.274	47.000	0.183	0.000	0.183
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-4.500			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	51.500			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.324	0.000			
• SBIR/STTR Transfer	-2.598	0.000			
• Other Adjustments	0.000	0.000	0.183	0.000	0.183

Change Summary Explanation

FY2022 Changes: -\$2.598 for Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR); +\$0.324M Below Threshold Reprogramming for Stellar Relay program.

FY2023 Changes: +\$51.500M for MQ-9 Modernization (\$31.5M) and Disaggregated AMTI Development (\$20M); -\$4.500M for MQ-9 LOH carryover (-\$2M), MQ-9 upgrade carryover (-\$1.5M) and Talon AZREAL carryover (-\$1M).

FY2024 Changes: +\$0.183M for inflation adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV				Project (Number/Name) 675212 / MQ-9 SLAM			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675212: MQ-9 SLAM	0.000	33.786	92.898	80.846	0.000	80.846	44.679	45.754	46.691	48.380	71.828	464.862
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MQ-9 System Lifecycle Agile Modernization (SLAM) Program develops and integrates improvements for existing systems and fields new capabilities for the MQ-9 fleet through an Agile Acquisition Strategy to meet evolving mission needs. SLAM includes concept exploration.

The objective is to enable rapid fielding of new software, hardware, and sustainability for integration into the MQ-9 fleet with requirements from the Combat Capability List (CCL) that may include, but are not limited to, efforts to reduce system configurations; perform technology upgrades; increase pilot awareness and usability; improve reconnaissance targeting and exploitation; expand weapons system selection and lethality; enlarge suitability to varying operational theaters; improve security and self-protection; reduce logistics footprint; train the warfighter, and prototype.

Activities also include, but are not limited to, studies, analysis, simulations, demonstrations, prototyping and testing, use of subject matter experts agencies to develop and test all current and follow-on MQ-9 system capabilities which include, but are not limited to System Integration Laboratory (SIL)/ Hardware in the Loop Laboratory (HILL) and Detachment 3 (Det 3) improvements.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver MQ-9 Weapon System capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

Funding may be used to address Diminishing Manufacturing Source (DMS) and Non-Recurring Engineering issues.

Where appropriate there will be cost sharing on joint efforts that are required by all programs to support new capabilities.

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

	FY 2022	FY 2023	FY 2024
Title: MQ-9 SLAM	29.261	69.598	80.446
Description: Develops and integrates upgrade capabilities to support the MQ-9 modernization strategy. Development combines the rigor of an event driven development process (referred to as Technology Maturation Effort (TME)) with the expedited delivery of a schedule driven integration and fielding process. New capabilities include, but are not be limited to, upgrades of existing aircraft, Ground Control Station (GCS), communication, payload systems, software updates, and the resolution of Diminishing Manufacturing Sources (DMS) issues.			
Candidate Capabilities are determined by ACC and AFSOC direction and inputs that include Joint Urgent Operational Need (JUON) and Urgent Operational Need (UON) requests.			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Activities also include, but are not limited to, operator simulators, reliability and maintainability, test support, communications, and urgent services.</p> <p>During development, there will be cost sharing on joint efforts that are required by all programs to support new capabilities.</p> <p>Includes but is not limited to, program planning for concept exploration which explores Multi-Role UAS capabilities in a contested environment.</p> <p>FY 2023 Plans: Continue to develop M2DO capability upgrades for resilient C2, Open Mission System, and autonomy. Resolve DMS issues and continue upgrading mandated capabilities to include, but not limited to, Mode 5, data encryption, and weapons usability improvements.</p> <p>FY 2024 Plans: Continue to develop M2DO capability upgrades for resilient C2, Open Mission System, and autonomy. Resolve DMS issues and continue upgrading mandated capabilities to include, but not limited to, Mode 5, data encryption, and weapons usability improvements.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased to ramp up support of SLAM Modernization efforts towards M2DO capabilities</p>			
<p>Title: Reliability and Maintainability</p> <p>Description: Develops MQ-9 Reliability and Maintainability (R&M) improvements for aircraft and ground based infrastructure. Includes engineering change orders, studies, and general research. Addresses and resolves DMS issues.</p> <p>FY 2023 Plans: Continue to develop aircraft and ground based infrastructure to improve mission capable rates and reduce reliability and maintainability costs. Includes addressing and resolving DMS issues.</p> <p>FY 2024 Plans: Continue to develop aircraft and ground based infrastructure to improve mission capable rates and reduce reliability and maintainability costs. Includes addressing and resolving DMS issues.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Continue reliability and maintainability efforts.</p>	0.100	0.100	0.100
<p>Title: Test Support</p>	0.200	0.100	0.100

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: Provides support for, but is not limited to, activities for MQ-9 testing of weapon system hardware/software testing in accordance with (IAW) contract standards, developmental testing of new capabilities, and R&M upgrades.</p> <p>FY 2023 Plans: Continues to provide government agencies support for MQ-9 testing to include continued acceptance testing of weapon system hardware/software IAW with contract standards, developmental testing of new capabilities, and R&M improvements.</p> <p>FY 2024 Plans: Continues to provide government agencies support for MQ-9 testing to include continued acceptance testing of weapon system hardware/software IAW with contract standards, developmental testing of new capabilities, and R&M improvements.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Continue MQ-9 test support efforts.</p>			
<p>Title: Communications</p> <p>Description: Develops communications capabilities such as, but not limited to, network systems managers, SATCOM, and relay site upgrades. Includes drafting technical orders and support documentation, training materials, production drawings, and retrofit acceptance plans (e.g., Bandwidth Efficient Common Data Link (BE-CDL) Secure Voice Multi Level Security (MLS), ARC-210 Guard Squelch, and Secure Communications).</p> <p>FY 2023 Plans: Continue to develop communications capabilities on encrypted data links, terminal, command and control, ISR transmission, GCS communications, SATCOM, integrated IP-based network interfaces, primary data links, network system managers, operational durability, remote split operations, and support equipment. Also includes associated technical orders and flight manuals.</p> <p>FY 2024 Plans: Continue to develop communications capabilities on encrypted data links, terminal, command and control, ISR transmission, GCS communications, SATCOM, integrated IP-based network interfaces, primary data links, network system managers, operational durability, remote split operations, and support equipment. Also includes associated technical orders and flight manuals.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Continue development of communications capabilities.</p>	0.100	0.100	0.100
<p>Title: Concept Exploration</p> <p>Description: Includes but is not limited to concept exploration to support Multi-Role UAS capabilities in a contested environment.</p> <p>FY 2023 Plans:</p>	4.125	23.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Explores concepts for a potential next-generation, multi-role UAS capabilities. Includes program planning; analysis of requirements, threat environments, and existing capability shortfalls; may include risk reduction studies and development to include assessments or prototype development. To include subsystem exploration and prototype development to explore, but not limited to, Disaggregated Airborne Moving Target Indication (AMTI), Ground Moving Target Indication (GMTI), electronic spectrum awareness, communication systems, command and control technology, artificial intelligence/machine learning (AI/ML), electro/optical systems, and other data link technology. This effort does not establish a new UAS Program of Record.</p> <p>FY 2024 Plans: Concept exploration is currently planned to be complete.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Concept exploration is currently planned to be complete.</p>			
<p>Title: Operator Simulator</p> <p>Description: Develop operator simulators for training and perform updates to keep operator simulators current with the aircraft and GCSs. Operator Simulator also includes, but is not limited to: JUONs, UONs, and support for emerging AFSOC configurations.</p> <p>FY 2024 Plans: Funding increased to implement updates to keep the operator simulator current with the aircraft and GCSs under SLAM program.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased to implement updates to keep the operator simulator current with the aircraft and GCSs under SLAM program.</p>	-	-	0.100
Accomplishments/Planned Programs Subtotals	33.786	92.898	80.846

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

Line Item	FY 2022	FY 2023	FY 2024			FY 2025	FY 2026	FY 2027	FY 2028	Cost To	
			Base	OCO	Total					Complete	Total Cost
• APAF 06 PRDTB1: MQ-9	18.451	14.078	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.529
• APAF 05 PRDTB2: MQ-9 Mods	72.869	211.507	98.063	0.000	98.063	12.328	12.178	29.233	29.841	0.000	466.019

Remarks
PMA costs are included in Other Government Costs.

D. Acquisition Strategy
Acquisition of MQ-9 SLAM is accomplished via sole-source contracts with General Atomics-ASI, Raytheon, and L-3 Communications, prime contractors, and United States Government (USG) Labs. Management of development and fielding of new capabilities will be through an Agile Acquisition Strategy that combines the rigor of

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM
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an event driven development process (referred to as a Technology Maturation Effort (TME)) with the expedited delivery of a schedule driven integration and fielding process. This will allow continued baseline improvements while rapidly integrating limited urgent needs.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 SLAM	SS/CPAF	GA-ASI : Poway, CA	0.000	21.733	Nov 2021	58.118	Nov 2022	66.787	Nov 2023	-		66.787	196.236	342.874	-
Reliability and Maintainability	SS/CPAF	GA-ASI : Poway, CA	0.000	0.100	Nov 2021	0.100	Nov 2022	0.100	Nov 2023	-		0.100	2.722	3.022	-
Communications	SS/CPAF	GA-ASI : Poway, CA	0.000	0.100	Jan 2022	0.100	Jan 2023	0.100	Jan 2024	-		0.100	0.934	1.234	-
Concept Exploration	Various	Various : Various	0.000	4.125	Mar 2022	23.000	Mar 2023	0.000	Mar 2024	-		0.000	0.000	27.125	-
Operator Simulator	MIPR	Various : Huntsville, AL	0.000	-		0.100	Jan 2023	0.100	Jan 2024	-		0.100	0.000	0.200	-
Subtotal			0.000	26.058		81.418		67.087		-		67.087	199.892	374.455	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	Various	Various : Various	0.000	0.200	Jun 2022	0.100	Jun 2023	0.100	Jun 2024	-		0.100	1.655	2.055	-
Subtotal			0.000	0.200		0.100		0.100		-		0.100	1.655	2.055	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Government Costs	Various	Various : Various	0.000	7.528	Apr 2022	11.380	Apr 2023	13.659	Apr 2024	-		13.659	40.524	73.091	-
Subtotal			0.000	7.528		11.380		13.659		-		13.659	40.524	73.091	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	33.786	92.898	80.846	-	80.846	242.071	449.601	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

MQ-9 SLAM	
MQ-9 SLAM	
Reliability and Maintainability	
Communications	
Test Support	
Concept Exploration	
Operator Simulator	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MQ-9 SLAM				
MQ-9 SLAM	1	2022	4	2028
Reliability and Maintainability	1	2022	4	2028
Communications	2	2022	4	2028
Test Support	3	2022	4	2028
Concept Exploration	3	2022	4	2024
Operator Simulator	1	2024	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV				Project (Number/Name) 675247 / Squadron Operations Centers (SOC)			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675247: Squadron Operations Centers (SOC)	0.000	0.135	0.268	0.277	0.000	0.277	0.259	0.296	0.302	0.314	1.053	2.904
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The SOC is required to employ Remote Split Operations (RSO). It provides the communications, network, aircraft control and sensor distribution circuits to effectively execute RSO missions. The SOC provides CONUS-based aircrews mission data, tasking, and ability to disseminate and exchange mission data with decision-makers and intelligence entities. This effort defines component standards, develops and stands up a SOC Systems Integration Lab (SIL), and integrates new technologies to maintain currency with technological and platform advancements.

RPA SOC RDT&E funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/ demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver MQ-9 Weapon System capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

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

	FY 2022	FY 2023	FY 2024
Title: Squadron Operations Center	0.135	0.268	0.277
Description: Development of a SOC common to Air Combat Command (ACC), Air Force Special Operations Command (AFSOC), and Air National Guard (ANG). Major capabilities include secure mission communications; data reception, recording, editing, analysis, dissemination, and exchange; mission planning, preparation, and support; mission execution (e.g., updates to threat tracking and targeting, weather tracking, mission status and capability; tactical situational awareness; etc.); and mission reconstruction and debriefing.			
FY 2023 Plans: Necessary for Developmental/Operational Testing of the DT/OT SOC which is required to develop and test new technologies to remain up to date with technological and platform advancements.			
FY 2024 Plans: Necessary for the continued Developmental/Operational Testing of the DT/OT SOC. This is required to develop and test new technologies to enable the Squadron Operation Centers to remain up to date with technological and platform advancements for use throughout the enterprise.			
FY 2023 to FY 2024 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675247 / Squadron Operations Centers (SOC)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Small increase of \$0.009M in requirement due to inflationary pressures of required items being developed and tested in the DT/OT SOC.			
Accomplishments/Planned Programs Subtotals	0.135	0.268	0.277

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPAF 03 Line Item 837300: <i>Base Communications Infrastructure</i>	92.326	11.451	0.000	-	0.000	0.000	0.000	-	-	0.000	103.777

Remarks

Since 2004, MQ-1/MQ-9 squadrons have acquired equipment, on an ad hoc basis, to provide the communications, network, aircraft control, and sensor distribution circuits needed to execute RSO missions. OPAF funding will be used to standardize and modernize existing RPA SOC capability, which is required to reduce security vulnerabilities, as well as address end of life/end of support issues of existing RPA SOC equipment. The Developmental Testing (DT) SOC will be used to further enhance the program's ability to update future RPA-SOC modernization efforts.

Due to an administrative error, FY22 was entered into the system incorrectly, should reflect 70.37M with a 4M BTR for total of 66.37M.
Due to an administrative error, FY23 was entered into the system incorrectly, should reflect 6.401M.

Will be corrected in future updates, as possible.

D. Acquisition Strategy

AFLCMC/WII manages the SOC Program for ACC, AFSOC, and ANG through organic development at the 577 Software Engineering Squadron (SWES) / 578 SWES, and hardware/software procurement utilizing the installation contractor.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675247 / Squadron Operations Centers (SOC)

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

DT/OT SOC Development , Testing, Installation and Maintenance

DT/OT SOC



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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675247 / Squadron Operations Centers (SOC)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>DT/OT SOC Development , Testing, Installation and Maintenance</i>				
DT/OT SOC	2	2022	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV				Project (Number/Name) 675249 / MQ-9 Upgrade			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675249: MQ-9 Upgrade	0.000	42.926	52.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95.259
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MQ-9 Upgrade Program develops and integrates improvements for existing systems and fields new capabilities for the MQ-9 fleet through an Agile Acquisition Strategy.

The objective is to enable rapid fielding of new software, hardware, and sustainability measures for integration into the MQ-9 fleet. Per the Candidate Capability List (CCL) signed on 30 August 2022, capabilities may include, but are not limited to, efforts to reduce system configurations; enable battlespace integration; implement open architecture; enable Command and Control and mission resiliency; mitigate Diminishing Manufacturing Sources and Material Shortages (DMSMS) through planned technology upgrades; enable airspace integration; increase weather tolerance; enable airborne situational awareness; enable operations in a contested environment; improve cybersecurity resilience; improve reliability and maintainability; increase lethality; improve the human machine interface to enhance the user experience; and improve readiness.

*Indicates efforts and solutions in support of the modernization MQ-9 Multi-Domain Operations (M2DO) configuration.

Activities also include studies, analysis, simulations, demonstrations, prototyping, and testing. The Upgrade Program may use subject matter experts and agencies to develop and test MQ-9 system capabilities and make improvements to System Integration Laboratory (SIL)/ Hardware in the Loop Laboratory (HILL) and Detachment 3 (Det 3).

This program element may include necessary civilian pay expenses required to manage, execute, and deliver MQ-9 WEAPON SYSTEM capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

Funding may be used to address Diminishing Manufacturing Source (DMS) and Non-Recurring Engineering issues.

Where appropriate, there will be cost sharing on joint efforts that are required by all programs to support new capabilities.

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

	FY 2022	FY 2023	FY 2024
Title: MQ-9 Upgrade	40.029	52.133	0.000
Description: Develop and integrate upgrade capabilities in support of the MQ-9 Upgrade Strategy. Development will combine the rigor of an event driven development process (referred to as Technology Maturation Effort (TME)) with the expeditious delivery of a schedule driven integration and fielding process. New capabilities include, but are not limited to, upgrades of existing aircraft, Ground Control Stations (GCSs), communication capabilities, payload systems, and the Multi-Spectral Targeting System (MTS-B).			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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<p>Upgrade capabilities also include software updates, the addition of new capabilities and subsystems, and the resolution of DMS issues.</p> <p>Candidate capabilities are determined by Major Command (Air Combat Command (ACC), Air Force Special Operations Command (AFSOC)) direction and inputs that included Joint Urgent Operational Need (JUON) and Urgent Operational Need (UON) requests.</p> <p>Activities also include, but are not limited to, operator simulators, reliability and maintainability, test support, communications, and urgent services.</p> <p>There will be cost sharing on development, where appropriate, on joint efforts that are required by all programs to support the new capabilities.</p> <p>FY 2023 Plans: M2DO capability upgrades for resilient C2, Link-16, and autonomy. Continue TME developing upgrade capabilities in conjunction with the CCL to include, but not limited to:</p> <ul style="list-style-type: none"> • Secure communications • Improvements to system security and the ability to self-protect through Ku or GPS jamming, data encryption, and IFF <p>FY 2024 Plans: MQ-9 Upgrade Program is complete</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: MQ-9 Upgrade Program is complete</p>			
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<p>Title: Operator Simulator</p> <p>Description: Develop operator simulators for training and perform updates to keep operator simulators current with the aircraft and GCSs. Operator Simulator also includes, but is not limited to: JUONs, UONs, and support for emerging AFSOC configurations.</p> <p>FY 2023 Plans: Continue implementing updates to keep the operator simulator current with the aircraft and GCSs.</p> <p>FY 2024 Plans: MQ-9 Upgrade Program is complete</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>	1.100	0.100	0.000
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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
MQ-9 Upgrade Program is complete			
Title: Test Support	1.697	0.100	0.000
Description: MQ-9 Upgrade testing provides support including, but not limited to: activities for MQ-9 testing of weapon system hardware and software IAW contract standards, developmental testing of new capabilities, and R&M upgrades.			
FY 2023 Plans: Continue implementing updates to keep the operator simulator current with the aircraft and GCSs.			
FY 2024 Plans: MQ-9 Upgrade Program is complete			
FY 2023 to FY 2024 Increase/Decrease Statement: MQ-9 Upgrade Program is complete			
Title: Communications	0.100	0.000	0.000
Description: Develop MQ-9 communications capabilities including, but not limited to: network system managers, SATCOM, and relay site upgrades. MQ-9 Upgrade Communications also includes drafting technical orders, support documentation, training materials, production drawings, and retrofit acceptance plans (i.e., BE CDL, Secure Voice Multi-Level Security (MLS), ARC-210 Guard Squelch, and Secure Communications).			
FY 2023 Plans: MQ-9 Upgrade communications capabilities development is complete.			
FY 2024 Plans: MQ-9 Upgrade Program is complete			
FY 2023 to FY 2024 Increase/Decrease Statement: MQ-9 Upgrade Program is complete			
Accomplishments/Planned Programs Subtotals	42.926	52.333	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 06 PRDTB1: MQ-9 UAV	18.451	14.078	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	32.529
• APAF 05 PRDTB2: MQ-9 Mods	72.869	211.507	98.063	-	98.063	12.328	12.178	29.233	29.841	0.000	466.019

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

PMA costs are included in Other Government Costs.

D. Acquisition Strategy

Acquisition of MQ-9 Upgrade is accomplished via sole-source contracts with General Atomics-ASI, Raytheon, and L-3 Communications, prime contractors, and Other Government Agencies. Management of development and fielding of new capabilities will be through an Agile Acquisition Strategy that combines the rigor of an event driven development process (referred to as a Technology Maturation Effort (TME)) with the expedited delivery of a schedule driven integration and fielding process. This will allow continued baseline improvements while rapidly integrating limited urgent needs fleet-wide.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
MQ-9 Upgrade	SS/CPFF	GA-ASI : Poway, CA	0.000	40.029	Jan 2022	52.133	Jan 2023	-		-		-	0.000	92.162	-
Operator Simulator	MIPR	Various : Huntsville, AL	0.000	1.100	Jan 2022	0.100	Jan 2023	-		-		-	0.000	1.200	-
Communications	SS/CPFF	GA-ASI : Poway, CA	0.000	0.100		-		-		-		-	0.000	0.100	-
Subtotal			0.000	41.229		52.233		-		-		-	0.000	93.462	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	Various	Various : Various	0.000	1.697	Nov 2021	0.100	Nov 2022	-		-		-	0.000	1.797	-
Subtotal			0.000	1.697		0.100		-		-		-	0.000	1.797	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	42.926	52.333	-	-	-	0.000	95.259	N/A

Remarks
PMA costs are included in Other Government Costs.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

MQ-9 ACAT II Development	
MQ-9 Upgrade	
Operator Simulator	
Test Support	
Communications	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MQ-9 ACAT II Development</i>				
MQ-9 Upgrade	1	2022	4	2023
Operator Simulator	1	2022	4	2023
Test Support	1	2022	4	2023
Communications	1	2022	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0205671F I Joint Counter RCIED Electronic Warfare
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	3.733	1.747	2.303	0.000	2.303	3.366	3.452	3.522	3.649	0.000	21.772
674518: JCREW VEHICLE INTEGRATION	-	3.733	1.747	2.303	0.000	2.303	3.366	3.452	3.522	3.649	0.000	21.772
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Program funds Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) Mounted, Dismounted, and Fixed systems. CREW devices are self-protection systems critical to Mine Resistant, Ambush Protected (MRAP) vehicle mounted, Joint Light Tactical Vehicle (JLTV) mounted, Explosive Ordinance Disposal and Tactical Air Control Party (TACP) dismounted and Security Forces (SF) Entry Control Point fixed operations. Includes integration of the devices into currently fielded systems.

The FY 2024 funding request was increased by 1.539 million to account for the Air Force fair share of the Navy-led joint program.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.00M was expended for civilian pay expenses in this program element, and in FY23 0.00M is forecasted for civilian pay expenses in this program element

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	3.111	1.747	3.286	0.000	3.286
Current President's Budget	3.733	1.747	2.303	0.000	2.303
Total Adjustments	0.622	0.000	-0.983	0.000	-0.983
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.622	0.000	-0.983	0.000	-0.983

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0205671F <i>Joint Counter RCIED Electronic Warfare</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: JCREW Vehicle Integration Description: Program funds Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) Mounted, Dismounted, and Fixed systems. FY 2023 Plans: Program funds Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) Mounted, Dismounted, and Fixed systems. No associated OCO funds for this requirement programmed in PE. FY 2024 Plans: Program continues to fund Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) Mounted, Dismounted, and Fixed systems. No associated OCO funds for this requirement programmed in PE. FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2024 funding request was increased by 1.539 million to account for the Air Force fair share of the Navy-led joint program.	3.733	1.747	2.303
Accomplishments/Planned Programs Subtotals	3.733	1.747	2.303

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 04 Line Item 845100: <i>Engineering and EOD Equipment</i>	0.000	0.000	-	-	-	-	-	-	-	0.000	0.000

Remarks
 Program funds Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) Mounted, Dismounted, and Fixed systems. CREW devices are self-protection systems critical to Mine Resistant, Ambush Protected (MRAP)& Joint Light Tactical Vehicle (JLTV) mounted, Explosive Ordinance Disposal and Tactical Air Control Party dismantled and Entry Control Point operations. Includes software update integration into currently fielded systems.

E. Acquisition Strategy
 n/a

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205671F / Joint Counter RCIED Electronic Warfare	Project (Number/Name) 674518 / JCREW VEHICLE INTEGRATION
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering Services	C/CPFF	NAVSEA PMS-408 : Washington, DC	-	3.733	Nov 2021	1.747	Nov 2022	2.303	Nov 2023	-		2.303	Continuing	Continuing	-
Subtotal			-	3.733		1.747		2.303		-		2.303	Continuing	Continuing	N/A
Project Cost Totals			-	3.733		1.747		2.303		-		2.303	Continuing	Continuing	N/A

Remarks
 Funds Air Force fair share of research and development efforts to update software for fielded CREW systems, supporting EOD, Security Forces, and TACP Airmen. Software updates ensure mounted, dismounted, and fixed site CREW systems remain effective against evolving commercially available technologies.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205671F / <i>Joint Counter RCIED Electronic Warfare</i>	Project (Number/Name) 674518 / <i>JCREW VEHICLE INTEGRATION</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>J CREW Integration</i>	
JCREW Vehicle Integration	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205671F / <i>Joint Counter RCIED Electronic Warfare</i>	Project (Number/Name) 674518 / <i>JCREW VEHICLE INTEGRATION</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>J CREW Integration</i>				
JCREW Vehicle Integration	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207040F / <i>Multi-Platform Electronic Warfare Equipment</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	27.063	45.895	7.312	0.000	7.312	0.000	0.000	0.000	0.000	0.000	80.270
670400: <i>SPECTRUM WARFARE ATTACK CAPABILITY</i>	-	27.063	45.895	7.312	0.000	7.312	0.000	0.000	0.000	0.000	0.000	80.270
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Angry Kitten Combat System (AKCS) program will further develop electronic attack capabilities supporting USAF fighter and attack platforms. The current 4th generation electronic warfare (EW) pods have diminishing manufacturing sources and require advanced capabilities. The AKCS program will develop prototype EW systems for 4th/5th generation aircraft that improve threat detection techniques, incorporate open system architecture, and advance rapid reprogramming capabilities. Funds are required to leverage existing EW pod components and develop a relevant EW system supporting fighter and attack platforms.

The total cost of the AKCS Middle Tier of Acquisition effort is 64.27 million, including RDT&E. The AKCS is fully funded across the Future Years Defense Program.

The FY24 funding request was reduced by 14.724 million to account for the availability of prior year execution balances

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F. In FY22 0.0M was expended for civilian pay expenses in this program element, and in FY27 0.0M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207040F / <i>Multi-Platform Electronic Warfare Equipment</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	36.607	23.195	21.986	0.000	21.986
Current President's Budget	27.063	45.895	7.312	0.000	7.312
Total Adjustments	-9.544	22.700	-14.674	0.000	-14.674
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	22.700			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-9.544	0.000	-14.674	0.000	-14.674

Change Summary Explanation

FY22 adjustments: -1.134M for Small Business Innovative Research (SBIR); 8.405M for 1415 reprogramming FY22-83
 FY23 adjustments are congressional marks: Increase totaling 22.700M (15.700M for Angry Kitten combat pod and 7.000M for Cognitive AI for EW prototyping
 FY24 adjustment is for AF underexecution

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Spectrum Warfare Attack Capability	27.063	45.895	7.312
Description: Spectrum Warfare Attack Capability will rapidly develop a prototype electronic warfare system for 4th/5th generation aircraft with open system architecture capability of addressing 21st century threats.			
FY 2023 Plans: Continue advancing the initial AKCS electronic warfare prototype system through design reviews/updates, lab testing, aircraft integration, and flight testing. Congressional Adds in FY23 will be used to redesign key components of the Pod to resolve diminishing manufacturing resources, continue to develop advanced electronic warfare capabilities, and advanced cognitive EW algorithms.			
FY 2024 Plans: Continue to prototype and demonstrate EW technologies to close capability gaps in Electromagnetic Spectrum (EMS) warfighting capabilities			
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased from FY23 to FY24 accounts due to in-sufficient execution and obligation of program funds in FY21.			
Accomplishments/Planned Programs Subtotals	27.063	45.895	7.312

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207040F / <i>Multi-Platform Electronic Warfare Equipment</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 07 000075: <i>Other Production Charges</i>	7.421	0.000	0.000	-	0.000	-	-	-	-	0.000	7.421

Remarks

E. Acquisition Strategy

Angry Kitten Combat System (AKCS) is a Middle Tier of Acquisition (MTA) program using Section 804 authority in accordance with AFGM2019-63-01, Air Force Guidance Memorandum for Rapid Acquisition Activities, 27 Jun 2019. Strategic goals are to rapidly develop and test advanced prototype electronic warfare systems with open system architecture, rapidly re-programmable capability, modular design, software-defined functionality, and cognitive technology. The acquisition strategy will include support from the following: University Academic Research Center (UARC), Other Transaction Authorities (OTA), and Industry Consortiums.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207040F / <i>Multi-Platform Electronic Warfare Equipment</i>	Project (Number/Name) 670400 / <i>SPECTRUM WARFARE ATTACK CAPABILITY</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
OA Software	SS/CPFF	GTRI : Atlanta, GA	-	1.113	Apr 2022	17.700	Dec 2022	-		-		-	Continuing	Continuing	-
AI/ML Cognitive EA	SS/CPFF	AFRL/DTIC : Dayton, OH	-	15.950	Apr 2022	11.945	Dec 2022	2.362	Dec 2023	-		2.362	Continuing	Continuing	-
EW Testbed	SS/CPFF	AFRL : Dayton, OH	-	10.000	Apr 2022	10.000	Dec 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	27.063		39.645		2.362		-		2.362	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AC&SI Support	SS/CPFF	HII : Dayton, OH	-	0.000	Jun 2022	2.300	Jun 2023	1.500	Jun 2024	-		1.500	Continuing	Continuing	-
Subtotal			-	0.000		2.300		1.500		-		1.500	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Testing	SS/CPFF	GTRI : Atlanta, GA	-	0.000	Apr 2022	2.000	Dec 2022	1.500	Dec 2023	-		1.500	Continuing	Continuing	-
Subtotal			-	0.000		2.000		1.500		-		1.500	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS Support/Travel	SS/CPFF	PE Systems : Fairfax, VA	-	0.000	Apr 2022	1.950	Feb 2023	1.950	Feb 2024	-		1.950	Continuing	Continuing	-
Subtotal			-	0.000		1.950		1.950		-		1.950	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force								Date: March 2023					
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0207040F / <i>Multi-Platform Electronic Warfare Equipment</i>				Project (Number/Name) 670400 / <i>SPECTRUM WARFARE ATTACK CAPABILITY</i>					
	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	27.063		45.895		7.312		-		7.312	Continuing	Continuing	N/A

Remarks
FY23 increased by \$22.7M Congressional Add.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207040F / <i>Multi-Platform Electronic Warfare Equipment</i>	Project (Number/Name) 670400 / <i>SPECTRUM WARFARE ATTACK CAPABILITY</i>	

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

AKCS Increment 2	
Development	
Test/Experiments	
AKCS Increment 3	
Development	
Test/Experiments	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207040F / <i>Multi-Platform Electronic Warfare Equipment</i>	Project (Number/Name) 670400 / <i>SPECTRUM WARFARE ATTACK CAPABILITY</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AKCS Increment 2				
Development	1	2022	1	2023
Test/Experiments	1	2023	1	2024
AKCS Increment 3				
Development	4	2022	1	2025
Test/Experiments	1	2025	2	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	33.434	64.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98.027
674809: <i>A-10 Squadrons</i>	-	33.434	64.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	98.027
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

A-10 concept of operations requires a flexible, adaptable and survivable weapon system to conduct close air support (CAS), combat search and rescue (CSAR) and special operations missions. The A-10 must conduct around-the-clock air operations under various weather conditions against numerous and varied enemy threats.

Funds may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill Federal Aviation Administration or other mandates necessary to ensure continued aircrew safety and mission effectiveness as well as supporting integration of advanced weapons, targeting pods, and mission planning capabilities.

Operational Flight Program (OFP) development addresses evolving and continuing user requirements that must be incorporated in the aircraft software in order to employ advanced weapons, smart munitions, targeting systems, increase situational awareness and enhance targeting capabilities as they become available. These computer processing and avionics upgrades are critical to building a modernized architecture that promotes current open, agile, and digital concepts to enable future technological growth of the A-10's capabilities.

In addition the A-10 program will upgrade the current Central Interface Control Unit (CICU) with a modern central processor (software and hardware). The new processor is referred to as the Central Interface Control System (CICS). The current CICU is unable to incorporate Open Mission System/Universal Command and Control Interface (OMS/UCI) and Universal Armament Interface (UAI) architecture standards mandates. This redesigned central processor is cornerstone to other modernization efforts currently underway that will improve communications, situational awareness, data management, weapons management and targeting, and sensor management.

This program element includes funding to manage, execute, and deliver enhanced A-10 capabilities, and may include funding to support emerging modifications and other government support costs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.000M was expended for civilian pay expenses in this program element, and in FY23 0.000M is forecasted for civilian pay expenses in this program element.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	34.224	72.393	70.027	0.000	70.027
Current President's Budget	33.434	64.593	0.000	0.000	0.000
Total Adjustments	-0.790	-7.800	-70.027	0.000	-70.027
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	-7.800			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.790	0.000			
• Other Adjustments	0.000	0.000	-70.027	0.000	-70.027

Change Summary Explanation

FY23 reduction of -\$7.8M for Congressional mark for CICS award delays

FY24 funding not supported

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: SDB-I	0.000	0.000	0.000
Description: The A-10C Small Diameter Bomb Increment I (SDB-I) program is an Air Combat Command (ACC) requirement originating from the Combat Air Force (CAF) Operational Requirements Document (ORD) 304-97-C-A for Miniature Munitions and Carriage System. SDB-I integration is an integral part of keeping A-10C a flexible, adaptable and survivable weapon system. The SDB-I program requires software and hardware integration of the Bomb Rack Unit - 61 (BRU-61) and the SDB-I itself. Integration of the SDB-I program includes software updates to A-10C's Operational Flight Program (OFP), Air Force SEEK EAGLE (AFSEO) testing, developmental testing (DT), operational testing (OT) and the purchasing of Common System Integration Lab (SIL) Test Equipment (CSTE) and others as determined by A-10 SPO Engineering. The SDB-I program is expected to field with the A-10C Operational Flight Program (OFP) iteration to be fielded in March 2023.			
FY 2023 Plans: N/A			
FY 2024 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
N/A				
<p>Title: Operational Flight Program (OFP) Development</p> <p>Description: The OFP effort includes but is not limited to the Software Capability Upgrade (SCU) program to enable the design and coding of software via an agile incremental cadence of 1-2 years and address efforts required to maintain current code, integrate new precision weapons, advanced targeting pods, and improved avionics to meet DoD mandates in order to modernize the A-10's architecture.</p> <p>OFP Upgrades permit timely integration of new precision weapons, advanced pods which include but is not limited to the Litening and Sniper targeting pods, improved avionics and enhanced electronic warfare capabilities. These upgraded capabilities are in response to evolving operational requirements, including Urgent Operational Needs, generated by the ever-changing operational environment of air combat.</p> <p>RDT&E funds provide updates and incorporation of capabilities for weapons integration, targeting pod updates, and communication/navigation/data link improvements. These funds will ensure concurrency with systems impacted by Operational Flight Program (OFP) development, including but not limited to the Full Mission Trainer (FMT), mission planning and support equipment, as well as required upgrades to the Software Integration Laboratory (SIL).</p> <p>This OFP effort also contains Program Management Administration (PMA) support activities to include travel, office supplies, training courses, Video Teleconferencing (VTC) and support contractors.</p> <p>FY 2023 Plans: Includes but is not limited to the continuation of agile software releases.</p> <p>FY 2024 Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: OFP Development not supported in FY24</p>		12.723	22.500	0.000
<p>Title: ARC-210 Gen 6</p> <p>Description: The ARC-210 Gen 6 and Mobile User Objective System (MUOS) Capable High Power Amplifier/Low Noise Amplifier (HPA/LNA) is an upgraded capability to the existing generation 4 radio which will provide the A-10 with numerous needed capabilities. The first of which is NSA crypto mandate compliant secure communications. The second is the Air Force mandate of all aircraft having MUOS capability. The Second Generation Anti-Jam Tactical Ultra-High Frequency Radio (SATURN)</p>		0.624	0.785	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207131F / <i>A-10 Squadrons</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>algorithm is also required for continued A-10 Combat Search and Rescue (CSAR) as well as Close Air Support with theater forces. The ARC-210 Gen 6 is an upgraded capability to the existing Generation 4 radio which does not currently have any of these capabilities.</p> <p>FY 2023 Plans: Includes but is not limited to the continuation of non-recurring engineering (NRE) for contractor integration design and System Integration Laboratory (SIL) Integration and Testing completing integration efforts for Increment 3. Increment 3 will provide the MUOS and SATCOM waveforms so the software radio can communicate on the ultra-high frequency, narrowband satellite system known as MUOS. Additionally, installing HPA/LNA to allow for greater amplification. This will ensure all required equipment and optimal configurations will be tested for fit and function within the A-10 aircraft. In addition, configurations will be flight tested to ensure capabilities are airworthy as well as functional. Technical order updates will also be accomplished.</p> <p>FY 2024 Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: ARC-210 Gen 6 not supported in FY24</p>				
<p>Title: Central Interface Control System (CICS)</p> <p>Description: A-10 Central Interface Control System (CICS) replaces the aging Central Interface Control Unit (CICU) that suffers from high failure rates, Diminishing Manufacturing Sources and Materiel Supply (DMSMS) issues, and insufficient data processing capacity. The RDT&E effort encompasses software and hardware development, Software Integration Laboratory (SIL) test stand, support equipment, software and cyber security testing.</p> <p>The CICS modernization will require a new release of the Operation Flight Program (OFP) software to support the new CICS configuration.</p> <p>The hardware will need to be updated to meet the environmental requirements of the A-10, manage numerous upgrades to the A-10 which include, but are not limited to: 3D Audio, HRDS, JRG, 2GES, HOBIT, Link 16, SDB 1 and 2, FliteScene, LITENING Digital Pod, MUOS, SATURN and ARC-210 Gen VI. The CICS will utilize modern single board computers that have increased computing capacity, operate in high temperature environments and are available to support timely repair and replacement. The CICS hardware will provide ample processing power to meet the current and future needs of the weapons platform for planned and future growth. Additionally, it will convert selected analog systems outputs on the aircraft to digital and meet USAF mandated upgrades.</p>		20.087	41.308	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207131F / <i>A-10 Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Testing will be a major component of the RDT&E. Testing includes vendor testing, the A-10 SILs, Cyber Security, and use of A-10 Developmental and Operational Testing ensuring the system meets safety and airworthiness criteria. The OFP and CICS hardware implementation will require operational testing and certification to include weapons release and stores management.</p> <p>Finally, RDT&E funds will be used to design a sustainable, repairable and supportable system for the A-10. RDT&E funds will develop new test scripts for existing maintenance and repair testers. By designing a modular system that can be easily fault checked, replaceable and upgradeable, the CICS will be a system that can support the weapon system for the mid-term increasing the reliability and availability of the aircraft.</p> <p>FY 2023 Plans: Includes but is not limited to the continuing development of 10 prototypes and software development</p> <p>FY 2024 Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: CICS not supported in FY24</p>			
Accomplishments/Planned Programs Subtotals	33.434	64.593	0.000

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	FY 2022	FY 2023	FY 2024 <u>Base</u>	FY 2024 <u>OCO</u>	FY 2024 <u>Total</u>	FY 2025	FY 2026	FY 2027	FY 2028	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item A01000: <i>A-10 Squadrons, PE 0207131F</i>	83.621	83.972	0.000	-	0.000	0.000	0.000	-	-	0.000	167.593

Remarks

E. Acquisition Strategy
A-10 OFP development efforts will be conducted organically by the 309th Software Engineering Groupe (309th SWEG) at Ogden Air Logistics Complex, Hill AFB UT. The ARC-210 radio Crypto Mandate, Smart munitions and targeting systems for the Small Diameter Bomb (SDB) missionization efforts will be conducted by the contractor and organically by the 309th SWEG. The A-10 FMT simulator OFP is managed by the Simulator Division at Wright-Patterson Air Force Base and is currently contractor-developed and integrated. The A-10 CICS software is developed in collaboration with the 309th SWEG. Phase 1 is the design development of CICS and Phase 2 is the prototyping an integration.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons	Project (Number/Name) 674809 / A-10 Squadrons
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
OFP Development 1st Qtr FY22 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	6.100	Oct 2021	-		-		-		-	0.000	6.100	-
OFP Development 2nd Qtr FY22 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	1.116	Jan 2022	-		-		-		-	0.000	1.116	-
OFP Development 3rd Qtr FY22 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	1.116	Apr 2022	-		-		-		-	0.000	1.116	-
OFP Development 4th Qtr FY22 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		-		-		-		-	0.000	0.000	-
OFP Development 1st Qtr FY23 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		2.875	Oct 2022	-		-		-	0.000	2.875	-
OFP Development 2nd Qtr FY23 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		2.875	Jan 2023	-		-		-	0.000	2.875	-
OFP Development 3rd Qtr FY23 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		-		-		-		-	0.000	0.000	-
OFP Development 4th Qtr FY23 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		5.165	Jul 2023	-		-		-	0.000	5.165	-
CICS Development Contract	C/FFP	Raytheon : McKinney, TX	-	18.855	Mar 2022	31.309	Jan 2023	-		-		-	0.000	50.164	-
CICS Prototype Development contract	C/FFP	Raytheon : McKinney, TX	-	-		0.000	Aug 2023	-		-		-	0.000	0.000	-
Subtotal			-	27.187		42.224		-		-		-	0.000	69.411	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
USAF (Multiple)	Various	Various : Various	-	1.000	Jul 2022	1.037		-		-		-	0.000	2.037	-
USAF (JEON)	Various	Various : Various	-	1.232	Nov 2022	-		-		-		-	0.000	1.232	-
CICS: BTR to F-15	Various	Various : Various	-	-		9.999	Feb 2023	-		-		-	0.000	9.999	-
OFP11: SBIR	Various	Various : Various	-	-		1.797	Feb 2023	-		-		-	0.000	1.797	-
Subtotal			-	2.232		12.833		-		-		-	0.000	15.065	N/A

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons	Project (Number/Name) 674809 / A-10 Squadrons
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

OFP	
ARC - 210 Crypto Mandate	
OFP 11 FTRR FY2021 Qtr 4	
OFP 11 Fields FY2023 Qtr 2	
CICS	
CICS Design Development	
CICS PDR	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons	Project (Number/Name) 674809 / A-10 Squadrons
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
OPF				
ARC - 210 Crypto Mandate	1	2022	4	2023
OFP 11 FTRR FY2021 Qtr 4	1	2022	3	2022
OFP 11 Fields FY2023 Qtr 2	2	2023	2	2023
CICS				
CICS Design Development	3	2022	2	2023
CICS PDR	2	2023	2	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	221.838	247.536	98.633	0.000	98.633	117.307	113.747	109.784	112.589	0.000	1,021.434
672671: <i>F-16 Squadrons</i>	-	221.838	247.536	98.633	0.000	98.633	117.307	113.747	109.784	112.589	0.000	1,021.434
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The F-16 Fighting Falcon is the world's premier fixed-wing, high performance, single engine, multi-mission fighter aircraft comprising 41% of the AF fighter inventory. Operational since 1980, the F-16 has proven itself in combat in a variety of air-to-air and air-to-surface missions, such as, offensive and defensive counter-air, close air support, forward air control, air interdiction (day/night and all-weather) and Suppression of Enemy Air Defenses (SEAD)/Destruction of Enemy Air Defenses (DEAD). The F 16 remains the USAF's primary SEAD/DEAD platform. The aircraft has evolved its capabilities by capitalizing upon advancements made in computers, avionics systems, engines, and structures technologies to meet emerging warfighter requirements and combat current and evolving enemy threats. These computer processing and avionics upgrades are critical to building a modernized architecture that promotes current open, agile, and digital concepts to enable future technological growth of the F-16's capabilities well into the 2040s. Furthermore, the F-16 provides the capacity called for in the National Defense Strategy (NDS) by supplying the USAF the highest readiness rates at the lowest operating costs of any US fighter. The F-16 programs listed below support the NDS's call to strengthen alliances by being the DoD's largest Foreign Military Sales (FMS) program servicing 28 countries and growing. The specific efforts and associated funding details described in this document directly maps to the NDS as it provides upgrades to the F-16 platform enabling the delivery of joint lethality in contested environments throughout the coming decades.

RDT&E efforts include Operational Flight Program (OFP) software (SW) development required to integrate new precision weapons, advanced targeting pods, improved avionics, and other hardware (HW) mods to meet the Home Land Defense (HLD) Mission, DoD mandates, and maintain updates on the respective F-16 training simulators, and other hardware subsystems. The Engineering Manufacturing and Design (EMD) Hardware/Advanced capability improvements require funding to develop, test, and qualify, weapon systems, aircraft subsystems replaced or modified due to requirements changes, pre-planned product improvements (P3I), Diminishing Manufacturing Sources (DMS), and parts obsolescence. The Modular Mission Computer (MMC) Upgrade/Programmable Display Generator Upgrade resolves shortfalls in mission computer memory and throughput brought on by the addition of incremental combat capabilities, addresses cyber-security, includes Non-Recurring Engineering (NRE), design, development, integration, and ground/ flight test for fielding. The F-16 Training Simulator updates enable the USAF to exercise/ train using the most current F-16 OFP available to all block configurations, to include both aircrew and maintenance trainers. The Comm Suite Radio Upgrade (CSU) and improved satellite communication (SATCOM) radio upgrade with Mobile User Objective System (MUOS) capability meets next-gen tactical narrow band SATCOM with better crypto capabilities. The Active Electronically Scanned Array (AESA) Radar capable on all blocks that offers enhanced lethality, advanced electronic protection capabilities, as well as, improved reliability and maintainability on F-16 aircraft. The Multi-functional Information Distribution System-Joint Tactical Radio System (MIDS-JTRS) provides a real-time, jam resistant, and secure information system for the transfer of combat data, voice, and navigation information between widely dispersed battle elements. The Advanced Identification Friend or Foe (AIFF-Mode 5) on F-16 aircraft provides improved positive identification for Air Traffic Control reporting, combat targeting, and fratricide prevention. The Digital Radar Warning Receiver (DRWR) improves existing radar warning receiver performance and Electronic Warfare (EW) threat detection range, azimuth, detection time, and allows for Radio Frequency Compatibility (RFC)/Sensor Integration Unit (SIU) issues with other on board transmitters. Integrated Viper Electronic Warfare Suite (IVEWS) previously justified under DRWR as Next Gen EW (NGEW) Suite is a section 804 Middle Tier rapid

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>
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prototyping program that provides improved DRWR performance and Active Jamming capability in an internal suite to keep the F-16 operationally viable beyond 2046. IVEWS was separated to an additional Cost Category to continue development and now has a separate mod line, IVEWS P-3A Mod 633035. M-Code improves existing Embedded GPS/INS (EGI), providing an upgradeable, resilient, and reliable Position, Navigation, and Timing (PNT) system.

The total cost of the IVEWS Middle Tier of Acquisition effort is \$519.29M, including RDT&E and procurement of prototype units. IVEWS is not fully funded across the Future Years Defense Program. The Department of the Air Force is assessing all options to address the funding shortfalls for MTA programs including additional funding in a future budget request, performance trades based on technical maturity, or transition to alternative pathways.

The FY 2024 funding request was reduced by \$20.535 million to account for the availability of prior year execution balances

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver F-16 Fighting Falcon for emergent or unanticipated weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0207133F, 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$6.141M was expended for civilian pay expenses in this program element, and in FY2023 \$7.500M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	225.573	244.696	183.185	0.000	183.185
Current President's Budget	221.838	247.536	98.633	0.000	98.633
Total Adjustments	-3.735	2.840	-84.552	0.000	-84.552
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	2.840			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	1.219	0.000			
• SBIR/STTR Transfer	-4.954	0.000			
• Other Adjustments	0.000	0.000	-84.552	0.000	-84.552

Change Summary Explanation

FY22 adjustments include -4.954 for Small Business Innovative Research (SBIR) and various reprogrammings
 FY23 increase for \$5M for lithium battery replacement for F-16 hydrazine emergency power units
 FY24 adjustments to the Simulator Training Program, AIFF Mode 5, AESA Radar, and IVEWS programs

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Title: OFP Updates on all F-16 aircraft</p> <p>Description: OFP versions are updated continually to integrate new weapons, targeting pods, and improved avionics. Increment 2 OFP is comprised of annual OFP production releases consisting of pre-block called "SCU" and post-block "M-Series" software releases. FY24 development focuses on design and coding of software via an agile incremental cadence of one year. Main thrusts will integrate new precision weapons, advanced targeting pods, and improved avionics to meet DoD mandates in order to modernize the F-16's architecture. OFP increments are the key development and fielding mechanism enabling the F-16's ability to meet NDS requirements to operate in contested environments and defend the homeland. Systems Integration Labs (SILs) are required to integrate software into the various hardware, validate user requirements, and review system safety and security prior to release to flight test. These labs require annual upgrades to increase development and test efficiencies which also includes Development-Security-Operations (DevSecOps) technologies. F-16 OFPs are developed 100% organically by the 309th Software Engineering Group (SWEG) at Hill AFB, UT. The OFP effort also contains Program Management Administration (PMA) support activities to include travel, office supplies, training courses, Video Teleconferencing (VTC), and support contractors.</p> <p>FY 2023 Plans: Develop and Field Increment 1 capability while maintaining and upgrading portions of the SIL. Plan and develop requirements for Increment 2 (planned FY24 phase-in). Increment 2 OFP is the next OFP phase following Increment 1 and runs FY24 through FY27.</p> <p>FY 2024 Plans: Develop requirements and Field Increment 2 (spans FY24-FY27) capability while maintaining and upgrading portions of the SIL. Bolster Cyber Security defenses and implement secure network infrastructure to enable large data transfers between CONUS and OCONUS bases. Provide secure data management/cloud services for storage of large amounts of flight test/operational data.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decreased due to the phasing of the program requirements.</p>		78.344	89.889	79.151
<p>Title: Flight Test</p> <p>Description: Funds F-16 Development and Operational flight test including sorties, test infrastructure, range support, aircraft maintenance, test aircraft modifications, instrumentation, test planning, analysis and test reports required to complete F-16 OFP software and development/ integration hardware.</p> <p>FY 2023 Plans: Support F-16 OFP DT/OT flight test of M7.22 and AESA DT/OT at Eglin, Edwards, Nellis AFBs. Supports F-16 DT/OT infrastructure, facilities, contractor support and personnel to enable all other F-16 flight test at Eglin, Edwards AFB's. In addition funds instrumentation updates and relocation due to Communications Suite Upgrade and IVEWS EW programs displacing where</p>		14.104	18.118	11.037

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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current aircraft DT/OT instrumentation is installed. Includes additional funding to purchase captive carry weapon integration assets for GBU-39 SDB, JASSM-ER, and other weapons for F-16 OFP update DT/OT. Current captive weapons have exceeded captive carry life and require replacement.

FY 2024 Plans:
 Complete F-16 OFP DT/OT flight test of M7.22 and AESA DT/OT at Eglin, Edwards, Nellis AFBs. Support F-16 OFP DT/OT flight test of M8.1 OFP Rehost, MMC upgrade, PDG upgrade, HSDN (ethernet), SMDS including Auto GCAS, and AESA DT/OT at Eglin, Edwards, Nellis AFBs. Supports F-16 DT/OT infrastructure, facilities, contractor support and personnel to enable all other F-16 flight test at Eglin, Edwards AFB's. Flight test support for critical AESA combat Identification, and Maritime capabilities requested by ACC. Continues instrumentation updates and relocation due to Communications Suite Upgrade and IVEWS EW programs displacing DT/OT instrumentation for additional test aircraft. Purchase captive carry weapon integration assets for GBU-39 SDB, JASSM-ER, and other weapons for F-16 OFP update DT/OT.

FY 2023 to FY 2024 Increase/Decrease Statement:
 Funding for all F-16 DT/OT flight test reduced

Title: EMD HW/Advanced Capabilities Improvements	4.890	5.000	0.000
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Description: Advanced Capability Improvements include, but are not limited to, sensor upgrades, radar updates and other self- protection/electronic protection (EP) enhancements, 4th/5th gen fighter network communications, Radio Frequency (RF) compatibility, requirements and studies analysis, lab, and/or on-aircraft evaluation of potential subsystem changes / capability improvements, and battery replacement.

FY 2023 Plans:
 Complete battery replacement analysis and prototype. Complete static bench testing.

FY 2024 Plans:
 N/A

FY 2023 to FY 2024 Increase/Decrease Statement:
 FY23 amount was a Congressional Add. No funding is planned for FY24.

Title: Modular Mission Computer (MMC) / Programmable Display Generator (PDG) Upgrade on F-16 aircraft	6.590	1.274	0.986
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Description: The MMC upgrade on the F-16 post-block aircraft, (Blk 40, 42, 50, 52) resolves shortfalls in mission computer processing, memory and throughput. MMC upgrade also incorporates new cybersecurity protection for avionics sub-systems. The MMC upgrade is the key component to support full AESA Radar capability. Funding includes development, design, integration, and ground/flight test for fielding of improved MMC capabilities with the Increment 1 OFP. The PDG upgrade allows a fully integrated multifunction display solution including Hands On Throttle and Stick (HOTAS) integration with Sensor of Interest (SOI),

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>format swapping, and high definition video on 4x4 displays; provides improved display formats during dynamic maneuvers; resolves symbol freezing issues due to throughput constraints; and provides a sustainable approach to address growing DMS concerns with the current PDG. Both programs require the addition of an Ethernet based High Speed Data Network (HSDN) that facilitates future increments of combat capability with higher data bandwidth rates for system compatibility and interoperability. This program is a critical element to a modernized F-16 technology digital backbone and necessary to modernize the F-16 beyond its current computing capability. Additionally this effort enables the F-16 to effectively communicate with advanced platforms to improve battlefield situational awareness and to precisely employ and conduct air and ground operations while maintaining the highest level of survivability. Without it, all current and future F-16 modernization efforts cannot be supported. Both the MMC and PDG directly map to the NDS as critical enabling technologies required for the F-16 to operate in contested environments and defend the homeland.</p> <p>FY 2023 Plans: MMC will continue software testing, cybersecurity assurance and validation for the initial hardware fielding timeline. PDG will complete 2 test vehicles installs, 1 kit proof, continue software testing and validation for initial hardware fielding timeline.</p> <p>FY 2024 Plans: MMC will complete cybersecurity protection implementation, code rehost support for AESA radar candidates, software testing and code validation for the post-rehost supportable software. PDG will complete software testing and code validation for the post-rehost supportable software.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to completing RDT&E in FY24.</p>				
<p>Title: Simulator Trainers Program (STP)</p> <p>Description: F-16 Simulator Training Programs (Simulators) supports the development, acquisition, fielding, and integration of F-16 Simulators. It enables the USAF to exercise and train using the latest F-16 capabilities available to multiple aircraft configurations, while reducing the overall cost of maintenance and aircrew training. In order to maintain concurrency with the aircraft OFP, this funding supports development, test, and integration of simulator upgrades. Funds may be used to address emerging and short notice Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues. DMS efforts to include removal of end-of-life software/hardware within simulators systems and move to a modular, common, open-system architecture that is sustainable and cyber-resilient. This program element implements requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative and may include necessary civilian pay expenses required to manage, execute, and deliver F-16 weapon system simulator capabilities.</p> <p>FY 2023 Plans:</p>		7.678	15.768	0.100

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Continue contract efforts for managing and maintaining F-16 simulator trainers to include tech order development. This funding also supports development, test, and integration of simulator upgrades to include new aircraft OFPs. Supporting development efforts for the F-16 STP trainers. Significant hardware purchases are planned in FY23 to ensure compatibility with latest F-16 configuration.</p> <p>FY 2024 Plans: Continue necessary development activities in accordance with F-16 modernization roadmap.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: F-16 Simulator Training Program efforts reduced</p>				
<p>Title: AIFF Mode 5</p> <p>Description: AIFF/Mode 5 provides hardware and software/firmware update required to comply with DoD mandate for Advanced Identify Friend or Foe (IFF) Mode 5. Transponder upgrade program replaces/upgrades existing hardware with an AIFF Mode 5 capable system. Advanced Identify Friend or Foe system (AIFF) provides positive identification for Air Traffic Control reporting, combat targeting, and fratricide prevention. This program maps to the NDS by providing more secure command and control, which enables increased interoperable communications across the joint force. This critical communications capability generates a more lethal force to defeat enemies and achieve sustainable outcomes in order to protect the American people and vital US interests. This funding request will support potential DMS and obsolescence solutions, to include, if optimal, life of type buys, or bridge buys limited to the program of record quantity. This also supports flight testing and technical data updates, as required. Additionally, this funding will utilize existing hardware/software/firmware from the developed APX-125/APX-126 and re-host or integrate into the APX-12X.</p> <p>FY 2023 Plans: Continue the development and begin/conclude testing of the APX-127</p> <p>FY 2024 Plans: Continue necessary development activities in accordance with F-16 modernization roadmap.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: AIFF Mode 5 Program has minimal requirements to ramp down development activities.</p>		4.000	16.354	0.100
<p>Title: AESA Radar</p> <p>Description: The AESA Program provides an upgrade from the current APG-68 system to an APG-83 AESA radar that offers advanced targeting and electronic protection capabilities as well as improved reliability and maintainability to support the Aerospace Control Alert (ACA) mission for Homeland Defense (HLD). Ongoing radar Operational Flight Program (OFF)</p>		26.122	29.598	0.100

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
development includes the full Phase III capability development document (CDD) implementation. This program directly maps to the NDS as it provides the most critical upgrade to the F-16's ability to successfully defend the homeland against attack.				
FY 2023 Plans: Continue Phase III development and test efforts for full CDD radar capabilities. Support initial fielding of Phase III radars.				
FY 2024 Plans: Continue necessary development activities in accordance with F-16 modernization roadmap.				
FY 2023 to FY 2024 Increase/Decrease Statement: F-16 AESA Program has minimal requirements to ramp down development activities.				
Title: Comm Suite Radio Upgrade Aircraft		1.804	0.000	0.000
Description: Provides mandatory CJCS updates to the ARC-210 satellite communication (SATCOM) radios on F-16 aircraft including Second Generation Anti-Jam Tactical radio for NATO (SATURN) with Mobile User Objective System (MUOS) and improved crypto capability with the addition of a Cockpit Communication Control Panel (C3PO), and Digital Comm Matrix (DCM).				
FY 2023 Plans: N/A				
FY 2024 Plans: N/A				
FY 2023 to FY 2024 Increase/Decrease Statement: N/A				
Title: Digital Radar Warning Receiver		75.428	0.000	0.000
Description: Digital Radar Warning Receiver improves on existing radar warning receiver performance and improves Electronic Warfare (EW) threat detection range. ALR-69A is a modernization of key capability to support operational warfighting survivability in contested environments by overhauling the non-digital/legacy F-16 Radar Warning Receiver migrating to digital radar warning receiver (DRWR)/ALR-69A system with fiber optics and improved system sensitivity. The DRWR program also facilitates Sensor Integration Unit (SIU), a Radio Frequency Compatibility (RFC) solution, with associated systems. This program is necessary for the F-16 to meet the NDS requirement of operating in current and future contested environments. This digital radar warning receiver upgrade provides improved radio frequency threat situational awareness to aircrew and increases the performance in dense signal areas of operation as seen within contested environments. DRWR sub-program Integrated Viper Electronic Warfare Suite (IVEWS) previously justified under DRWR as Next Gen EW (NGEW) Suite is a section 804 Middle Tier rapid prototyping program that provides improved DRWR performance and Active Jamming capability in an internal suite to keep the				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
F-16 operationally viable beyond 2046. IVEWS has been separated to an additional Cost Category to continue development starting in FY23 and now has a separate mod line, IVEWS P-3A Mod 633035.				
FY 2023 Plans: N/A				
FY 2024 Plans: N/A				
FY 2023 to FY 2024 Increase/Decrease Statement: N/A				
Title: Integrated Viper Electronic Warfare Suite (IVEWS)		0.000	61.064	0.100
Description: Integrated Viper Electronic Warfare System (IVEWS) previously justified as a sub-program under DRWR Cost Category as NGEW has been renamed and separated to an IVEWS Cost Category to continue development efforts. IVEWS is a Section 804 Middle Tier Acquisition program providing improved Digital Radar Warning Receiver performance and Active Jamming capability, with future growth upgrades, in an internal suite to keep the F-16 operationally viable to 2046+. This rapid acquisition program was initiated to design, develop, test, and produce a mature electronic warfare system that is internal to the F-16, interoperable with the Active Electronically Scanned Array radar, designed to Open Missions Systems Tier II requirements, and provisioned for long-term growth capability to support future upgrades such as Fiber Optic Towed Decoy, Adaptive/Cognitive Processing, and Open System Architecture compliance. This program is necessary for the F-16 to operate in current and future contested environments.				
FY 2023 Plans: Continue development efforts including Non-Recurring Engineering (NRE) activities, design, integration, demonstrations, System Integration Lab (SIL), Developmental and Operational (DT/OT) testing, operational assessment (OA), Engineering and Manufacturing Development (EMD)/Integration.				
FY 2024 Plans: Continue necessary development activities in accordance with F-16 modernization roadmap.				
FY 2023 to FY 2024 Increase/Decrease Statement: F-16 IVEWS efforts reduced				
Title: Multifunctional Information Distribution System Joint Tactical Radio System (MIDS-JTRS)		0.000	0.157	0.100
Description: Multifunctional Information Distribution System Joint Tactical Radio System (MIDS-JTRS) provides real time, jam-resistant and secure information system for the transfer of combat data, voice, and navigation information between				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>widely dispersed battle elements. MIDS-JTRS enhances situational awareness by exchanging digital data over a common communication link that is continuously and automatically updated in real time. Additionally MIDS-JTRS's enhanced capabilities provide concurrent multi-netting which enables Link 16 by adding capability to receive four messages in a single time slot and allows for greater network design flexibility along with concurrent receive capabilities and J-voice. The F-16 MIDS-JTRS effort is developing Ethernet connectivity within the terminal. This program maps to the NDS by providing crypto modernization for tactical networks and more secure command and control, thereby enabling increased interoperable communications across the joint force. This critical communications capability generates a more lethal force to defeat enemies and achieve sustainable outcomes to protect the American people and vital US interests.</p> <p>FY 2023 Plans: The MIDS-JTRS terminal firmware will be upgraded from IB8.1.1.1 to IB8.2.1.1 in time for integration with existing F-16 OFP in FY23. Funding will be needed for lab integration testing to ensure compatibility between the terminal's new firmware and existing OFP software.</p> <p>FY 2024 Plans: Continue necessary development activities in accordance with F-16 modernization roadmap.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to RDT&E phase completion.</p>			
<p>Title: M Code</p> <p>Description: Modify F-16 USAF with PNT and M-Code capabilities. The current aircraft Embedded GPS/INS (EGI) system suffers from Diminishing Manufacturing Sources (DMS) shortfalls. New security requirements and mandated hardware support of items such as the M-Code compliance on aircraft drive the need for a new EGI solution to enable F-16 to support modern resilient weaponry and mission systems.</p> <p>FY 2023 Plans: Development activities for NRE and Integration.</p> <p>FY 2024 Plans: Development activities for design, integration, deliver test assets for SIL and flight test.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to test stand buy in prior year, FY24 largely test stand and flight testing</p>	2.878	10.314	6.959
Accomplishments/Planned Programs Subtotals	221.838	247.536	98.633

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>
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D. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To	
			Base	OCO	Total					Complete	Total Cost
• APAF 05 Line Item F01600: <i>F-16 Aircraft Modifications</i>	599.320	741.334	297.342	-	297.342	334.863	807.886	580.217	353.511	0.000	3,714.473
• APAF 07 Line Item F0160P: <i>F-16 Post Production Support</i>	10.456	5.102	1.075	-	1.075	0.865	0.411	0.000	0.000	0.000	17.909
• APAF 06 Line Item <i>F01600: F-16 Initial Spares</i>	40.602	20.482	8.271	-	8.271	2.593	1.078	0.000	7.816	0.000	80.842

Remarks

E. Acquisition Strategy

The F-16 Program acquisition strategy is to improve capability, maintenance, and safety mods through OFP development/flight test, enhanced weapons integration, structural upgrades, and simulator concurrency.

F-16 OFP SW updates will continually bring new capabilities to the warfighter. OFP SW development effort is now completely developed organically at Hill AFB (309 SWEG). Numerous Integration contracts (CPFF, FFP) are required to allow for Improved Avionics, Weapon, AIFF Mode 5, MIDS-JTRS integration to successfully field with each OFP.

F-16 Flight Test Instrumentation for capturing flight test data to allow generation of program FRP decisions. Program FT jet modifications including integration with depot maintenance, and A and B kits deliveries are tracked in the Test Aircraft Modification Schedule (TAMS) and correlate directly with program schedules.

MMC is a critical foundational component that will be the processing workhorse for the post-block fleet, bringing modern networking capability via Ethernet, and providing the necessary architecture upgrades for the modernization of the F-16 post-block fleet. Raytheon is the Prime with Cost Plus Fixed Fee contract for development, and a Firm Fixed Priced contract for Production.

PDG will provide a platform for video enhancements, add Ethernet connectivity, increase high-speed data, memory, and throughput, and support OFP growth through the remaining service life of the F-16. General Dynmaics is the Prime with Cost Plus Fixed Fee contract for development, and a Firm Fixed Priced contract for Production.

AIFF Mode 5 program uses numerous contracts for DMS resolution, integration, production, support, and installs. Funding will be awarded on the following contracts: Harness IDIQ, Bracket IDIQ, Lockheed Martin Falcon Enterprise, and Mode 5 IDIQ.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>	
<p>The Active Electronically Scanned Array (AESA) Joint Emergent Operational Need (JEON) contract for development and production of the APG-83 radar awarded to Northrop Grumman on 31 May 2017. The US Government is the prime integrator and a separate contract is established for Lockheed Martin to provide integration support. AESA JEON completed Mar 22. Program is now outfitting the Combat Air Force (CAF) and ANG aircraft for Phase III for installs</p> <p>DRWR is organically being integrated on the F-16 by F-16 System Program Office (AFLCMC/WAM) and the Electronic Warfare and Avionics (EW&A) System Program Office (AFLCMC/ WNY) at Robins AFB, GA. The ALR-69A production contract (managed by AFLCMC/WNY) was awarded on 30 March 2018 to Raytheon, Goleta, CA (CAGE CD 06129). The ALR-69A software is organically managed by AFLCMC/WNY utilizing the 579 SWES (Software Maintenance) team and the OEM Raytheon, Goleta, CA. The ALR-69A hardware is sustained by the 408 SCMS (Supply Chain) and 402 AMXG (Hardware Maintenance) at Robins AFB, GA.</p> <p>MIDS-JTRS terminal firmware updates will be tested at Hill AFB by the 309 SWEG OFP SW development team to ensure compatibility between the two software baselines.</p> <p>The EMD HW/Advanced capability improvements will develop, test, and qualify aircraft weapons systems, including subsystems and uses various contract types (Cost Plus and Fixed Price).</p> <p>IVEWS is Section 804 Middle Tier Acquisition prototyping Other Transaction Authority (OTA) contract was awarded on 25 September 2019. The IVEWS program is being developed by Northrop Grumman (Rolling Meadows, IL). The Electronic Warfare Radar Frequency Compatibility (EWRFC) awarded on Mar 9, 2022, extends development beyond the OTA with a period of performance end date of Sep 30, 2023. EWRFC provides continued rapid prototyping efforts and procurement of Engineering Manufacture and Design (EMD) hardware used in flight test aircraft.</p> <p>Flight Test requires both organic test range support and contract support for modification integration testing of F-16 subsystems to ensure capabilities meet CAF fielding schedule.</p> <p>M-Code is managed by AFLCMC/WNY. The development is contracted to Integrated Solutions for Systems (IS4S). Multiple contracts will be awarded on the Harness IDIQ, Bracket IDIQ, Lockheed Martin Falcon Enterprise, and SAASM/EGI IDIQ for integration onto the F-16.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207133F / F-16 Squadrons	Project (Number/Name) 672671 / F-16 Squadrons
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
OFP Updates on F-16 aircraft	Various	309th SMG : Hill AFB, UT	-	63.388	Oct 2021	69.859	Oct 2022	61.441	Oct 2023	-		61.441	Continuing	Continuing	-
MMC Upgrade / Display Generator Upgrade	Various	Various : Various	-	6.590	Nov 2021	1.274	Nov 2022	0.986	Nov 2023	-		0.986	Continuing	Continuing	-
Simulator Trainers	Various	Various : Various	-	7.678	Nov 2021	15.768	Nov 2022	0.100	Nov 2023	-		0.100	0.000	23.546	-
AIFF Mode 5	Various	Various : Various	-	4.000	Jul 2022	16.354	Nov 2022	0.100	Nov 2023	-		0.100	0.000	20.454	-
Digital Radar Warning Receiver	Various	Various : Various	-	74.350	Mar 2022	-		-		-		-	0.000	74.350	-
AESA Radars	Various	Various : Various	-	25.991	Nov 2021	29.598	Nov 2022	0.100	Nov 2023	-		0.100	0.000	55.689	-
Comm Suite Radio Upgrade	Various	Various : Various	-	1.804	Jan 2023	-		-		-		-	0.000	1.804	-
MIDS JTRS	Various	Various : Various	-	-		0.157	Nov 2022	0.100	Nov 2023	-		0.100	0.000	0.257	-
EMD HW/Advanced Capabilities Improvements	Various	Various : Various	-	4.890	Mar 2023	5.000	Jul 2024	-		-		-	0.000	9.890	-
IVEWS	Various	Various : Various	-	0.000	Mar 2022	61.064	Mar 2023	0.100	Mar 2024	-		0.100	Continuing	Continuing	-
M Code	Various	Various : Various	-	2.878	Jan 2022	10.314	Jan 2023	6.959	Jan 2024	-		6.959	Continuing	Continuing	-
Subtotal			-	191.569		209.388		69.886		-		69.886	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Direct Cite Authority	Reqn	Various : Various	-	6.141	Oct 2021	7.500	Oct 2022	7.686	Oct 2023	-		7.686	Continuing	Continuing	-
Subtotal			-	6.141		7.500		7.686		-		7.686	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Tests	Various	Various : Various	-	14.182	Jan 2022	18.118	Jan 2023	11.037	Jan 2024	-		11.037	0.000	43.337	-
Subtotal			-	14.182		18.118		11.037		-		11.037	0.000	43.337	N/A

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>	Project (Number/Name) 672671 / <i>F-16 Squadrons</i>
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>F-16 Development Efforts</i>																												
AESA Radar OFP Capability Development																												
OFP Inc 1 SCU 11 OFP Fielding																												
Digital Radar Warning Receiver Fielding Recommendation																												
OFP Inc 1 M7.3/M7.22/M7.23 OFP Fielding																												
OFP Inc 1 M8.1 OFP Fielding																												
OFP Inc 2 M8.2 OFP Fielding																												
AIFF Mode 5 Flight Test - 2 Asset Remain A/C																												
IVEWS Flight Test Start																												
IVEWS Fielding Recommendation																												
OFP Inc 1 SCU 12 OFP Fielding																												
OFP Inc 1 SCU 12 DT/OT																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207133F / <i>F-16 Squadrons</i>	Project (Number/Name) 672671 / <i>F-16 Squadrons</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>F-16 Development Efforts</i>				
AESA Radar OFP Capability Development	1	2022	4	2023
OFP Inc 1 SCU 11 OFP Fielding	1	2022	3	2023
Digital Radar Warning Receiver Fielding Recommendation	1	2023	1	2023
OFP Inc 1 M7.3/M7.22/M7.23 OFP Fielding	1	2022	2	2025
OFP Inc 1 M8.1 OFP Fielding	1	2022	4	2026
OFP Inc 2 M8.2 OFP Fielding	1	2027	4	2028
AIFF Mode 5 Flight Test - 2 Asset Remain A/C	4	2023	2	2024
IVEWS Flight Test Start	1	2023	4	2023
IVEWS Fielding Recommendation	4	2024	4	2024
OFP Inc 1 SCU 12 OFP Fielding	4	2023	4	2024
OFP Inc 1 SCU 12 DT/OT	4	2022	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207134F / <i>F-15E Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	231.898	200.139	50.965	0.000	50.965	92.149	52.128	163.420	0.353	Continuing	Continuing
676020: <i>F-15 Modernization</i>	0.000	231.898	200.139	50.965	0.000	50.965	92.149	52.128	163.420	0.353	Continuing	Continuing

A. Mission Description and Budget Item Justification

The F-15 is the most versatile fighter in the world today. The F-15C/D continues to provide air superiority with an undefeated and unmatched aerial combat record. The F-15E retains this air superiority capability and adds systems, such as advanced imaging and targeting systems, to meet the requirement for all-weather, deep-penetration, and night/under-the-weather, air-to-surface attack. Configured with conformal fuel tanks (CFTs), the F-15E deploys worldwide with minimal tanker support and arrives combat-ready. A mainstay in operations both domestic and abroad, a refresh of older F-15C/D aircraft with the F-15EX and upgrades to newer F-15C/D and F-15E aircraft (avionics, armament, airframe, and engines) are critical to maintaining combat viability (lethality, survivability, and supportability) in support of the Oct 2022 National Defense Strategy. With newer F-15E projected to remain in service past 2040, avionics modernization is key to long-term weapon system viability. This modernization is built on a foundation of technical and acquisition support studies (both internal to the Air Force and through outside contractors), forestalling obsolescence, exploiting proven technological advances, and leveraging new technology. Major avionics upgrades center around radar modernization (both hardware and software upgrades) and the exploitation of enhanced capability via precision timing, data delivery and processing technology, precision registration systems, cockpit Heads Up Display (HUD) and Heads Down Display, instrumentation digitization and modernization, central computer processing power increases, digital mission event recording systems and an infrared (IR)-based fire control system. The proliferation of fourth-generation enemy aircraft and sophisticated "double-digit" anti-aircraft missile systems pose a significant threat to F-15 survivability. A fully integrated electronic warfare suite holds the promise of providing improved survivability as well as expanded electronic attack capability. Nearly all improvements are linked to an aircraft operational flight program update schedule that works to integrate new capabilities with the airframe. These updates are a responsive way to increase the offensive and defensive capability and survivability of the F-15. Incorporation of corresponding spiral and/or phased technology/equipment improvements that include support equipment, mission planning systems, and training device upgrades will improve performance, supportability, and aircrew training. Funds may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion, and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness. This includes technical and acquisition-related studies to ensure F-15 lethality and survivability beyond 2040.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022 3.956M was expended for civilian pay expenses in this program element, and in FY 2023 6.508M is forecasted for civilian pay expenses in this program element.

The FY2024 funding request was reduced by 2.538 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207134F / <i>F-15E Squadrons</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	239.616	213.272	51.969	0.000	51.969
Current President's Budget	231.898	200.139	50.965	0.000	50.965
Total Adjustments	-7.718	-13.133	-1.004	0.000	-1.004
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-13.133			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-7.718	0.000			
• Other Adjustments	0.000	0.000	-1.004	0.000	-1.004

Change Summary Explanation

FY 2022 funding decreased due to SBIR reduction of \$7.718M. FY 2023 funding decreased due to Congressional Marks against Operational Flight Plan (OFP) for \$11.290M and Digital Color Display (DCD) for \$1.843M.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons				Project (Number/Name) 676020 / F-15 Modernization			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
676020: F-15 Modernization	0.000	231.898	200.139	50.965	0.000	50.965	92.149	52.128	163.420	0.353	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

These development efforts include F-15 Radar Enhancements Electronic Protection (EP) capabilities, Operational Flight Program (OFP) upgrades, Flight Testing, Infrared Search and Track (IRST), Multifunctional Information Distribution System-Joint Technical Radio System (MIDS-JTRS), Data Transfer Module II (DTM II) and Mobile User Objective System (MUOS)/Second Generation Anti-jam Tactical UHF Radio for NATO (SATURN). Funds may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

The Radar Enhancements (EP) will upgrade the digital Active Electronic Scanned Array (AESA) radar capabilities to counter sophisticated electronic threats and future capability enhancements. Prior OFP's introduced EP into the C/D-model fleet. Initial EP capability for APG-82(V)1 equipped E model aircraft took place in Suite 8E. Suite 9 and beyond will add additional EP capability to the F-15.

For the F-15 to maintain operational effectiveness, the program must continuously provide the platforms with improved capabilities. To accomplish this there is an on-going need to develop software and hardware upgrades and to flight test new capabilities and systems. The OFP funding line transitioned the Air Force to an annual software release to counter the speed of technology and maintain a competitive advantage. Additionally, the OFP provides the path for integration for other activities into operations. At any one time, there will normally be three OFP upgrades in work: one in requirements definition/pricing, one in code writing and test, and one in flight test and release preparation. The Flight Test funding line allows the Air Force to fund the on-going test effort.

Infrared Search and Track (IRST) system will provide air to air detection, tracking and ranging capability for F-15 in a radar-contested environment.

Mobile User Objective System (MUOS)/Second Generation Anti-jam Tactical UHF Radio for NATO (SATURN) will provide Satellite Communications (SATCOM) capable Air Force F-15 aircraft the ability to communicate on the MUOS constellation in support of a NORTHCOM Airspace Control Alert (ACA) requirement. SATURN will replace the Have Quick II and comply with the NSA lease key mandated dates.

The F-15 Multifunctional Information Distribution System - Joint Tactical Radio System (MIDS-JTRS) integrates and installs a new Link 16 system on the F-15s that complies with an NSA mandate on cryptographic modernization and an FAA mandate on frequency remapping. The FAA mandate requires all fielded Link-16 terminals incorporate the frequency re-mapping capability by 2025. MIDS-JTRS development will complete with FY22 funding.

The Data Transfer Module II (DTM II) is an upgraded replacement to the current, low-memory data transfer system. This system improves and supports mission planning capability and weapons employment, increases storage, replaces aging mapping system, updates interfaces, provides data encryption, and delivers cyber security.

ALQ-128a will replace the legacy ALQ-128 design and includes development and integration of a re-designed ALQ-128a Electronic Warfare Warning Set (EWWS).

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization
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GPS M-Code / Resilient-Embedded GPS Inertial Navigation System (R-EGI) will provide enhanced Position, Navigation, and Timing (PNT) capabilities and improved resistance to existing and emerging threats to GPS such as jamming and spoofing.

The FY2024 funding request was reduced by \$2.538 million to account for the availability of prior year execution balances.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: Operational Flight Program (OFP) Development Efforts</p> <p>Description: Provides OFP program software and hardware updates to integrate new capabilities on all F-15 aircraft. This includes technical and acquisition related studies.</p> <p>FY 2023 Plans: Continue platform software development and integration of major line items supporting Avionics, Sensors, Weapons, Radar, support equipment, and ongoing Problem Report (PR) and Deficiency Report (DR) fixes. Additionally, funding supports continuation of organic software development, Special Projects development, maintenance of developmental labs, technical and acquisition related studies, and financial support for all F-15 support organizations required to develop, test, field, and maintain OFPs. The recent award of the Continuous Development & Integration (CD&I) contract leverages the Agile framework, provides flexibility to manage and rapidly field new capabilities to the F-15 to ensure F-15 lethality and survivability for the life of the platform. Continued integration efforts ensure system wide acceptance of new hardware/software and desired capabilities.</p> <p>FY 2024 Base Plans: Continue platform software development and integration of major line items supporting Avionics, Sensors, Weapons, Radar, support equipment, and ongoing Problem Report (PR) and Deficiency Report (DR) fixes. Additionally, funding supports continuation of organic software development, Special Projects development, maintenance of developmental labs, technical and acquisition related studies, and financial support for all F-15 support organizations required to develop, test, field, and maintain OFPs. The recent award of the Continuous Development & Integration (CD&I) contract leverages the Agile framework, provides flexibility to manage and rapidly field new capabilities to the F-15 to ensure F-15 lethality and survivability for the life of the platform. Continued integration efforts ensure system wide acceptance of new hardware/software and desired capabilities.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>	102.808	107.110	17.039	0.000	17.039

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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Funding decreased in FY 2024 in concert with Air Force priorities. Capability development and scope will be aligned to available funding.					
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<p>Title: Flight Test</p> <p>Description: Flight Test Support modernization and continuance. Baseline infrastructure and personnel support for F-15 Developmental Test (DT) and Operational Test (OT) operations. Purchase long-lead test support assets and unique lab and test aircraft instrumentation.</p> <p>FY 2023 Plans: F-15 Flight Test Support continues to provide contractor support cadre at Eglin and Nellis for DT/OT support, avionics integration, lab O&M, CTF O&M, and long lead test unique equipment; i.e., program specific aircraft instrumentation, weapons instrumentation kits, data reduction/handling equipment. Repair test aircraft data recording instrumentation. Continue procurement and replacement of test aircraft obsolete instrumentation. Continue Richter Lab modernization and sustainment provisions and acquisition of resources needed to maintain a robust test capability for the entire F-15 Test fleet. Continue support to 896 TSS to maintain manpower for F-15 Test fleet modernization activity.</p> <p>FY 2024 Base Plans: F-15 Flight Test Support continues to provide contractor support cadre at Eglin and Nellis for DT/OT support, avionics integration, lab O&M, CTF O&M, and long lead test unique equipment; i.e., program specific aircraft instrumentation, weapons instrumentation kits, data reduction/handling equipment. Continue procurement and replacement of test aircraft obsolete instrumentation. Continue Richter Lab modernization and sustainment provisions and acquisition of resources needed to maintain a robust test and integration capability for the entire F-15 Test enterprise, to include support of the weapons roadmap. Continue support to 896 TSS to maintain manpower for F-15 Test fleet modification activity. Continue support of flying hour and maintenance support for F-15 loaner aircraft.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased in FY 2024 in concert with Air Force priorities. Capabilities and scope will be aligned to available funding.</p>	16.492	22.603	3.723	0.000	3.723
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Title: F-15 Radar Enhancements	77.850	10.000	7.666	0.000	7.666
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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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<p>Description: Improvements to F-15 Radar Enhancements Electronic Protection (EP). This includes technical and acquisition related studies as well as future capability enhancements.</p> <p>FY 2023 Plans: These development efforts include F-15 capability enhancements, radar enhancements, future capabilities, integration, and OFP upgrades. Continue implementation of EP/Electronic Warfare (EW) into OFP's in addition to Combat ID candidate, interoperability, weapons integration and risk reduction activities for future OFP integration. Continue to study and analyze F-15 radar performance and utilization against current and future threat baselines. Continue to develop and test radar technology candidates for future integration in accordance with ACC's F-15 roadmap and threat analysis. This includes technical and acquisition-related studies as well as EP/EW candidates (e.g. ALQ-128). Continue integration efforts to ensure system wide acceptance of new hardware/software and desired capabilities and maintain developmental labs with latest capabilities.</p> <p>FY 2024 Base Plans: These development efforts include F-15 capability enhancements, radar enhancements, future capabilities, integration, and Operational Flight. Continue implementation of EP/Electronic Warfare (EW) into OFP's in addition to Combat ID candidate, interoperability, weapons integration and risk reduction activities for future OFP integration. Continue to study and analyze F-15 radar performance and utilization against current and future threat baselines. Continue to develop and test radar technology candidates for future integration in accordance with ACC's F-15 roadmap and threat analysis. This includes technical and acquisition-related studies as well as EP/EW candidates (e.g. ALQ-128). Continue integration efforts to ensure system wide acceptance of new hardware/software and desired capabilities and maintain developmental labs with latest capabilities.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased in FY 2024 in concert with Air Force priorities. Capability development and scope will be aligned to available funding.</p>					
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<p>Title: F-15 Infrared Search and Track (IRST)</p> <p>Description: The Infrared Search and Track (IRST) system provides F-15 with the capability to detect and track objects by infrared radiation. This capability complements the radar to enhance survivability and lethality against air-to-air threats, and enhances air-to-ground targeting. It provides a passive infrared sensor system that searches for and detects infrared radiation, and provides the aircraft mission computer track file data on infrared</p>	22.014	27.000	0.000	0.000	0.000
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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>targets. The IRST system further adds capability for the F-15 as a 4th generation fighter by supporting 5th/6th generation fighters to increase their lethality and survivability.</p> <p>FY 2023 Plans: Continue integration of the Infrared Search and Track (IRST) system into OFP and finalize documentation to support IRST system fielding. Continue integration of IRST with other F-15 advanced sensors. Continue efforts and planning to integrate future IRST capability into the next major block upgrade to ensure system wide acceptance of new hardware/software and desired capabilities.</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: In FY 2023, Project Infrared Search and Track (IRST) will complete.</p>					
<p>Title: Mobile User Objective System (MUOS)/Second Generation Anti-jam Tactical UHF Radio for NATO(SATURN)</p> <p>Description: To enable the Next Gen Narrowband Beyond Line-of-Sight (BLOS) Satellite Communications (SATCOM), Mobile User Objective System (MUOS), providing worldwide Ultra High Frequency (UHF) secure communications to the F-15E Warfighters with enhanced features and connectivity options by adapting commercial third gen (3G) cellular phone system technology (utilizing geosynchronous satellites in place of cell towers) for military.</p> <p>The F-15C/D/E will receive the Second-Generation Anti-Jam Tactical Ultra-High Frequency (UHF) Radio for NATO (SATURN) capability. SATURN is the next gen UHF EPM (Electronic Protective Measures) standard designated to succeed HAVE QUICK II and will be the new standard for NATO communications.</p> <p>MUOS/SATURN development funding ended in FY 2022. MUOS/SATURN integration and future development will continue under the Suite 9.2 Operational Flight Program (OFP) 9.2 effort, expecting to field in Nov 2023.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans:</p>	1.253	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: N/A					
Title: F-15 Multifunctional Information Distribution System - Joint Tactical Radio System (MIDS JTRS) Description: This upgrade integrates and installs a new Link 16 system on the F-15s that complies with an NSA mandate on cryptographic modernization and an FAA mandate on frequency remapping. The FAA mandate requires all fielded Link-16 terminals incorporate the frequency re-mapping capability by 2025. MIDS-JTRS development will complete with FY 2022 funding. FY 2023 Plans: N/A FY 2024 Base Plans: N/A FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: N/A	4.556	0.000	0.000	0.000	0.000
Title: F-15 Digital Color Displays Description: The DCD program replaces 1980s-era low-resolution color and monochrome analog F-15E displays with modern, high-resolution digital color displays. The new displays fully realize the potential of Air Force investments in current and future sensor capabilities to include: modern AESA radar, advanced targeting pod, ASQ-236 Reece pod, Link-16/MIDS-JTRS situational display, EPAWSS, and advanced Combat Identification systems. Enhanced sensor data display capabilities will significantly enhance aircrew situational awareness and vastly improve targeting effectiveness and threat warning. FY 2023 Plans: In FY 2023, project F-15 Digital Color Displays was terminated. FY 2024 Base Plans:	2.977	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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N/A FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: N/A					
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Title: F-15E Data Transfer Module II Description: The Data Transfer Module II (DTM II) is an upgraded replacement to the current, low-memory data transfer system. Improves and supports mission planning capability and weapons employment, increases storage, replaces aging mapping system, updates interfaces, provides data encryption and delivers cyber security. FY 2023 Plans: Funding will enable completion of deficiency reports (DRs) and updates resulting from the Functional Configuration Audit (FCA)/Physical Configuration Audit (PCA)/Manufacturing Readiness Assessment (MRA) and Validation (VAL)/Verification (VER) activities. FY 2024 Base Plans: N/A FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: Project Data Transfer Module II will complete with FY 2023 funding.	3.948	1.821	0.000	0.000	0.000
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Title: GPS M-Code / R-EGI Description: R-EGI will provide enhanced PNT capabilities and improved resistance to existing and emerging threats to GPS such as jamming and spoofing. Agile development with Open System Architecture (OSA) to work industry interfaces to allow for resilient and robust PNT and cyber capabilities. Expand Government-owned engineering and design to provide a truly modular solution. FY 2023 Plans: Initiate F-15 specific R-EGI Design/Development on existing PNT Program Office Other Transaction Authority (OTA) and initiate Group A design for test kits to be manufactured at Rapid Development and Integration Facility	0.000	31.605	22.537	-	22.537
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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
(RDIF). Begin trade studies to create a Multi-Function Processor to begin design of an Open Mission System for F-15E/EX platforms. Mature capabilities and review designs to validate proposed solution meets requirements.					
<i>FY 2024 Base Plans:</i> Award delivery order on F-15 IDIQ contract for R-EGI integration for F-15E/EX platforms. Receive prototypes from R-EGI Design/Development effort to begin testing, initiate software development on Continuous Development and Integration (CD&I) OFP contract.					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding decreased due to fewer requirements in FY 2024. FY 2023 design, development, and capability maturation efforts required more funding than FY 2024 platform integration efforts.					
Accomplishments/Planned Programs Subtotals	231.898	200.139	50.965	0.000	50.965

C. Other Program Funding Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APAF 05 F015EX: F-15EX	1,252.359	2,581.368	2,898.039	-	2,898.039	2,534.896	60.601	-	-	0.000	9,327.263
• RDTE 07 0207146F: F-15EX	103.950	83.830	100.006	-	100.006	56.129	-	-	-	0.000	343.915
• APAF 05 Line Item F01500: F-15 Modification of In- Service Aircraft, PEs 0207130, 0207134, 0207445, 0809731	162.473	194.397	34.830	-	34.830	29.690	159.093	36.185	15.059	Continuing	Continuing
• APAF 06 Line Item 000999: Initial Spares/Repair Parts (BP16)	17.937	13.836	14.081	-	14.081	17.391	17.696	18.089	18.475	Continuing	Continuing
• APAF 07 Line Item F0150P: F-15 Post Production Support	2.324	2.764	-	-	-	-	-	-	-	0.000	5.088

Remarks

D. Acquisition Strategy

Program is a continuation of effort which includes the development of all F-15 models. Funds are executed organically in support of equipment improvement, study, analysis, and test. Acquisition and management strategies for each program are independently developed and use a variety of contract methods and types to accomplish program objectives.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
OFP Suite 8/9/CD&I Development and Test	SS/ Various	Boeing : St. Louis, MO	0.000	99.509	Jun 2022	105.563	Jan 2023	13.052	Jan 2024	-		13.052	Continuing	Continuing	-
F-15 Radar Enhancement	SS/ Various	Boeing : St Louis, MO	0.000	69.598	Jun 2022	6.453	Jan 2023	3.679	Jan 2024	-		3.679	Continuing	Continuing	-
F-15 Infrared Search and Track	SS/ Various	Boeing : St Louis, MO	0.000	22.014	Feb 2022	23.624	Feb 2023	-		-		-	Continuing	Continuing	-
Multifunctional Information Distribution System-Joint Technical Radio System (MIDS-JTRS)	SS/ Various	Boeing : St. Louis, MO	0.000	4.556		-		-		-		-	Continuing	Continuing	-
Mobile User Objective System (MUOS) /Second Generation Anti-jam Tactical UHF Radio for NATO (SATURN)	C/CPAF	Boeing : St. Louis	0.000	1.253		-		-		-		-	Continuing	Continuing	-
F-15E Digital Color Display	TBD	Not specified. : TBD	0.000	2.977	Sep 2022	0.000	Sep 2023	-		-		-	Continuing	Continuing	-
F-15E Data Transfer Module II	SS/FFP	Mercury : Torrance, CA	0.000	3.948	Jun 2022	1.821	Feb 2023	-		-		-	Continuing	Continuing	-
GPS M-Code	TBD	TBD : TBD	0.000	-		25.972	Mar 2023	18.550	Mar 2025	-		18.550	Continuing	Continuing	-
Subtotal			0.000	203.855		163.433		35.281		-		35.281	Continuing	Continuing	N/A

Remarks
The individual program reference to "various" contract methods addresses other government costs for trainers, test, hardware, special studies, telemetry kits, etc. that are required to meet each program's objectives. The execution vehicles between these DoD entities vary by effort.

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Direct Cite Authority	Allot	Various : Various	0.000	3.956		6.508		6.645		-		6.645	0.000	17.109	-
Subtotal			0.000	3.956		6.508		6.645		-		6.645	0.000	17.109	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization
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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Test Support	SS/CPFF	Boeing : St. Louis, MO	0.000	16.492	Aug 2022	22.603	Aug 2023	3.723	Aug 2024	-		3.723	Continuing	Continuing	-
Subtotal			0.000	16.492		22.603		3.723		-		3.723	Continuing	Continuing	N/A

Remarks
The individual program reference to "various" contract methods addresses other government costs for trainers, test, hardware, special studies, telemetry kits, etc. that are required to meet each program's objectives. The execution vehicles between these DoD entities vary by effort.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Mgt Support Costs	Various	Various : Various	0.000	7.595	Sep 2022	7.595	Dec 2023	5.316	Dec 2023	-		5.316	Continuing	Continuing	-
Subtotal			0.000	7.595		7.595		5.316		-		5.316	Continuing	Continuing	N/A

Remarks
The individual program reference to "various" contract methods addresses other government costs for trainers, test, hardware, special studies, telemetry kits, etc. that are required to meet each program's objectives. The execution vehicles between these DoD entities vary by effort.

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	231.898	200.139	50.965	-	50.965	Continuing	Continuing	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

F-15	
OFP Integration and Test	
OFP Suite 9.2 Fielding	
OFP CD&I Development	
OFP CD&I Release 24	
OFP CD&I Release 25	
OFP CD&I Release 26	
Radar Enhancements Fielding (with OFP)	
Infrared Search and Track Integration and Test	
Multifunctional Information Distribution System-Joint Tactical Radio System (MIDS-JTRS) Development	
Data Transfer Module II	
GPS M-Code	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / <i>F-15E Squadrons</i>	Project (Number/Name) 676020 / <i>F-15 Modernization</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>F-15</i>				
OFP Integration and Test	1	2022	3	2026
OFP Suite 9.2 Fielding	3	2023	4	2024
OFP CD&I Development	4	2022	1	2028
OFP CD&I Release 24	4	2022	3	2024
OFP CD&I Release 25	3	2023	3	2025
OFP CD&I Release 26	3	2024	3	2026
Radar Enhancements Fielding (with OFP)	4	2022	1	2028
Infrared Search and Track Integration and Test	1	2022	4	2023
Multifunctional Information Distribution System-Joint Tactical Radio System (MIDS-JTRS) Development	4	2023	2	2024
Data Transfer Module II	4	2022	1	2024
GPS M-Code	2	2024	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	14.222	16.695	16.543	0.000	16.543	17.458	17.893	18.260	18.212	0.000	119.283
674595: <i>F-16 HARM Targeting Sys</i>	-	14.222	16.695	16.543	0.000	16.543	17.458	17.893	18.260	18.212	0.000	119.283
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Manned Destructive Suppression (MDS) program funds the development and sustainment of the Air Force's Suppression of Enemy Air Defenses (SEAD) and Destruction of Enemy Air Defenses (DEAD) capabilities. The F-16 High-speed Anti-Radiation Missile (HARM) Targeting System (HTS) is currently the only programmed reactive SEAD/DEAD capability and enables targeting the HARM missile in its most lethal 'range known' mode. The program provides F-16 Block 50/52 and Block 40/42 aircraft with the ability to employ the AN/ASQ-213 Pod. With the introduction of Pre-Planned Product Improvement (P3I) HTS Revision 7 in 2007, the AN/ASQ-213 Pod now has a precision geo-location capability to target Precision Guided Munitions (PGMs) to destroy fixed and mobile enemy air defense elements. Additionally, by relocating the AN/ASQ-213 HTS R7 Pod to the aircraft's left inlet hard point, the F-16 can simultaneously carry the HTS R7 Pod and an Advanced Targeting Pod (ATP). HTS R7 fielding is complete and represents the Air Force's near-term solution for reactive time-critical targeting for DEAD until this mission can be transferred to the F-35. HTS R7 derived precision targeting data can be provided to all Joint Forces via Link-16. This effort continues upgrades for the HTS and applies technologies similar to those demonstrated in the Advanced Tactical Targeting Technologies (AT3) program and HTS R7 development.

Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues.

HTS leverages Digital acquisition tenets of open, agile and digital. This may include providing funds to prime contractors; program office contract support; facility, security and IT upgrades; common component development with other weapon systems to reduce redundant costs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.00M was expended for civilian pay expenses in this program element, and in FY23 0.00M is forecasted for civilian pay expenses in this program element.

The FY2024 funding request was reduced by 0.533 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	15.855	16.695	17.037	0.000	17.037
Current President's Budget	14.222	16.695	16.543	0.000	16.543
Total Adjustments	-1.633	0.000	-0.494	0.000	-0.494
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.418	0.000			
• Other Adjustments	-1.215	0.000	-0.494	0.000	-0.494

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Title: P3I R7 Software Upgrade (SWUP)</p> <p>Description: HTS SWUP risk reduction and software development Engineering and Manufacturing Development (EMD) efforts include software updates in support of F-16 Operational Flight Profile (OFF) releases. These releases improve the capability of the pod in an evolving threat environment.</p> <p>FY 2023 Plans: Continue SWUP 4 iterative software development, EMD, and preparation for SWUP 4 flight testing. Mission support (i.e., program management for administrative and technical support) will continue.</p> <p>FY 2024 Plans: Continue SWUP 4 iterative software development, EMD, and preparation for SWUP 4 flight testing. Mission support (i.e., program management for administrative and technical support) will continue. Continue SWUP Agile.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due portfolio realignment. Does not impact execution</p>	12.422	14.595	14.443
<p>Title: Flight Test</p> <p>Description: Conducts test planning, requirements derivation, and post-test data analysis and reporting. Provides test organization support to include test aircraft operations, threat/test range control and associated support, air refueling, and post-mission support. Ground testing, such as anechoic chamber testing, will also be accomplished as necessary.</p> <p>FY 2023 Plans:</p>	0.900	1.200	1.200

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Government flight test operations will continue for SWUP 4 activities. This funding also includes baselining requirements from actual test data during recent flight testing. Begin testing on produced A9B circuit cards. FY 2024 Plans: Government flight test operations will continue for SWUP 4 activities. This funding also includes baselining requirements from actual test data during recent flight testing. FY 2023 to FY 2024 Increase/Decrease Statement: N/A			
Title: Mission Planning Description: Joint Mission Planning System (JMPS). This effort includes continued development and testing of candidate upgrades and incremental engineering releases in support of HTS SWUP fielding. FY 2023 Plans: Continue mission planning in support of future SWUP 4 efforts and other future SWUP requirements. FY 2024 Plans: Continue mission planning in support of future SWUP 4 efforts and other future SWUP requirements. FY 2023 to FY 2024 Increase/Decrease Statement: N/A	0.900	0.900	0.900
Accomplishments/Planned Programs Subtotals	14.222	16.695	16.543

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

Remarks

E. Acquisition Strategy
The HTS R7 Software Update Program (SWUP) is underway to keep the HTS pod capable in a growing threat environment. The SWUP 3 Engineering & Manufacturing Development (EMD) and SWUP 4 Risk Reduction (RR) contract awarded in April 2019 as a Cost Plus Fixed Fee (CPFF) contract type and is a 36 month effort. The initial SWUP 4 EMD contract awarded in July 2021 for four months with three one year options. SWUP 3 included plans for two releases to the field: Builds A and B. SWUP 4 adopts a more agile approach with three potential releases to the field: Builds A, B, and C.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>	
<p>Future SWUP RR portion will mature candidates for future software builds by addressing findings from the field, incorporating requested improvements from the warfighter, and implementing other software changes to keep the HTS pod updated and mission capable. A follow on mod to the contract was accomplished in November 2021 for one year. Future SWUP RR efforts to begin in FY24.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force												Date: March 2023				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0207136F / Manned Destructive Suppression				674595 / F-16 HARM Targeting Sys								
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	
HTS R7 SWUP/P3I	SS/CPFF	Raytheon Systems Co. : Tucson, AZ	-	10.649	Nov 2021	12.445	Nov 2022	12.193	Nov 2023	-		12.193	Continuing	Continuing	-	
JMPS	SS/CPIF	Multiple : Multiple	-	0.900	May 2022	0.900	May 2023	0.900	May 2024	-		0.900	Continuing	Continuing	-	
Subtotal			-	11.549		13.345		13.093		-		13.093	Continuing	Continuing	N/A	
Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Government Test	PO	412 and 96 TW, NAWCWD : Edwards,Eglin, CLake	-	0.900	Nov 2021	1.200	Nov 2022	1.200	Nov 2023	-		1.200	Continuing	Continuing	-	
Subtotal			-	0.900		1.200		1.200		-		1.200	Continuing	Continuing	N/A	
Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management Administration	C/Various	Multiple : Eglin AFB Robins AFB	-	1.773	Apr 2022	2.150	Feb 2023	2.250	Mar 2024	-		2.250	Continuing	Continuing	-	
Subtotal			-	1.773		2.150		2.250		-		2.250	Continuing	Continuing	N/A	
Project Cost Totals			-	14.222		16.695		16.543		-		16.543	Continuing	Continuing	N/A	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>	Project (Number/Name) 674595 / <i>F-16 HARM Targeting Sys</i>

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Manned Destructive Suppression</i>	
SWUP 3 Build B	
SWUP 4 Risk Reduction	
SWUP 4 Bridge	
SWUP 4 Builds A, B, and C	
Future SWUP Risk Reduction	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207136F / <i>Manned Destructive Suppression</i>	Project (Number/Name) 674595 / <i>F-16 HARM Targeting Sys</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Manned Destructive Suppression</i>				
SWUP 3 Build B	1	2022	2	2022
SWUP 4 Risk Reduction	1	2022	2	2022
SWUP 4 Bridge	1	2022	1	2022
SWUP 4 Builds A, B, and C	1	2022	1	2025
Future SWUP Risk Reduction	2	2024	1	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	626.329	559.709	725.889	0.000	725.889	682.082	646.849	473.498	581.822	0.000	4,296.178
674785: <i>F-22</i>	0.000	626.329	559.709	725.889	0.000	725.889	682.082	646.849	473.498	581.822	0.000	4,296.178
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The F-22 Raptor is a multi-mission fighter aircraft that combines low observability, supercruise, maneuverability and integrated avionics to make it the world's most capable air superiority aircraft. The F-22 provides air superiority to the Joint Force, access in highly contested operational environments, as well as homeland and cruise missile defense into the 2040s. To maintain mission effectiveness, the program is continuing planned, incremental modernization efforts that enhance both F-22 Air Superiority and Global Strike capabilities. The F-22 modernization program upgrades the air vehicle, engine, and training systems to improve F-22 weapons, communications, navigation, pilot systems, and electronic warfare.

Technology development and Modernization for the F-22 Raptor is conducted using a rapid acquisition construct leveraging commercial best practices such as agile and lean. This allows the F-22 Raptor enterprise to develop, test, and field software/hardware from multiple programs (product lines) using a scheduled delivery cadence for capabilities as they mature.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$2.692M was expended for civilian pay expenses in this program element, and in FY2023 \$5.464M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	647.296	559.709	566.247	0.000	566.247
Current President's Budget	626.329	559.709	725.889	0.000	725.889
Total Adjustments	-20.967	0.000	159.642	0.000	159.642
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-20.967	0.000			
• Other Adjustments	0.000	0.000	159.642	0.000	159.642

Change Summary Explanation

FY22 SBIR/STTR reduction of \$20.967M.

FY24 increase of \$159.642M reflects the investment in Engineering, Manufacturing, and Development (EMD) activities for the Infrared Defensive System (IRDS) and cryptographic modernization programs, as well as minor program adjustments.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Infrastructure	209.636	196.300	222.272	0.000	222.272
Description: This major thrust is comprised of: Combined Test Force (CTF), Laboratory Test and Operations (LTO), F-22 Small Projects, Operational Software Development and Reliability and Maintainability Program (RAMP) projects.					
Labs and CTF are continuous activities that plan and conduct development, integration, test, and verification of Operational Flight Programs (OFPs) and other software and hardware in support of the F-22 Raptor. Labs provide test and certification support, maintenance, staffing, with operation of 16 development labs including four unique major System Integration Laboratories (SILs): Agile Integration Lab (AIL) with the Flying Test Bed (FTB), Ogden Test Enterprise (OTE) Lab, Air Combat Simulation (ACS) Lab, and the Vehicle System Simulator (VSS) Lab. The F-22 CTF located at Edwards Air Force Base, CA, is the hub for developmental test efforts for the entire F-22 enterprise. It conducts full-up weapons system testing to assess the effect of the F-22 combined characteristics of stealth, speed, maneuverability, and integrated avionics upon mission accomplishment. The CTF uses operationally significant ground and flight test scenarios to identify system					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>performance deficiencies early before they are more difficult and costly to resolve. Engines on CTF aircraft are supported under Infrastructure as well. F-22 Infrastructure efforts include the technical refresh of the entire F-22 development and test infrastructure, to include the F-22 CTF and all development labs.</p> <p>F-22 Small Projects provides technology studies, demonstrations and integration of capabilities to include, but not limited to, Low Observable (LO) signature management, threat modeling support, Developmental Test (DT) weapon assets, weapons, Pilot Training (PT), Pilot Vehicle Interface (PVI), countermeasures, helmet, future crypto upgrades, and Open System Architecture (OSE) / Open Systems Enclave (OSE) activities. Additionally, Small Projects will include program requirements associated with dynamic Synthetic Aperture Radar (SAR), cyber security, flight test engine refurbishment, support equipment development, Government Furnished Equipment (GFE), Engine Enhancements (or similar), and Electronic Warfare (EW) system enhancements to counter evolving threats.</p> <p>Operational Software Development utilizes commercially available agile and lean best practices to transform and accelerate the F-22 Raptor's modernization processes to develop, test, and field new capability enhancements. This includes, but is not limited to, the expansion of a cloud-based software development environment and partnering with commercial companies to adopt industry product development best practices.</p> <p>The Reliability, Availability, and Maintainability Program (RAMP) provides solution identification and integration of modifications to improve reliability, availability and maintainability (RAM) for the F-22 fleet. The associated RAMP efforts (O&S funded) develop candidate initiatives, which are down-selected by Air Combat Command, for implementation based on development maturity and impact on the F-22 life cycle costs. RDT&E funding within Infrastructure may be used to improve RAM on F-22 test aircraft as part of the overarching F-22 RAMP effort.</p> <p>Program mission support costs are included in this major thrust.</p> <p>FY 2023 Plans: Provide support to the SILs for faster testing and assessment of F-22 enhancements. Continue to update critical systems required to support new aircraft configurations and capabilities. Further continue lab test planning using agile methods for the following programs: Mode 5 IFF, Link 16, OFP releases, Sensor Systems and Advanced Technology Development (ATD) to hand off to the CTF for testing. Continue to update critical systems to include technology refresh and laboratory optimization improvements.</p>					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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Small projects continues technology planning studies and demonstrations for DT weapon assets, threat modeling support, test support, test aircraft modifications, Common Range Integrated Instrumentation System (CRIIS) integration, cyber security, engine enhancements, crypto, dynamic SAR, GFE, PT, EW enhancements, and adds Quick Reaction Instrumentation Package (QRIP) development, and Fox Tablet integration.

Operational Software Development continues maturing and scaling cloud-based computing environment to leverage commercially-based agile software and hardware development best practices and tools to increase the speed and quality of product delivery to the warfighter.

RAMP continues retrofit modifications on F-22 test aircraft in order to improve system/component reliability, maintainability and reduce F-22 weapon system life cycle costs.

FY 2024 Base Plans:
Provide support to the SILs for faster testing and assessment of F-22 enhancements. Continue to update critical systems required to support new aircraft configurations and capabilities. Further continue Lab test planning using agile methods for the following programs: Mode 5 IFF, Link 16, OFP releases, Sensor Systems and ATD to hand off to the CTF for testing. Continue to update critical systems to include technology refresh and laboratory optimization improvements.

Small projects continues technology planning studies and demonstrations for DT weapon assets, threat modeling support, test support, test aircraft modifications, CRIIS integration, cyber security, engine enhancements, crypto, dynamic SAR, GFE, PT, EW enhancements, QRIP development, OSA/OSE activities, and Fox Tablet integration.

Operational Software Development continues maturing and scaling cloud-based computing environment to leverage commercially-based agile software and hardware development best practices and tools to increase the speed and quality of product delivery to the warfighter.

RAMP continues retrofit modifications on F-22 test aircraft in order to improve system/component reliability, maintainability and reduce F-22 weapon system life cycle costs.

FY 2024 OCO Plans:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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<p>N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase of \$25.972M from FY23 to FY24 supports design and delivery of multiple sets of special test equipment required for upgrades to the radar, weapons, sensors and the airworthiness certification of the OFP. New equipment reduces unscheduled maintenance, improves the throughput and performance of F-22 labs and CTF, improves the quality of overall product, reduces risk to flight test, and accelerates delivery of capabilities to Operational Test (OT) for eventual fielding.</p>					
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<p>Title: Advanced Technology Development (ATD)</p> <p>Description: Technology maturation, risk reduction, studies, demonstrations and prototypes of classified F-22 development efforts. The F-22 Advanced Technology Development (ATD) program is conducted using a rapid acquisition construct leveraging commercial best practices such as agile and lean. This allows the F-22 Raptor enterprise to develop, test, and field software/hardware from multiple programs (product lines) using a scheduled cadence for capabilities as they mature.</p> <p>FY 2023 Plans: Continue technology maturation and risk reduction projects in support of various F-22 development efforts. Additionally, continue to mature the Low Drag Tanks and Pylons (LDTP) capabilities as part of its risk reduction activities.</p> <p>FY 2024 Base Plans: Continue technology maturation, development, and risk reduction projects in support of various F-22 development efforts. Examples include, but are not limited to, such efforts as: Finalize technology maturation and risk reduction (TMRR) for the Low Drag Tanks and Pylons capabilities. Continued development of advanced radar Electronic Protection (EP) capabilities for inclusion into future software updates such as EP Suite 2 (EPS2). Project Keystone - Perform TMRR for an advanced threat warning receiver technology. Accomplish integration assessment of advanced capability called Project Geyser.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>	52.189	40.752	42.185	0.000	42.185
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase of \$1.433M from FY23 to FY24 reflects the continuation and planned completion of the Technology Maturation and Risk Reduction (TMRR) phase for the Low Drag Tanks and Pylons effort.					
<p>Title: Sensor Systems</p> <p>Description: Sensor Systems improves sensor capabilities to maintain air superiority and preserve first look, first shot, and first kill capability. This includes developing and maturing advanced Infrared Search & Track (IRST) sensor capabilities.</p> <p>Sensor Systems supports Operational Imperative #3, Achieving Moving Target Indication and Tracking at Scale.</p> <p>FY 2023 Plans: Continue Sensor Enhancements software and hardware development for future fleet release. Complete purchase and begin receipt of initial test assets, continue development environment standup, lab/system/airframe integration, and logistics planning. Continue technology maturation and risk reduction efforts for multiple development activities.</p> <p>FY 2024 Base Plans: Continue Sensor Enhancements software and hardware development for future fleet release. Begin receipt of test assets, begin test program, lab/system/airframe integration, and logistics standup. Continue technology maturation and risk reduction efforts for multiple development activities.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease of \$7.226M from FY23 to FY24 reflects the transition from the procurement of test asset hardware to the development and integration to support EMD. Hardware purchases in FY23 and prior required a substantial investment upon contract award.</p>	202.908	163.968	156.742	0.000	156.742
<p>Title: Navigation Systems</p> <p>Description: The Navigation Systems product line consists of the software and hardware development, integration, test, and fielding necessary to ensure the F-22's ability to maintain Positioning, Navigation and Timing (PNT) capabilities, particularly in Global Positioning System (GPS) degraded environments. This effort will include the integration of Embedded GPS/Inertial Navigation System (INS) Modernization (EGI-M) (in compliance with M-Code Mandate Public Law 111-383), replacement of the legacy GPS antenna with a</p>	24.212	22.184	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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<p>robust Controlled Reception Pattern Antenna (CRPA), as well as other capabilities, working together to prevent exploitation of the weapon system by adversaries and to provide an anti-jam, anti-spoof PNT solution.</p> <p>FY 2023 Plans: Complete integration of CRPA hardware and software into platform, then begin Developmental and Operational testing. Receive EGI-M Engineering Development Modules (EDM) to begin integration into platform and testing in F-22 System Labs.</p> <p>FY 2024 Base Plans: FY 2024 base plans are documented in the CRPA and EGI-M major thrusts.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: In FY24, CRPA and EGI-M programs will be separated into their own major thrusts due to Major Capability Acquisition (MCA) program standup and transition out of Middle Tier Acquisition (MTA) authority. Development and integration activities related to Navigation systems are still ongoing.</p>					
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<p>Title: CRPA</p> <p>Description: This is not a new start. Work previously accomplished in Navigation Major thrust. The CRPA product line consists of the software and hardware development, integration, test, and fielding necessary to ensure the F-22's ability to maintain PNT capabilities, particularly in GPS degraded environments. Replacing the F-22's legacy Fixed Reception Pattern Array (FRPA) antenna, CRPA provides an array of antenna elements that work together to drastically reduce adversaries ability to jam or otherwise interfere with GPS signals.</p> <p>FY 2023 Plans: In FY23 efforts in Navigation Major thrust.</p> <p>FY 2024 Base Plans: F-22 will continue DT/OT concurrent testing of CRPA hardware.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>	0.000	0.000	13.319	0.000	13.319
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>FY24 reflects the separation of CRPA from the Navigation Systems major thrust due to the planned transition from MTA authority to MCA program. Slight decrease of \$3.865M from FY23 to FY24 allows for the continuation of testing planned for CRPA hardware.</p> <p>Title: EGI-M</p> <p>Description: This is not a new start. FY23 work accomplished in Navigation Major Thrust. In compliance with M-Code Mandate Public Law 111-383, the EGI-M product line consists of the integration, test, and fielding necessary to ensure the F-22's ability to maintain PNT capabilities, particularly in GPS degraded environments. Replacing the F-22's legacy GPS systems, EGI-M will provide an M-Code compliant, anti-spoofing PNT solution to prevent exploitation of the weapon system by adversaries, enable more accurate tracking of GPS satellites, and support a more secure and flexible cryptography architecture.</p> <p>This major thrust will also cover the M-Code Weapons product line, consisting of the integration, test, and fielding of software updates necessary to ensure the F-22's ability to employ M-Code configured weapons on F-22s without M-Code capability. The AF Weapons Program Office is scheduled to field M-Code-enabled weapons prior to availability of an M-Code GPS solution for the F-22.</p> <p>FY 2023 Plans: FY23 plans for EGI-M include initiation of Group A development, and early integration of the EGI-M in F-22 System Labs accomplished in Navigation Major Thrust.</p> <p>FY 2024 Base Plans: F-22 will finalize Group A design and complete integration activities with the Engineering Development Models (EDM) and move on to the Production Representative Units (PRU) in order to accomplish flight certification. Due to the high number of interfaces the EGI-M will have within the platform, integration of the PRUs will continue into FY25.</p> <p>Begin development and integration of M-Code Weapons software solution in order to achieve flight certification by FY25.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>	0.000	0.000	13.174	0.000	13.174

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>FY24 reflects the separation of EGI-M from the Navigation Systems major thrust due to the transition from MTA authority to MCA program. Increase of \$8.174M from FY23 to FY24 is attributable to entrance into DT/OT, as well as the integration and testing of software necessary to ensure the F-22's ability to employ M-Code configured weapons.</p> <p>Title: Communication Systems</p> <p>Description: Communication Systems consists of software and hardware development, test, and certifications necessary to field systems and capabilities for combat with a joint force including Link 16 Transmit and tactical Mode 5 Identify Friend or Foe (IFF) Challenge and Reply.</p> <p>Link 16 Transmit will be accomplished via an Open System Architecture (OSA) integrated with F-22 legacy avionics and enable tactical data sharing between both 5th generation and 4th generation aircraft. The OSA implementation will provide a pathway to more competitive and open F-22 modernization. Mode 5 IFF is a Joint Requirements Oversight Council-mandated Blue Force identification capability that improves Raptor survivability and reduces fratricide risk DoD-wide. This capability brings significantly enhanced combat identification in both quality and security.</p> <p>FY 2023 Plans: Continue software development for additional Link 16 and Mode 5 IFF Reply capabilities for fielding with subsequent releases. Continue development and system lab test of hardware and software for Mode 5 IFF Challenge capabilities. Complete delivery of Mode 5 IFF Challenge DT/OT hardware kits. Complete qualification activities of Mode 5 IFF Challenge power supplies and crypto modules.</p> <p>Cryptographic Modernization program activities in FY23 were previously documented within the Communication Systems major thrust. This program has been separated into its own major thrust beginning in FY24.</p> <p>FY 2024 Base Plans: FY 2024 base plans are documented in the Link 16 and OSA improvements and Mode 5 Challenge major thrusts.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>	124.946	88.843	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons
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C. Accomplishments/Planned Programs (\$ in Millions)

In FY24, Link 16/OSA improvements and Mode 5 Challenge programs will be separated into their own major thrusts due to the projected MCA program standup and transition out of MTA authority. Development and integration activities related to Communication systems are still ongoing.

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: Link 16 and OSA Improvements</p> <p>Description: This is not a new start. Work in FY23 in Communication Major Thrust. Develop and field Link 16 upgrades and OSA improvements to enable tactical data sharing between 5th generation and 4th generation aircraft.</p> <p>FY 2023 Plans: FY 2023 plans for Link 16 and OSA improvements are documented in the Communication Systems major thrust.</p> <p>FY 2024 Base Plans: Continue software development, integration, test, and incremental upgrade activities for Link 16 messages. Complete development, integration, and flight test of Link 16 J-voice capability. Incorporate open mission systems/communication suite requirements as well as enhancements of OSA interoperability with different Computer Software Configuration Items (CSCI) and improve system fault reporting.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY24 reflects the separation of Link 16 and OSA improvements from the Communication Systems major thrust due to the planned transition from MTA authority to MCA program. Decrease of \$20.014M from FY23 to FY24 is attributable to the planned completion of threshold hardware and software development, and continuation of software development for increased Link 16 and OSA capabilities.</p>	0.000	0.000	25.779	0.000	25.779

<p>Title: Mode 5 IFF Challenge</p> <p>Description: This is not a new start. Work in FY23 in Communication Major Thrust. Mode 5 IFF is a Joint Requirements Oversight Council-mandated Blue Force identification capability that improves Raptor survivability and reduces fratricide risk DoD-wide. This capability brings significantly enhanced combat identification in both quality and security. The Mode 5 IFF Challenge capability incorporates new and updated hardware and software to add a new waveform, new cryptography, and additional data.</p> <p>FY 2023 Plans:</p>	0.000	0.000	49.018	0.000	49.018
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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<p>FY 2023 Plans for Mode 5 are documented in the Communication Systems major thrust.</p> <p>FY 2024 Base Plans: Continue software development and lab testing of Mode 5 Level 1 capabilities. Continue integration activities of Mode 5 Challenge circuit cards and crypto card hardware. Finalize Air Traffic Control Radar Beacon System/IFF/Mark XII/Mark XIIA, System IFF (AIMS) platform certification for Selective Identification Feature (SIF) Modes and Mode 5 Level 1, Formats 0 and 3. Continue AIMS platform certification activities for Mode 5 Level 1, Formats 1, 2, & 4 and Supermode SIF and Level 1. Continue spectrum certification activities to obtain a Stage 3 Radio Frequency Authorization (RFA).</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY24 reflects the separation of Mode 5 IFF Challenge from the Communication Systems major thrust due to the planned transition from MTA authority to MCA program. Increase of \$5.968M from FY23 to FY24 allows for the continued development, test, and integration of critical Communication capabilities.</p>					
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<p>Title: Low Drag Tanks and Pylons</p> <p>Description: The F-22 LDTP capability is critical to maintaining Air Superiority in the joint fight and combating emerging threats.</p> <p>The F-22 LDTPs are advanced technological designs providing increased persistence and range while maintaining lethality and survivability. The low drag tanks are intended to minimally increase drag for external tank carriage, facilitate supersonic flight with external tanks and extend the range of the F-22. The pylons are equipped with smart rack pneumatic technology to accurately control ejection performance and smooth wind-swept surface for minimum drag without store.</p> <p>LDTP risk reduction activities are captured under the ATD major thrust. Documentation of the development and integration components as part of the EMD program is captured under the LDTP major thrust.</p> <p>FY 2023 Plans:</p>	12.438	47.662	40.000	0.000	40.000
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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<p>Continue technology maturation and risk reduction projects while transitioning to EMD, where operational testing will be accomplished in parallel with developmental testing efforts. Accomplish software and hardware development for future fleet release to support both old and new pylon/tank configurations.</p> <p>FY 2024 Base Plans: Finalize technology maturation and risk reduction while continuing EMD program. EMD objectives include the procurement of LDTP assets, to include support equipment, evaluation of designs for improvement, flight test execution for threshold envelope (1.2 Mach), and LDTP qualification and certification. Additionally, the development and formulization of software requirements to support Operational Flight Program (OFP) integration will be accomplished in FY24. The analysis, flight test and non-recurring engineering activities will ensure the program's transition to production to support required asset available (RAA) fielding with threshold capabilities.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease of \$7.662M from FY23 to FY24 allows for the continuation the Low Drag Tanks and Pylons hardware and software development during the EMD phase.</p>					
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<p>Title: Viability</p> <p>Description: This is not a new start. Viability includes the Infrared Defensive System (IRDS), Keystone, other programs to address future threats. IRDS improves missile launch detector capabilities by enabling an infrared defensive system, as well as other efforts that enhance the F-22 platform by addressing future threats for survivability in defensive and offensive mission aspects via software and/or hardware capability enhancements. Keystone increases radar warning capabilities, pilot situational awareness, and increased effectiveness for certain countermeasures.</p> <p>Viability reflects the continuation of work from the FY23PB that began as risk reduction and technology maturation activities in the ATD major thrust. Documentation of the development and integration components as part of the EMD program will be captured under the Viability major thrust.</p> <p>FY 2023 Plans:</p>	0.000	0.000	138.400	0.000	138.400
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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<p>Continue technology maturation and risk reduction activities captured under the ATD major thrust in FY23, leading to capability development for IRDS, Keystone, and other Viability projects.</p> <p>FY 2024 Base Plans: Continue efforts that began in the ATD project to develop IRDS software and hardware for future fleet release. Begin software integration activities and start purchasing test assets. Begin EMD for Keystone.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase of \$138.400M reflects the beginning of development and integration activities for IRDS and other capability enhancements activities to enable F-22 modernization.</p>					
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<p>Title: Cryptographic Modernization</p> <p>Description: This is not a new start. The Cryptographic Modernization program will update F-22 radios with revised interoperability and cryptographic security requirements as mandated by the Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN), U.S. Procurement Specification SS103118. This major thrust also covers F-22 program activities required to update Tactical Secure Voice Cryptographic Interoperability Specification (TSVCIS) 2.1 to version 3.1.1, a key component of Cryptographic Modernization Planning as directed by CJCSI-6510.02D and IAW with guidance from the National Cryptographic Solution Management Office (NSCMO), dated August 2020.</p> <p>Cryptographic Modernization program activities in FY23 were previously documented within the Communication Systems major thrust. This program has been separated into its own major thrust beginning in FY24.</p> <p>FY 2023 Plans: Efforts for Cryptographic Modernization were contained in the Communication Systems major thrust in the FY23PB. This program has been separated into its own major thrust beginning in FY24.</p> <p>FY 2024 Base Plans: This is not a new start in FY24. A new major thrust is being created for Cryptographic Modernization due to MCA program standup and transition out of MTA authority. FY23 activities were previously documented within the</p>	0.000	0.000	25.000	0.000	25.000
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Communication Systems major thrust in the FY23PB. FY24 efforts include the development of SATURN and TSVCIS solutions and the certification process with NSA. FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: FY24 reflects the separation of Cryptographic Modernization from the Communication Systems major thrust due to the planned transition from MTA authority to MCA program. Planned FY24 execution of \$25.000M includes activities associated with the development of SATURN and TSVCIS solutions.					
Accomplishments/Planned Programs Subtotals	626.329	559.709	725.889	0.000	725.889

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item F02200: <i>F-22A Squadrons, PE 0207138F*</i>	442.364	795.969	899.187	-	899.187	937.272	1,025.784	1,058.728	452.740	0.000	5,612.044

Remarks
 NOTES:

*F-22A Squadrons, APAF/PE 0207138F, includes funding for F-22A Squadrons BPs 11 (Aircraft Modifications), 13 (Post-Production Support), 16 (Initial Spares), and 19 (Depot Activation).

E. Acquisition Strategy
 The F-22 utilized Sec 804 Middle Tier of Acquisition (MTA) to rapidly develop and field advanced capability. Development efforts were conducted under a Rapid Prototyping MTA, which will conclude at the end of FY23 and transition to Major Capability Acquisition (MCA), Software pathways, or other follow-on acquisition programs starting in FY24. The programs will use the same Indefinite Delivery/Indefinite Quantity (ID/IQ) contract vehicles established under the MTA in order to maximize flexibility to start, stop, accelerate and decelerate projects as required and provide maximum flexibility to manage various modernization projects. In conjunction with the Raptor Enhancement Development & Integration II (REDI II) ID/IQ ordering contract, the new Advanced Raptor Enhancement and Sustainment (ARES) ID/IQ is a follow-on contract that has begun taking orders in FY22. The REDI II and ARES contracts allow for the issuance of orders for efforts associated with the planning, analysis, design, development, qualification, test and documentation of F-22 weapon system performance enhancements, life-cycle improvements, Operational Flight Program (OFP) upgrades, and associated efforts essential to accomplishing the F-22 mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Infrastructure	Various	Various : Various	0.000	206.944	Oct 2021	190.836	Oct 2022	216.693	Oct 2023	-		216.693	Continuing	Continuing	-
Advanced Technology Development	Various	Various : Various	0.000	52.189	Nov 2021	40.752	Nov 2022	42.185	Nov 2023	-		42.185	Continuing	Continuing	-
Sensor Systems	SS/ Various	Lockheed Martin : Fort Worth, TX	0.000	202.908	Feb 2022	163.968	Mar 2023	156.742	Oct 2023	-		156.742	Continuing	Continuing	-
Navigation Systems	SS/ Various	Lockheed Martin : Fort Worth, TX	0.000	24.212	Oct 2021	22.184	Feb 2023	-		-		-	Continuing	Continuing	-
CRPA	SS/TBD	Lockheed Martin : Fort Worth, TX	0.000	-		-		13.319	Oct 2023	-		13.319	Continuing	Continuing	-
EGI-M	SS/TBD	Lockheed Martin : Fort Worth, TX	0.000	-		-		13.174	Oct 2023	-		13.174	Continuing	Continuing	-
Communication Systems	SS/ Various	Lockheed Martin : Fort Worth, TX	0.000	124.946	Oct 2021	88.843	Oct 2022	-		-		-	Continuing	Continuing	-
Link 16 and OSA Improvements	SS/TBD	Lockheed Martin : Fort Worth, TX	0.000	-		-		25.779	Nov 2023	-		25.779	Continuing	Continuing	-
Mode 5 IFF Challenge	SS/TBD	Lockheed Martin : Fort Worth, TX	0.000	-		-		49.018	Nov 2023	-		49.018	Continuing	Continuing	-
Low Drag Tanks and Pylons	SS/CPIF	Lockheed Martin : Fort Worth, TX	0.000	12.438	Aug 2022	47.662	Mar 2023	40.000	Nov 2023	-		40.000	Continuing	Continuing	-
Viability	SS/TBD	Lockheed Martin : Fort Worth, TX	0.000	-		-		138.400	Apr 2024	-		138.400	Continuing	Continuing	-
Cryptographic Modernization	SS/TBD	Lockheed Martin : Fort Worth, TX	0.000	-		-		25.000	Apr 2024	-		25.000	Continuing	Continuing	-
Subtotal			0.000	623.637		554.245		720.310		-		720.310	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Direct Cite Civilian Pay	Various	Not specified. : TBD	0.000	2.692	Oct 2021	5.464	Oct 2022	5.579	Oct 2023	-		5.579	0.000	13.735	-
Subtotal			0.000	2.692		5.464		5.579		-		5.579	0.000	13.735	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	626.329	559.709	725.889	-	725.889	Continuing	Continuing	N/A

Remarks
Target Value of Contract is not discrete due to the number of programs within the Indefinite Delivery, Indefinite Quantity (IDIQ) construct.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
F-22 Squadrons																												
Advanced Technology Development Demonstrations																												
Advanced Technology Development Studies & Analysis																												
Navigation Systems CRPA Development, Integration, and Test																												
Navigation Systems EGI-M Development, Integration, and Test																												
Sensor Systems - Technical Demo/Group B Production Decision																												
Sensor Systems - DT/OT																												
Sensor Systems - Fleet Authorization																												
Sensor Systems - RAA																												
Communication Systems - Release 2 (additional Link 16 capability) Development, Integration, & Test																												
Communication Systems - Release 3 (additional Link 16 & IFF Reply capability) Development, Integration, & Test																												
Communication Systems - Release 4 (Mode 5 IFF Challenge) Development, Integration, & Test																												
Communication Systems - Release 5 (Mode 5 IFF Challenge) Development, Integration, & Test																												
Communication Systems - Release 6 (Mode 5 IFF Challenge) Development, Integration, & Test																												

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674785 / F-22
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Communication Systems - Mode 5 Challenge HW qualification complete							■																					
Low Drag Tanks and Pylons - Milestone Decision Authority Technical Demonstration								■																				
Low Drag Tanks and Pylons - Critical Design Review						■																						
Low Drag Tanks and Pylons - Full Pylon Qualification												■																
Cryptographic Modernization - SATURN/TSVCIS Development Contract Award												■																
Cryptographic Modernization - SATURN/TSVCIS System Design & Development												■	■	■	■	■												
Cryptographic Modernization - SATURN/TSVCIS Testing in F-22 Systems Labs																■	■	■	■	■								
Cryptographic Modernization - SATURN/TSVCIS Flight Test																				■	■	■	■	■				
Viability - IRDS Group A Design																■	■	■	■	■								
Viability - IRDS Phase 1 Integration																■	■	■	■	■								
Viability - IRDS Flight Test at CTF																■	■	■	■	■								
Viability - IRDS Initial Flight Test Unit Procurement												■																

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>	Project (Number/Name) 674785 / <i>F-22</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>F-22 Squadrons</i>				
Advanced Technology Development Demonstrations	1	2022	4	2028
Advanced Technology Development Studies & Analysis	1	2022	4	2028
Navigation Systems CRPA Development, Integration, and Test	1	2022	4	2024
Navigation Systems EGI-M Development, Integration, and Test	1	2022	4	2026
Sensor Systems - Technical Demo/Group B Production Decision	3	2023	3	2023
Sensor Systems - DT/OT	1	2024	4	2026
Sensor Systems - Fleet Authorization	1	2027	1	2027
Sensor Systems - RAA	4	2028	4	2028
Communication Systems - Release 2 (additional Link 16 capability) Development, Integration, & Test	1	2022	4	2022
Communication Systems - Release 3 (additional Link 16 & IFF Reply capability) Development, Integration, & Test	1	2022	4	2023
Communication Systems - Release 4 (Mode 5 IFF Challenge) Development, Integration, & Test	1	2023	4	2024
Communication Systems - Release 5 (Mode 5 IFF Challenge) Development, Integration, & Test	1	2024	4	2025
Communication Systems - Release 6 (Mode 5 IFF Challenge) Development, Integration, & Test	1	2025	4	2026
Communication Systems - Mode 5 Challenge HW qualification complete	3	2023	3	2023
Low Drag Tanks and Pylons - Milestone Decision Authority Technical Demonstration	4	2023	4	2023
Low Drag Tanks and Pylons - Critical Design Review	2	2023	2	2023
Low Drag Tanks and Pylons - Full Pylon Qualification	4	2024	4	2024
Cryptographic Modernization - SATURN/TSVCIS Development Contract Award	3	2024	3	2024

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / <i>F-22A Squadrons</i>	Project (Number/Name) 674785 / <i>F-22</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Cryptographic Modernization - SATURN/TSVCIS System Design & Development	3	2024	2	2026
Cryptographic Modernization - SATURN/TSVCIS Testing in F-22 Systems Labs	2	2025	2	2026
Cryptographic Modernization - SATURN/TSVCIS Flight Test	1	2026	4	2026
Viability - IRDS Group A Design	3	2024	4	2026
Viability - IRDS Phase 1 Integration	3	2024	2	2026
Viability - IRDS Flight Test at CTF	3	2024	4	2026
Viability - IRDS Initial Flight Test Unit Procurement	3	2024	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	351.129	58.374	65.730	97.231	0.000	97.231	78.548	72.578	90.326	76.418	Continuing	Continuing
675346: <i>F-35</i>	14.940	2.294	24.091	76.083	0.000	76.083	56.976	50.694	68.180	53.471	0.000	346.729
675349: <i>HPSI</i>	24.524	12.255	20.746	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	57.525
676011: <i>JSF DUAL CAPABLE AIRCRAFT</i>	311.665	43.825	20.893	21.148	0.000	21.148	21.572	21.884	22.146	22.947	Continuing	Continuing

Program MDAP/MAIS Code: 198

A. Mission Description and Budget Item Justification

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the United States Air Force (USAF), United States Navy, United States Marine Corps and International Partners countries. There are three variants: the F-35A Conventional Takeoff and Landing (CTOL) variant; the F-35B Short Take Off and Vertical Landing (STOVL) variant; and the F-35C Carrier Variant (CV). Maximum commonality among the variants, consistent with National Disclosure Policy, will minimize total air system life cycle costs.

PE 0207142F funding supports USAF-unique on-going User Information Data Exchange Service (UIDES), SEEK EAGLE, Quick Reaction Instrumentation Package (QRIP), Joint Simulation Environment/Virtual Test and Training Center (JSE/VTTC), Hybrid Product Support Integrator (HPSI), and Dual Capable Aircraft (DCA) requirements. These continuing efforts are not new starts.

The F-35A UIDES effort develops a system that supports Information Exchange Requirement (IER) data transfer. UIDES allows F-35 operations, maintenance, training, and financial data to be integrated within existing Air Force enterprise systems. The Autonomic Logistics Information System (ALIS) UIDES will transition to an Operational Data Integrated Network (ODIN) effort.

The Air Force SEEK EAGLE Office (AFSEO) delivers warfighting capability through aircraft/store compatibility testing and evaluation while providing accurate combat weapon delivery and mission planning software. Beginning in FY2020, the USAF supported Flight Test Instrumentation (FTI) wiring and weapons integration tasks related to SEEK EAGLE requests. These tasks include, but are not limited to, envelope expansion, mixed loads testing, adding additional stores, and F-35A specific risk reduction efforts and studies.

The QRIP system is a government off-the-shelf solution from the 59th Test and Evaluation Squadron (59 TES) for F-35A high-capacity data recording needs. Designed for operational test and evaluation, the system can serve multiple emerging needs for data collection. By capturing crowd sourced flight data (CSFD) from operational aircraft, QRIP reduces the need for deliberate regression flight testing and allows the test enterprise to focus on Block 4 and future capability development. In FY2024, the 59 TES will produce/install 25 QRIP data recording devices on F-35A aircraft and continue with approximately 25 QRIP devices annually thereafter. Also in FY2024, the Knowledge Management (KM) system for data processing and storage will be procured and deployed at Eielson AFB and RAF Lakenheath. A team of sixteen

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force Date: March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>
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contractors at each base are required to sustain QRIP associated hardware and software. Cost share funding for this effort is in PE0604840F while the F-35A USAF-unique costs are located in this PE.

The VTTC campus connects 5th Generation / 4th Generation fighter, C2ISR, and bomber simulators in a classified virtual battlespace that provides high end advanced tactics and training. In FY2024, this effort will fund F-35 aircraft and sensor models (F-35 Fighter In-A-Box (FIAB)) for JSE integration at the VTTC. This effort capitalizes on investments made by USAF and Navy in high fidelity sims for 5th Generation fighters and leverages the architecture and development made for test purposes setting the stage to connect Air Force and Navy JSE-based sims for joint training.

The F-35 HPSI's primary role is to integrate support across the supply chain, maintenance, sustainment engineering, logistics information technology and training disciplines. It will deliver enduring, global support for fielded F-35s while preparing for future force expansion. USAF funding supports additional Program Management Activities (PMA) to transition to a final HPSI, which will support sustainment analysis with product support managers, focused on long-term strategic planning, and transition to a final integrated support plan.

The F-35 JSF Operational Requirements Document (ORD) calls for the F-35A to have the capabilities and provisions for DCA operations in the first post-System Development and Demonstration (SDD) block upgrade. DCA is a NATO and US priority which is a critical capability in our collective defense and credible deterrence, with operational certification needed by January 2024. DCA refers to the capability to carry and deliver conventional and non-conventional weapons. DCA operations for the F-35A is internal carriage of up to two B61-12s. Due to extensive certification requirements, the DCA capability planning and design, testing and certification will continue throughout Block 4. Funding in this PE will resource the following F-35A DCA activities: development, analysis, test, integration, certification and risk-reduction activities necessary to field and maintain F-35A DCA capabilities throughout post-SDD block upgrades; assessment of DCA weapon integration and certification impacts on the F-35 aircraft; identification and mitigation of potential technical and cost risks; definition of integration and certification trade-space to field the DCA capability with the B61-12 weapon; follow-on risk reduction efforts to ensure future integration alignment with the earliest feasible post-SDD block upgrade; and full integration efforts pending Service decisions.

The FY 2024 funding request was reduced by \$8.285 million to account for the availability of prior year execution balances.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$3.5M was expended for civilian pay expenses in this program element, and in FY2023 \$3.4M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	69.365	70.730	58.879	0.000	58.879
Current President's Budget	58.374	65.730	97.231	0.000	97.231
Total Adjustments	-10.991	-5.000	38.352	0.000	38.352
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-5.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-9.999	0.000			
• SBIR/STTR Transfer	-0.992	0.000			
• Other Adjustments	0.000	0.000	38.352	0.000	38.352

Change Summary Explanation

FY22 reduction includes .992 for Small Business Innovative Research (SBIR) and a -\$9.999M below threshold reprogramming to AFDW
 FY23 Congressional decrease is due to a program decrease
 FY24 increase can be attributed to the JSE/VTTC Capability Development

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons				Project (Number/Name) 675346 / F-35			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675346: F-35	14.940	2.294	24.091	76.083	0.000	76.083	56.976	50.694	68.180	53.471	0.000	346.729
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F-35A UIDES effort develops a system that supports IER data transfer. UIDES allows F-35A operations, maintenance, training and financial data to be integrated within existing Air Force enterprise systems. The ALIS UIDES will resume efforts in FY2024 in support of the ODIN baseline transition.

The AFSEO delivers warfighting capability through aircraft/store compatibility testing and evaluation and provides accurate combat weapon delivery and mission planning software. Beginning in FY2020, the USAF supported FTI wiring and weapons integration tasks related to SEEK EAGLE requests. These tasks include, but are not limited to, envelope expansion, mixed loads testing, adding additional stores, and F-35A specific risk reduction efforts and studies.

The QRIP / CSFD system is a government-owned, off-the-shelf solution from the 59 TES for F-35 high-capacity data recording needs. Designed for operational test and evaluation, the system serves multiple emerging needs for data collection. By capturing CSFD from operational aircraft, QRIP reduces the need for deliberate regression flight testing and allows the test enterprise to focus on Block 4 and future capability development. In FY2024, the 59 TES will produce and install 25 QRIP data recording devices on F-35A aircraft and continue producing/installing approximately 25 QRIP devices annually thereafter. Also in FY2024, the KM system for data processing and storage will be procured and deployed at Eielson AFB (AK) and RAF Lakenheath (UK). Tyndall AFB (FL) is scheduled for modifications and KM in FY2025. These bases are prioritized in accordance with the CSFD Program Roadmap. A team of sixteen contractors at each base are required to sustain CSFD associated hardware and software at Full Operating Capability. Meanwhile, the 59 TES will continue studying means to increase the operational viability of CSFD, including the use of data science teams, artificial intelligence, and machine learning algorithms.

The VTTC campus connects 5th Generation / 4th Generation fighter, C2ISR, and bomber simulators in a classified virtual battlespace that provides high end advanced tactics and training. In FY2024, this will fund F-35 FIAB, a digital version of the F-35 aircraft and sensors for JSE integration at the VTTC. This capitalizes on investments made by Air Force and Navy in high fidelity sims for 5th Generation fighters and leverages the architecture and development made for test purposes setting the stage to connect Air Force and Navy JSE-based sims for joint training.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$3.5M was expended for civilian pay expenses in this program element, and in FY2023 \$3.4M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Autonomic Logistics Information System (ALIS) User Information Data Exchange Service (UIDES)	0.000	0.000	2.821	0.000	2.821

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Description: Beginning in FY2020, the USAF unique ALIS UIDES requirement was broken out separately from the remaining systems engineering. USAF F-35 UIDES provides for Air Force development of a F-35 ALIS - UIDES that supports IER data transfer capability from the F-35 ALIS into existing Air Force enterprise systems. Activities also include studies and analysis to support both current program/project planning and execution and future program/project planning.</p> <p>FY 2023 Plans: Postpone ALIS UIDES efforts until the new ODIN baseline is ready.</p> <p>FY 2024 Base Plans: Resume ALIS UIDES efforts to prepare for the ODIN baseline transition.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to preparation efforts for the ODIN baseline transition.</p>					
<p>Title: Air Force SEEK EAGLE Office and Low Observable Sustainability Over Time</p> <p>Description: Integrated Test activities in support of Block 4, to include Lockheed Martin and Pratt & Whitney support at all test sites. Non-recurring engineering required to plan for the service life extension of existing Developmental Test (DT) aircraft and modification necessary to bring DT aircraft fleet to a more production representative and sustainable configuration, and to develop flight test instrumentation and release test software to meet Block 4 requirements. Additional upgrades required to support development and evaluation of improvements driven by changes in the threat environment and as identified in the Electronic Warfare Initial Capability Document (ICD), the Fifth Generation Fighter Modernization ICD, and the Block 4 Capability Development Document (CDD).</p> <p>Beginning in FY2020, the USAF has supported FTI wiring and weapons integration tasks related to AFSEO requests. These tasks include, but are not limited to, envelope expansion, mixed loads testing, adding additional stores and F-35A specific risk reduction efforts and studies.</p> <p>As an alternative to flight test, AFSEO will procure 1/6th scale models of the F-35A to be tested in wind tunnels at Arnold Engineering Development Complex (AEDC) to fulfill F-35A weapons integration objectives. Wind tunnel testing would increase AFSEO throughput three hundred percent.</p>	2.294	4.591	5.079	0.000	5.079

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>	Project (Number/Name) 675346 / <i>F-35</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>To ensure the F-35A fleet's Low Observable Sustainability Over Time (LOSOT), 12 F-35A aircraft must undergo radar cross section (RCS) testing annually. The only facility at NAS Patuxent River does not have the capacity to support LOSOT test requirements. The National Radar Test Facility (NRTF) at White Sands Missile Range (WMSR) has the capability, but must procure and install Multifunction Advanced Data Link (MADL) antennae to adapt the range for F-35A testing. These MADL antennae capture F-35A time, space, and position information to direct their radar.</p> <p>FY 2023 Plans: USAF only funding will continue supporting SEEK EAGLE requests by providing FTI wiring and supporting weapons integration tasks initiated in FY2021, in addition to emergent SEEK EAGLE tasks. Procure 1/6th scale models of F-35A and conduct wind tunnel testing for weapons integration. Procure, install, and sustain MADL antennae at NRTF in support of LOSOT testing.</p> <p>FY 2024 Base Plans: USAF only funding will continue supporting AFSEO requests by providing FTI wiring and supporting weapons integration tasks initiated in FY2021, in addition to emergent AFSEO tasks. Procure 1/6th scale models of F-35A and conduct wind tunnel testing for weapons integration. Procure, install, and sustain MADL antennae at NRTF in support of LOSOT testing.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to Test & Evaluation capacity for AFSEO and LOSOT efforts.</p>					
<p>Title: Quick Reaction Instrumentation Package (QRIP) / Crowd Sourced Flight Data (CSFD)</p> <p>Description: The QRIP / Crowd Sourced Flight Data (CSFD) system is a government-owned, off-the-shelf solution from the 59 TES for F-35 high-capacity data recording needs. Designed for operational test and evaluation, the system serves multiple emerging needs for data collection. By capturing CSFD from operational aircraft, QRIP reduces the need for deliberate regression flight testing and allows the test enterprise to focus on Block 4 and future capability development.</p> <p>FY 2023 Plans: In FY2023, the 59 TES will produce and install 36 QRIP data recording devices on as many F-35A aircraft and will produce/install approximately 25 QRIP devices annually thereafter. Also in FY2023, the KM system for data</p>	0.000	19.500	25.927	0.000	25.927

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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B. Accomplishments/Planned Programs (\$ in Millions)

processing and storage will be procured and deployed at Eielson AFB (AK) and continued support at Nellis AFB (NV), Hill AFB (UT), MCAS Yuma (AZ), and Edwards AFB (CA). FY2023 will also increase the required contractors toward the Full Operational Capability (FOC) objective of 16 as more F-35As become modified and KM nodes stand-up across Hill AFB and Eielson AFB.

FY 2024 Base Plans:

In FY2024, the 59 TES will produce and install 25 QRIP data recording devices on F-35A aircraft and continue producing/installing approximately 25 QRIP devices annually. Also in FY2024, the KM system for data processing and storage will be procured and deployed at RAF Lakenheath (UK) and continued support at Nellis AFB (NV), Hill AFB (UT), MCAS Yuma (AZ), Edwards AFB (CA), and Eielson (AK). FY2024 will continue to increase the required contractors toward the FOC objective of 16 as more F-35As become modified and KM nodes stand-up.

FY 2024 OCO Plans:

N/A

FY 2023 to FY 2024 Increase/Decrease Statement:

Funding increased due to the success of CSFD recognized in FY2022, which drives an increased demand by ACC, PACAF, and USAFE-AFAFRICA in QRIPs produced and installed from 20 to 36 in FY2023, and from 20 to 25 in FY2024. Additional increases account for manpower from CSFD locations to go from eight contractor personnel to sixteen which allows for FOC for Hill AFB (UT).

Title: Joint Simulator Environment (JSE) / Virtual Test and Training Center (VTTC)

Description: The VTTC campus connects 5th Generation / 4th Generation fighter, C2ISR, and bomber simulators in a TS/SCI/SAR virtual battlespace that provides opportunities for high end advanced tactics and training. In FY2024, this will fund F-35 FIAB, a digital version of the F-35 aircraft and sensors for JSE integration at the VTTC. This capitalizes on investments made by Air Force and Navy in high fidelity sims for 5th Generation fighters and leverages the architecture and development made for test purposes setting the stage to connect Air Force and Navy JSE based sims for joint training.

FY 2023 Plans:

N/A

FY 2024 Base Plans:

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>processing and storage will be procured and deployed at Eielson AFB (AK) and continued support at Nellis AFB (NV), Hill AFB (UT), MCAS Yuma (AZ), and Edwards AFB (CA). FY2023 will also increase the required contractors toward the Full Operational Capability (FOC) objective of 16 as more F-35As become modified and KM nodes stand-up across Hill AFB and Eielson AFB.</p> <p>FY 2024 Base Plans: In FY2024, the 59 TES will produce and install 25 QRIP data recording devices on F-35A aircraft and continue producing/installing approximately 25 QRIP devices annually. Also in FY2024, the KM system for data processing and storage will be procured and deployed at RAF Lakenheath (UK) and continued support at Nellis AFB (NV), Hill AFB (UT), MCAS Yuma (AZ), Edwards AFB (CA), and Eielson (AK). FY2024 will continue to increase the required contractors toward the FOC objective of 16 as more F-35As become modified and KM nodes stand-up.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to the success of CSFD recognized in FY2022, which drives an increased demand by ACC, PACAF, and USAFE-AFAFRICA in QRIPs produced and installed from 20 to 36 in FY2023, and from 20 to 25 in FY2024. Additional increases account for manpower from CSFD locations to go from eight contractor personnel to sixteen which allows for FOC for Hill AFB (UT).</p> <p>Title: Joint Simulator Environment (JSE) / Virtual Test and Training Center (VTTC)</p> <p>Description: The VTTC campus connects 5th Generation / 4th Generation fighter, C2ISR, and bomber simulators in a TS/SCI/SAR virtual battlespace that provides opportunities for high end advanced tactics and training. In FY2024, this will fund F-35 FIAB, a digital version of the F-35 aircraft and sensors for JSE integration at the VTTC. This capitalizes on investments made by Air Force and Navy in high fidelity sims for 5th Generation fighters and leverages the architecture and development made for test purposes setting the stage to connect Air Force and Navy JSE based sims for joint training.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans:</p>	0.000	0.000	42.256	0.000	42.256

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Procure, integrate, and sustain 8x F-35 Fighter In-A-Box (FIABs) and required human system interface components in support of JSE training at the VTTC. FY 2024 OCO Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to efforts to support F-35 FIABs High End Advanced Tactics and Training (HEAT2) for the USAF Weapons School and joint training in preparation for Night 1 in a low latency, high fidelity facility on the VTTC campus.					
Accomplishments/Planned Programs Subtotals	2.294	24.091	76.083	0.000	76.083

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTE 07 PE 0604840F: <i>F-35A Continuous Capability Development and Delivery</i>	985.404	1,014.708	901.922	-	901.922	947.332	855.290	786.153	706.123	0.000	6,196.932
• RDTE 07 PE 0207142F <i>6011: Dual Capable Aircraft (DCA), BPAC 676011</i>	44.816	20.893	21.100	-	21.100	21.446	21.673	21.971	22.740	0.000	174.639
• RDTE 07 PE 0604840N 2936: <i>F-35C Continuous Capability Development and Delivery (CV)</i>	486.962	491.513	386.118	-	386.118	324.490	295.983	300.659	-	0.000	2,285.725
• RDTE 07 PE 0604840M 3410: <i>F-35B Continuous Capability Development and Delivery (STOVL)</i>	515.746	525.338	409.610	-	409.610	349.243	316.760	321.569	-	0.000	2,438.266
• RDTE 07 International: <i>International Continuous Capability Development and Delivery</i>	358.159	346.820	306.563	-	306.563	265.912	215.209	193.862	-	0.000	1,686.525

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>	Project (Number/Name) 675346 / <i>F-35</i>

D. Acquisition Strategy

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

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>	Project (Number/Name) 675346 / <i>F-35</i>
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>F-35 SEEK EAGLE and LOSOT</i>	
Ongoing support activities	
<i>F-35 UIDES</i>	
Ongoing support activities	
<i>F-35A QRIP / CSFD</i>	
Ongoing support activities	
<i>JSE/VTTC F35 FIAB</i>	
Ongoing support activities	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>	Project (Number/Name) 675346 / <i>F-35</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>F-35 SEEK EAGLE and LOSOT</i>				
Ongoing support activities	1	2022	4	2028
<i>F-35 UIDES</i>				
Ongoing support activities	1	2024	4	2024
<i>F-35A QRIP / CSFD</i>				
Ongoing support activities	2	2023	4	2028
<i>JSE/VTTC F35 FIAB</i>				
Ongoing support activities	2	2024	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons				Project (Number/Name) 675349 / HPSI			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675349: HPSI	24.524	12.255	20.746	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	57.525
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F-35 HPSI is the sustainment execution arm of the F-35 Program Office. The HPSI's primary role is to integrate sustainment support across the supply chain, maintenance, sustaining engineering, logistics information technology and training disciplines. HPSI personnel are from the US Services, F-35 Partners, Lockheed Martin, Pratt & Whitney, Rolls Royce, BAE Systems, and Northrop Grumman. USAF funding supports additional PMA to transition to a final HPSI, which will support sustainment analysis with product support managers, focused on long-term strategic planning, and transition to a final integrated support plan.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$3.5M was expended for civilian pay expenses in this program element, and in FY2023 \$3.4M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Management Services	12.255	20.746	0.000	-	0.000
Description: This funding supports the transition of the F-35 HPSI from multiple locations to Wright-Patterson Air Force Base (AFB), Ohio (OH). The funding supports HPSI AFLCMC civilian pay, contractor support, and travel.					
FY 2023 Plans: The HPSI organization will continue to transition to Wright-Patterson AFB, OH. This funding provides for HPSI AFLCMC civilian pay, contractor support, and travel.					
FY 2024 Base Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to the completion of transitioning personnel to the HPSI organization at Wright-Patterson AFB, OH.					
Accomplishments/Planned Programs Subtotals	12.255	20.746	0.000	-	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>	Project (Number/Name) 675349 / <i>HPSI</i>
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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 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675349 / HPSI
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Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AFLCMC Civilian Pay	Allot	AFLCMC : TBD	17.903	5.535	Oct 2021	13.568		-		-		-	0.000	37.006	-
Other Core Contractor Support	Various	Various : TBD	5.617	6.235	Oct 2021	6.465		-		-		-	0.000	18.317	-
Travel	Various	Various : TBD	1.004	0.485	Oct 2021	0.713		-		-		-	0.000	2.202	-
Subtotal			24.524	12.255		20.746		-		-		-	0.000	57.525	N/A
Project Cost Totals			24.524	12.255		20.746		-		-		-	0.000	57.525	N/A

Remarks

Prior years reflects funding in FY20 and FY21. HPSI funding prior to FY20 was programmed under PE 0207142F, Project 675346.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675349 / HPSI
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Hybrid Product Support Integrator	
Management Support Activities	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / <i>F-35 Squadrons</i>	Project (Number/Name) 675349 / <i>HPSI</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Hybrid Product Support Integrator</i>				
Management Support Activities	1	2022	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons				Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
676011: JSF DUAL CAPABLE AIRCRAFT	311.665	43.825	20.893	21.148	0.000	21.148	21.572	21.884	22.146	22.947	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F-35 Joint Strike Fighter (JSF) Operational Requirements Document (ORD) calls for the F-35A variant to have the capabilities and provisions for Dual Capable Aircraft (DCA) operations in the first post System Development and Demonstration (SDD) block upgrade. DCA refers to the capability to carry and deliver conventional and non-conventional weapons. DCA operation for the F-35A is internal carriage of either one or two B61-12 weapons.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2022 \$3.5M was expended for civilian pay expenses in this program element, and in FY2023 \$3.4M is forecasted for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Dual Capable Aircraft (DCA) (F-35 JSF)	43.825	20.893	21.148	0.000	21.148
Description: This effort provides for the assessment of Dual Capable Aircraft (DCA) weapon integration and certification impacts on the F-35A aircraft. It identifies and mitigates potential technical and cost risks, as well as defines the integration and certification trade-space to field the DCA capability with the B61-12 weapon. This effort also supports follow-on risk reduction efforts that will ensure future integration alignment with the earliest feasible post-SDD block upgrade, and is expected to include full integration efforts pending Service decisions.					
Integrated Test activities in support of Block 4, to include Lockheed Martin and Pratt & Whitney support at all test sites. Non-Recurring engineering required to plan for the service life extension of existing DT aircraft and modification necessary to bring DT aircraft fleet to a more production representative and sustainable configuration.					
FY 2023 Plans: Continue execution of the Phase 2 C2D2 contract: DCA Software Regression Testing, Flyable Test Assets Testing, DCA Propulsion Mission Support for Flight Test Operations, Mission System Flight Testing, and Preliminary Aircraft Monitor and Control (AMAC) Testing. The Nuclear Safety Analysis Report (NSAR), Technical Nuclear Safety Analysis (TNSA), Mechanical Interface Control Drawing (MICD), and Electrical Interface Control					

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Drawing (EICD) documentation for the initial TR-3 nuclear certification. Delta Nuclear Certification activities continue in order to certify Lot 14 F-35As, that contain additional DCA hardware and software, as well as Lot 15 F-35As which comprises of a major hardware upgrade, TR-3. Continue initial TR-3 nuclear certification hardware and software development and testing by the prime contractor, Lockheed Martin. In addition, receive a MFR (Military Flight Release) for Lot 14. Initiate TR-3 dry run AMAC on a DT aircraft and initiate interim operational plan data documents, and complete the interim aircraft nuclear safety analysis report.</p> <p>FY 2024 Base Plans: Continue execution of the Phase 2 C2D2 contract: DCA Software Regression Testing, Flyable Test Assets Testing, DCA Propulsion Mission Support for Flight Test Operations, Mission System Flight Testing, and Aircraft Monitor and Control (AMAC) Testing. The NSAR, TNSA, MICD, and EICD documentation for the initial TR-3 nuclear certification. Delta Nuclear Certification activities continue in order to certify TR-2 F-35As (30P08 and 30P09 software), that contain additional DCA hardware and software, as well as Lot 15 F-35As with TR-3. Continue initial TR-3 nuclear certification hardware and software development and testing by the prime contractor, Lockheed Martin. In addition, receive MFR (Military Flight Release) for TR-3. Initiate AMAC on TR-3 production aircraft as well as AMAC graduation event on production aircraft. Initiate interim operational plan data documents, and complete the final aircraft nuclear safety analysis report. Delta Nuclear Certification activities continue in order to certify Lot 16 F-35As, NSAR, TNSA, MICD, and EICD documentation for nuclear certification.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to inflation.</p>					
Accomplishments/Planned Programs Subtotals	43.825	20.893	21.148	0.000	21.148

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTE 07 PE 0207142F 5346: JSF Follow on Modernization, BPAC 675346	4.912	24.091	31.006	-	31.006	31.677	33.582	34.489	35.619	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 07 PE 0604840F: <i>F-35A Continuous Capability Development and Delivery</i>	1,085.909	1,032.528	1,273.888	-	1,273.888	1,325.094	1,160.028	1,096.268	909.909	Continuing	Continuing
• RDTE 07 PE 0604840N 2936: <i>F-35C Continuous Capability Development and Delivery (CV)</i>	473.749	503.365	543.834	-	543.834	534.928	435.450	417.632	417.465	Continuing	Continuing
• RDTE 07 PE 0604840M 3410: <i>F-35B Continuous Capability Development and Delivery (STOVL)</i>	501.609	531.032	544.625	-	544.625	550.377	462.193	415.339	430.007	Continuing	Continuing
• RDTE 07 International: <i>International Continuous Capability Development and Delivery</i>	358.159	346.820	306.563	-	306.563	265.912	215.209	193.862	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

The DCA effort will leverage contracting vehicles for the overall Block 4 F-35 C2D2 effort. The C2D2 acquisition strategy employs both Cost and Fixed Price Incentive contracts for the Block 4 engineering and development efforts. A new modernization contract structure will be established for all post SDD Block 4 efforts. In addition, a separate Basic Ordering Agreement or Indefinite Quantity/Indefinite Delivery contract is planned to provide a long term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future C2D2 capabilities.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 4 Phase 2.3 - DCA to DT Complete	SS/CPFF	Lockheed Martin : Ft. Worth, TX	83.697	7.020	Oct 2021	1.500	Feb 2023	2.000	Mar 2024	-		2.000	Continuing	Continuing	-
DCA Prime PW Propulsion	SS/CPFF	Pratt Whitney - East : Hartford, CT	0.000	2.000	Feb 2022	0.300	Feb 2023	0.310	Mar 2024	-		0.310	0.000	2.610	-
DCA TE Prime LM DT AC Viability	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	7.020	Mar 2022	0.900	Mar 2023	1.000	Dec 2023	-		1.000	Continuing	Continuing	-
DCA TE Prime LM Developmental Foundation Contract	C/CPFF	Lockheed Martin : Ft. Worth, TX	14.524	4.500	Apr 2022	2.000	Mar 2023	1.000	Dec 2023	-		1.000	Continuing	Continuing	-
Delta Certification	SS/CPFF	Lockheed Martin : Ft. Worth, TX	28.979	7.910	Feb 2022	2.000	Feb 2023	2.000	Feb 2024	-		2.000	Continuing	Continuing	-
SEI&T	SS/CPAF	Not specified : TBD	0.000	0.000	Oct 2021	0.000	Oct 2022	1.500	Oct 2023	-		1.500	0.000	1.500	-
Block 4 Phase 1 DCA Requirements Decomposition	SS/CPFF	Lockheed Martin : Ft. Worth, TX	21.572	-		-		-		-		-	0.000	21.572	-
Block 4 Phase 2.1 DCA to PDR	SS/CPFF	Lockheed Martin : Ft. Worth, TX	28.070	-		-		-		-		-	0.000	28.070	-
Prior Year - no longer funded in FYDP	Various	Not specified: TBD : TBD	1.739	-		-		-		-		-	0.000	1.739	-
Prior Year - Block 4 Realignment	Various	Not specified: TBD : TBD	14.676	-		-		-		-		-	0.000	14.676	-
Subtotal			193.257	28.450		6.700		7.810		-		7.810	Continuing	Continuing	N/A

Remarks

SEI&T: Accounts for DCA share of Systems Engineering Integration and Test (SEI&T) contract.

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
B61-12/F-35 Certification	Various	Various : TBD	83.327	0.000	Oct 2021	0.500	Feb 2023	0.000	Oct 2023	-		0.000	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
B61-12 AUR/Tail-kit Program Office	MIPR	AUR/TKA SPO : Kirtland/Eglin AFB, NM	13.900	0.180	Dec 2021	1.800	Dec 2022	2.500	Dec 2023	-		2.500	Continuing	Continuing	-
AFNWC/AFSEC Support	MIPR	Various : TBD	9.130	9.900	Nov 2021	6.000	Nov 2022	8.974	Nov 2023	-		8.974	Continuing	Continuing	-
Prior Year - no longer funded in FYDP	Various	Various : TBD	0.791	-		-		-		-		-	0.000	0.791	-
Subtotal			107.148	10.080		8.300		11.474		-		11.474	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Edwards & OGC	MIPR	Testing : Edwards, CA	4.000	0.400	Feb 2022	1.193	Mar 2023	0.250	Feb 2024	-		0.250	Continuing	Continuing	-
Air Force SEEK EAGLE Office (Combat Weapons Delivery Software)	MIPR	Testing : Eglin, FL	1.000	0.000	Oct 2021	0.000	Oct 2022	0.100	Feb 2024	-		0.100	Continuing	Continuing	-
Prior Year - no longer funded in FYDP	Various	TBD : TBD	0.824	-		-		-		-		-	0.000	0.824	-
Subtotal			5.824	0.400		1.193		0.350		-		0.350	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management Services	C/CPAF	Not specified. : TBD	5.436	4.695	Mar 2022	4.500	Dec 2022	1.000	Mar 2024	-		1.000	Continuing	Continuing	-
AFLCMC Civilian Pay	Allot	Not specified. : TBD	0.000	0.000	Oct 2021	0.000	Oct 2022	0.314	Oct 2023	-		0.314	Continuing	Continuing	-
Travel	Various	Not specified. : TBD	0.000	0.200	Feb 2022	0.200	Feb 2023	0.200	Oct 2023	-		0.200	Continuing	Continuing	-
Subtotal			5.436	4.895		4.700		1.514		-		1.514	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

676011: JSF Dual Capable Aircraft	
Nuclear Certification - NNSA & B61-12 AUR/TKA SPO	
Phase 1 (Nuclear Certification Tasks) Requirements Decomposition	
Phase 2.1 (Nuclear Certification Tasks) DCA to Preliminary Design Review (PDR)	
Phase 2.3 (Nuclear Certification Tasks) DCA to DT Complete	
Delta Certification of Hardware/Software Upgrades/DT Prime Contractor Support/SEI&T	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
676011: JSF Dual Capable Aircraft				
Nuclear Certification - NNSA & B61-12 AUR/TKA SPO	1	2022	4	2028
Phase 1 (Nuclear Certification Tasks) Requirements Decomposition	1	2022	4	2022
Phase 2.1 (Nuclear Certification Tasks) DCA to Preliminary Design Review (PDR)	1	2022	4	2022
Phase 2.3 (Nuclear Certification Tasks) DCA to DT Complete	1	2022	4	2024
Delta Certification of Hardware/Software Upgrades/DT Prime Contractor Support/ SEI&T	1	2022	4	2028

Note

Schedule details reflect fiscal years

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207146F / F-15EX
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	103.950	83.830	100.006	0.000	100.006	56.129	0.000	0.000	0.000	0.000	343.915
670131: <i>F-15EX</i>	-	103.950	83.830	100.006	0.000	100.006	56.129	0.000	0.000	0.000	0.000	343.915
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

A refresh of the F-15C/D fleet is critical to maintaining combat viability (lethality, survivability, and supportability) in support of the 2018 National Defense Strategy. Older F-15C/D aircraft will be replaced to maintain a viable mix of 4th and 5th-generation fighters for the next 20+ years. The F-15EX is based on the 2-seat F-15QA (Qatar) configuration upgraded with USAF-only capabilities, including the Eagle Passive Active Warning and Survivability System (EPAWSS) and the F-15 Operational Flight Program (OFP) software. With two seats, it is multirole-capable and operable by one or two aircrew. F-15EX logistics, maintenance, and training will heavily leverage the existing F-15 infrastructure. F-15EX's will replace F-15C/D aircraft, many of which are beyond their service life and have serious structures risks, wire chafing issues, and obsolete parts. The F-15C began fielding in 1979 and is approaching the end of its safe service life. As the F-15C/D inventory is divested, the F-15EX is needed to meet 2022 National Defense Strategy requirements.

Funds may be used to manufacture aircraft, support equipment, and initial spares to support test activities; integrate hardware and software subsystems; upgrade training systems and systems integration labs; develop training materials and technical manuals; pursue other non-recurring engineering activities to reduce integration and cybersecurity risks, ramp up the production line capacity, prepare for and conduct ground and flight testing, and pursue technology insertion opportunities; resolve Diminishing Manufacturing Sources and Material Shortages (DMSMS) and/or obsolescence issues; fulfill Federal Aviation Administration or other mandates necessary to ensure continued aircrew safety and mission effectiveness; and cover other related requirements to manufacture and sustain the test aircraft. With the transition of the F-15EX from a Middle Tier of Acquisition Rapid Fielding program to a Major Capability Acquisition program in September 2022, this funding will support test support and integration activities for the assets procured under both authorities.

The FY 2024 funding request was reduced by \$21.168M to account for the availability of prior year execution balances.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2022 10.377M was expended for civilian pay expenses in this program element, and in FY 2023 11.410M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207146F / F-15EX
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	107.126	83.830	0.000	0.000	0.000
Current President's Budget	103.950	83.830	100.006	0.000	100.006
Total Adjustments	-3.176	0.000	100.006	0.000	100.006
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-3.176	0.000			
• Other Adjustments	0.000	0.000	100.006	0.000	100.006

Change Summary Explanation

FY22 reduction of -3.176 for Small Business Innovative Research (SBIR)

FY24 funding realigned from procurement to RDT&E provides for existing, ongoing requirements as well as capability development which was not previously funded.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: F-15EX	103.950	83.830	100.006
Description: F-15EX will refresh the F-15C/D fleet with new aircraft based on the F-15QA Foreign Military Sales (FMS) configuration being sold to Qatar. The program also incorporates USAF-only capabilities, including the Eagle Passive Active Warning and Survivability System (EPAWSS), the F-15 Operational Flight Program (OFP) software and mandates such as, but not limited to, Global Positioning System (GPS) M-Code, Multi-Functional Information Distribution System-Joint Tactical Radio System (MIDS-JTRS), Second Generation Antijam Tactical UHF Radio for NATO (SATURN), and Mode V Identification Friend or Foe (IFF).			
FY 2023 Plans: Continue software development integration efforts, including merging F-15EX-unique software back into the common F-15 OFP. Continue upgrading training systems and systems integration labs; developing training materials and technical manuals; and completing other non-recurring engineering activities to reduce integration and cybersecurity risks, conduct ground and flight testing, pursue technology insertion opportunities, and fulfill Federal Aviation Administration (FAA) or other mandates necessary to ensure continued aircrew safety (e.g. Auto Ground Collision Avoidance System) and mission effectiveness. Provide program support to manage and execute F-15EX efforts.			
FY 2024 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207146F / F-15EX
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Development capabilities not previously funded, including the Auto GCAS Initiative, IRST Block II integration, ACES-5 initiative, Dual EGI and DVR/DTMII efforts. Continue software development integration efforts, including merging F-15EX-unique software back into the common F-15 OFP. Continue upgrading training systems and systems integration labs; developing training materials and technical manuals; and completing other non-recurring engineering activities to reduce integration and cybersecurity risks, complete ground and flight testing, pursue technology insertion opportunities, and fulfill Federal Aviation Administration (FAA) or other mandates necessary to ensure continued aircrew safety (e.g. Auto Ground Collision Avoidance System) and mission effectiveness. Provide program support to manage and execute F-15EX efforts.			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase in FY 2024 funding is related to development of increased capabilities for F-15EX aircraft to include the Auto GCAS Initiative, IRST Block II integration, ACES-5 initiative, Dual EGI and DVR/DTMII efforts.			
Accomplishments/Planned Programs Subtotals	103.950	83.830	100.006

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APAF 05 F015EX: F-15EX	1,252.359	2,581.368	2,898.039	-	2,898.039	2,534.896	60.601	-	-	0.000	9,327.263

Remarks

E. Acquisition Strategy
 The F-15EX design is based on the F-15QA (Qatar) configuration upgraded with USAF-only capabilities like the Eagle Passive Active Warning and Survivability System (EPAWSS) and the F-15 Operational Flight Program (OFP) software. Since most subsystems are projected to be mature when required for integration into the F-15EX, the acquisition strategy is deemed low risk. To rapidly field the F-15EX, the USAF is focusing engineering activities on integrating existing systems and ramping up the production line capacity. Test activities likewise have also been tailored to focus on integration of F-15QA, EPAWSS, and the F-15 software development, taking appropriate credit for previous USAF and FMS testing. In addition to the integration of existing USAF-only subsystems and F-15 software development onto the F-15QA baseline, the F-15EX is pursuing technology insertion options to ensure it remains a complementary platform to 5th-generation assets. Finally, logistics, maintenance, and training activities will heavily leverage the existing F-15 infrastructure. The F-15EX program was initiated under the Middle Tier of Acquisition Pathway to rapidly field aircraft, meeting the urgent requirement to recapitalize the divesting F-15C/D fleet. In September 2022, the F-15EX program transitioned to a Major Capability Acquisition Pathway program to enable acquisition of Lots 3 and beyond. As part of this transition, all assets and activities were transitioned into the new Major Capability Acquisition program.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207146F / F-15EX	Project (Number/Name) 670131 / F-15EX
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
F-15EX Development	Various	Boeing : St Louis, MO	-	83.809	Apr 2022	58.453	Mar 2023	79.402	Mar 2024	-		79.402	0.000	221.664	-
Subtotal			-	83.809		58.453		79.402		-		79.402	0.000	221.664	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Direct Cite Authority Civilian Pay	Various	AFLCMC CIV PAY : WPAFB & Robins AFBs	-	10.377	Oct 2021	11.410	Oct 2022	11.590	Oct 2023	-		11.590	0.000	33.377	-
Subtotal			-	10.377		11.410		11.590		-		11.590	0.000	33.377	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Flight Test	Various	Various : Various	-	8.364	May 2022	12.567	Mar 2023	7.314	Mar 2024	-		7.314	0.000	28.245	-
Subtotal			-	8.364		12.567		7.314		-		7.314	0.000	28.245	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Administration	Various	Various : Various	-	1.400	Oct 2021	1.400	Oct 2022	1.700	Oct 2023	-		1.700	0.000	4.500	-
Subtotal			-	1.400		1.400		1.700		-		1.700	0.000	4.500	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	103.950	83.830	100.006	-	100.006	0.000	287.786	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207146F / F-15EX	Project (Number/Name) 670131 / F-15EX
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	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks
 FINANCIAL PERFORMANCE: F-15 EX is evaluated against traditional Research and Development (R&D) program expenditure benchmarks. Unlike many traditional R&D programs, however, the F-15 EX Development contract is a Fixed Price contract with progress payments. 20 percent of incurred costs are withheld until the end of the contract, when they are liquidated. Mandatory funding obligations and progress payment withholds will cause the program to lag traditional expenditure benchmarks, painting an inaccurate portrait of overall program health.

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207146F / <i>F-15EX</i>	Project (Number/Name) 670131 / <i>F-15EX</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>F-15EX</i>				
F-15EX Non-Recurring Engineering (NRE) and Integration	4	2022	4	2025
F-15EX Major Defense Acquisition Program (MDAP) Transition Point (MTP)	4	2022	4	2022
F-15EX Initial Test & Evaluation (IOT&E)	2	2022	4	2023
F-15EX Required Assets Available (RAA)/Initial Operating Capability (IOC)	1	2024	1	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	252.456	31.863	34.536	41.958	0.000	41.958	34.871	16.118	16.448	17.043	67.931	513.224
674132: <i>AIM-9 Product Improvement</i>	252.456	31.863	34.536	41.958	0.000	41.958	34.871	16.118	16.448	17.043	67.931	513.224
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 442

A. Mission Description and Budget Item Justification

The AIM-9X Block II/II+ Sidewinder (AIM-9X Blk II/II+) continues the evolution of the AIM-9 series of missiles. This missile program delivers a launch and leave, air combat munition that uses passive Infrared (IR) energy to acquire and track enemy air targets and complements the radar guided Advanced Medium Range Air-to-Air Missile (AMRAAM). The missile provides first shot, first kill opportunities while conducting air combat maneuvering Within Visual Range (WVR) which is essential for aircrew survival. The AIM-9X provides these opportunities with unmatched offensive and defensive capabilities against threats WVR, even when IR countermeasures are employed. The AIM-9X also provides air superiority in the Beyond Visual Range (BVR) air-to-air battle. Anti-tamper features have been incorporated to protect improvements inherent in this design. The AIM-9X Block II missile is critical for projecting power and winning decisively against current and emerging threats.

AIM-9X is a Post Milestone C, Acquisition Category IC (ACAT-IC) joint service program led by the Department of the Navy. The Block II program has completed independent operational testing and found to be operationally effective and operational/suitable. The program achieved Air Force Initial Operational Capability (IOC) in September 2016 and received Full Rate Production (FRP) decision in August 2015. In December 2017, the program began to procure a third variant of the missile labeled the AIM-9X Block II PLUS (Block II+) to satisfy the requirements of the Joint Strike Fighter platform. For contracting purposes, the nomenclature of the AIM-9X Block II missile is identified as AIM-9X2 or AIM-9X-4, and the AIM-9X Block II+ missile is identified as AIM-9X3 or AIM-9X-5. The AIM-9X-4/5 variant are the Systems Improvement Program (SIP) III configuration with upgraded hardware for obsolescence that cut into Lot 21. The first FRP Lot contract was awarded in September 2015. This budget line will continue technical refresh of critical obsolete components, implement cost reduction initiatives, correct deficiencies, and increase capabilities through software enhancements, and conduct testing to ensure platform integration onto threshold US Air Force aircraft.

Leverages Digital acquisition tenets of open, agile and digital. This may include providing funds to prime contractors; program office contract support; facility, security and IT upgrades; common component development with other weapon systems to reduce redundant costs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, or 0606398F. In FY22, 0.00 were expended for civilian pay expenses in this program element, and in FY23, 0.00 are forecasted for civilian pay expenses in this program element.

This FY 2024 funding request was reduced by \$1.219 million to account for the availability of prior year execution balances.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	32.974	34.536	43.079	0.000	43.079
Current President's Budget	31.863	34.536	41.958	0.000	41.958
Total Adjustments	-1.111	0.000	-1.121	0.000	-1.121
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.111	0.000			
• Other Adjustments	0.000	0.000	-1.121	0.000	-1.121

Change Summary Explanation

FY2022 funding reduced by 1.111M for SIBR
 FY2024 funding reduced by 1.121M to support higher Air Force priorities

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: AIM- 9X Product Development	30.063	32.736	40.158
Description: Continuation of Primary Hardware Development/Pre-Planned Product Improvement (Tech Refresh) efforts for the AIM-9X weapon system. This includes Systems Engineering & Program management, as well as support required to ensure AIM-9X missile integration with threshold US Air Force aircraft platforms. This also includes efforts to redesign missile components in order to resolve obsolescence to ensure missile producibility and increase reliability. It will incorporate anti-tamper and cyber security technology improvements, and implement cost reduction initiatives. In addition, the program will evaluate and begin risk reduction efforts that will address hardware and software improvements to facilitate follow-on capability and mitigate obsolescence.			
FY 2023 Plans: AIM-9X System Improvement Program (SIP) III Software (SW) Engineering Change Proposal (ECP) is planned to be completed in FY2023. Continue software development and test efforts, including Operational Flight Software (OFS) v9.5 and v10.5 to support required performance against increasingly challenging threat platforms. Continue AIM-9X SIP IV hardware development of			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
an advanced sensor and Electronics Unit. Hold Preliminary Design Review (PDR) for the SIP IV hardware. Begin OFS v11.5 development to expand on the updated SIP IV hardware. FY 2024 Plans: Continue SIP IV hardware development efforts to support required tracking performance against threat countermeasures. Plan to release OFS v10.5 which re-hosts existing software for use in hardware replaced for obsolescence. Continue development of OFS v11.5 to take advantage of advanced sensor technology as part of the SIP IV program. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase in FY24 due to ramp up in development and integration efforts of the SIP IV hardware and software improvements to counter advanced threats.			
Title: AIM-9X, Test and Evaluation Description: Test and Evaluation (T&E) and associated governmental support required to ensure the AIM-9X missile integration with US Air Force aircraft platforms. Developmental and Operational testing of OFS. FY 2023 Plans: Complete OFS v10.4 software flight test. Continue OFS v9.5 software Developmental Test (DT) and start Integrated Test (IT). FY 2024 Plans: Complete DT and IT flight test of OFS v10.5 software. Begin initial DT flight test of SIP IV hardware for verification and model development. FY 2023 to FY 2024 Increase/Decrease Statement: N/A	1.800	1.800	1.800
Accomplishments/Planned Programs Subtotals	31.863	34.536	41.958

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
			Base	OCO	Total						
• MPAF 02 Line Item M09HAI: <i>Sidewinder (AIM-9X)</i>	102.507	111.855	95.643	-	95.643	106.898	127.649	129.845	132.613	1,004.722	1,811.732
• MPAF 04 Line Item 000999: <i>Replen Spares, USAF</i>	5.937	4.641	6.420	-	6.420	6.534	6.613	6.720	6.854	50.468	94.187
• MPAF 04 Line Item 000999 <i>(2)...: Inital Spares, USAF</i>	3.742	3.546	2.023	-	2.023	2.060	2.084	2.117	2.159	34.267	51.998

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 07 PE 0207161N: <i>Tactical AIM Missile</i>	23.273	29.236	31.353	-	31.353	26.864	13.179	12.559	12.874	42.608	191.946
• WPN Line Item 2209: <i>Sidewinder</i>	78.606	63.288	77.657	-	77.657	85.361	107.225	108.836	112.272	1,105.767	1,739.012

Remarks

Navy RDT&E and WPN Line Items reflect notional 24PB data and are subject to change when Navy budget controls lock.

E. Acquisition Strategy

Milestone C decision for LRIP was held June 24, 2011. The Block II program received USN Initial Operational Capability (IOC) in March 2015 and FRP Approval in August 2015. The Air Force achieved IOC in September 2016. In February 2019, the Acquisition Program Baseline (APB) for SAF was revised to increase total missile procurements and extend missile procurements through 2035. The program awarded FRP-8 in March 2022, and FRP-9 awarded in December 2022.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software/OFP Upgrade/Hdw Development	SS/CPFF	RMD : Tucson, AZ	189.803	27.989	Oct 2021	30.662	Oct 2022	37.634	Oct 2023	-		37.634	109.031	395.119	325.836
Flight Termination System	MIPR	NAWC WD : China Lake, CA	4.034	-		-		-		-		-	0.000	4.034	10.578
Munitions Improvement Study (USG)	MIPR	NAWC WD : China Lake, CA	12.443	-		-		-		-		-	0.000	12.443	-
Systems Engineering (USG)	MIPR	NAWC WD : China Lake, CA	7.404	1.600	Feb 2022	1.600	Feb 2023	2.050	Feb 2024	-		2.050	13.861	26.515	-
Aircraft Integration	SS/CPFF	Boeing : St. Louis, MO	1.238	0.100	May 2022	0.100	May 2023	0.100	May 2024	-		0.100	0.400	1.938	2.624
Subtotal			214.922	29.689		32.362		39.784		-		39.784	123.292	440.049	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DT&E/OT&E	PO	Eglin AFB : Eglin, FL	29.055	1.500	Jan 2022	1.500	Jan 2023	1.500	Jan 2024	-		1.500	20.372	53.927	-
IT/OT Support F-15	SS/CPAF	RMD : Tuscon, AZ	0.770	0.300	May 2022	0.300	May 2023	0.300	May 2024	-		0.300	1.200	2.870	3.370
Subtotal			29.825	1.800		1.800		1.800		-		1.800	21.572	56.797	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	Various	Eglin AFB : Eglin, FL	7.709	0.374	Jan 2022	0.374	Jan 2023	0.374	Jan 2024	-		0.374	7.547	16.378	7.285
Subtotal			7.709	0.374		0.374		0.374		-		0.374	7.547	16.378	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			252.456	31.863	34.536	41.958	-	41.958	152.411	513.224	N/A

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

AIM-9X Block II Tech Refresh (SIP III)	
SIP III Hardware (IMU, Dome, Processor)	
SIP III Hardware ECP	
OFS v9.5 Development	
OFS v9.5 Release	
OFS v10.4 (Rehost) Development	
OFS v10.5 Development	
OFS v10.5 Release	
AIM-9X Block II Tech Refresh (SIP IV)	
SIP IV Contract (Hardware, Software Obsolescence)	
SIP IV Hardware (Sensor, Electronics Unit)	
SIP IV Hardware ECP	
OFS v11.5 Development	
OFS v11.5 Release	
OFS v11.6 Development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>AIM-9X Block II Tech Refresh (SIP III)</i>				
SIP III Hardware (IMU, Dome, Processor)	1	2022	3	2023
SIP III Hardware ECP	3	2023	3	2023
OFS v9.5 Development	1	2022	4	2023
OFS v9.5 Release	1	2024	1	2024
OFS v10.4 (Rehost) Development	1	2022	4	2023
OFS v10.5 Development	1	2023	4	2024
OFS v10.5 Release	4	2024	4	2024
<i>AIM-9X Block II Tech Refresh (SIP IV)</i>				
SIP IV Contract (Hardware, Software Obsolescence)	1	2023	4	2027
SIP IV Hardware (Sensor, Electronics Unit)	1	2023	4	2026
SIP IV Hardware ECP	4	2026	4	2026
OFS v11.5 Development	1	2023	4	2027
OFS v11.5 Release	4	2027	4	2027
OFS v11.6 Development	1	2026	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	759.705	49.686	52.704	53.679	0.000	53.679	54.041	51.903	52.966	54.883	380.611	1,510.178
673777: <i>AMRAAM</i>	759.705	49.686	52.704	53.679	0.000	53.679	54.041	51.903	52.966	54.883	380.611	1,510.178
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 185

A. Mission Description and Budget Item Justification

The Advanced Medium Range Air-to-Air Missile (AMRAAM) is a joint Air Force/Navy, Acquisition Category 1C program with Air Force as lead service. AMRAAM is the premier all-weather, all-environment, radar guided missile with improved capabilities against very low and high-altitude targets in an electronic attack environment. The current AMRAAM variant, the AIM-120D, delivers improved performance via Global Positioning System (GPS) aided navigation; two way datalink capability for enhanced aircrew survivability and improved network compatibility; and incorporates new guidance software that improves kinematic performance and weapon effectiveness.

This Air Force/Navy program is structured in response to the Joint Service Operational Requirement Document and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. The development program enhances AMRAAM capability and operational flexibility against current and projected threats, incorporates high payoff technology development, performs risk reduction activities, and investigates new variants and/or alternate missions that may use AMRAAM attributes. To maximize effectiveness of existing inventory and address findings from the field, the Navy and Air Force also develop, test, and field improvements via software upgrades into fielded missiles and/or hardware upgrades inserted into the production line.

This program supports the integration of the Advanced Medium Range Air-to-Air Missile (AMRAAM) into Air Force aircraft with analysis of Air Force unique applications, aircraft missile integration tasks, product improvement efforts including missile software upgrade development and procurement of hardware to support Air Force test and evaluation tasks.

Leverages Digital acquisition tenets of open, agile and digital. This may include providing funds to prime contractors; program office contract support; facility, security and IT upgrades; common component development with other weapon systems to reduce redundant costs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, or 0606398F. In FY22, \$0.00 were expended for civilian pay expenses in this program element and in FY23, \$0.00 are forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	51.288	52.704	33.557	0.000	33.557
Current President's Budget	49.686	52.704	53.679	0.000	53.679
Total Adjustments	-1.602	0.000	20.122	0.000	20.122
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.602	0.000			
• Other Adjustments	0.000	0.000	20.122	0.000	20.122

Change Summary Explanation

In FY24, an addition of \$20.122M was added to the RDT&E effort to fix a prior year funding disparity during FYDP creation. This additional funding is required for SIP development and is necessary to keep the program on schedule.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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Title: System Improvement Program (SIP)	23.620	29.196	28.998
Description: Continuation of System Improvement Program (SIP) / Risk Reduction (RR) efforts for the AMRAAM weapons system. These include systems engineering, program management, missile software and/or hardware upgrades to increase capability, survivability, lethality, as well as aircraft Operational Flight Program (OFP) updates on a recurring basis. SIP-3F will host AIM-120D SIP-3 software on AIM-120D3 hardware. AIM-120D3 SIP 4 will exploit new Form, Fit, Function (F3R) hardware to maximize missile performance. AIM-120D SIP 3 Tape 2 will address newly matured capabilities, emerging threats, and Operational Test (OT) deficiencies. AIM-120D3 SIP-5 will increase heart of the envelope performance and address an expanded threat space. Candidate Selection Process (CSP) analyzes warfighter priority deficiencies and enhancements to feed risk reduction efforts and future SIP efforts.			
FY 2023 Plans: Complete SIP 3F FCA and flight test requirements. Field SIP 3F with F3R hardware to maximize missile performance. Continue CSP. Continue SIP 4 software development and complete Minimum Viable Product (MVP) milestone demonstrating software maturity. Continue SIP-3 Tape 2 software development.			
FY 2024 Plans:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
Continue CSP. Complete SIP-4 software development with Minimum Viability Capability Release (MVCR) and enter integrated test. Complete SIP-3 Tape 2 software development with MVCR and enter integrated test. Begin SIP-5 software development. FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease from FY23 to FY24 is negligible after the additional \$20.122M was added to the program to keep the SIP development efforts moving forward.				
Title: Test and Evaluation Description: Provides support to flight test efforts; develops test resources and equipment necessary to complete test events; provides contractor field team support personnel and services. FY 2023 Plans: Continue to develop and procure test resources required to meet test requirements and provide support personnel to complete AIM-120 test events. FY 2024 Plans: Continue to develop and procure test resources required to meet test requirements and provide support personnel to complete AIM-120 test events. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase due to ongoing test and evaluation efforts with various agencies in FY24 in support of AMRAAM.		21.900	19.258	20.347
Title: Aircraft Integration Description: Supports the integration of AIM-120 on multiple aircraft platforms as AIM-120 software/hardware is updated and as aircraft OFPs are updated. FY 2023 Plans: Continue integration and testing of AIM-120 on multiple aircraft platforms. FY 2024 Plans: Continue integration and testing of AIM-120 on multiple aircraft platforms. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to inflation from FY23 to FY24. Requirements remain unchanged.		4.166	4.250	4.334
Accomplishments/Planned Programs Subtotals		49.686	52.704	53.679

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF 02 Line Item MAMRA0: <i>Missile Procurement, Air Force</i>	326.350	320.056	701.459	-	701.459	446.386	666.198	115.527	39.899	965.706	3,581.581
• MPAF 04 Line Item 000999: <i>Initial Spares/Repair Parts</i>	3.003	3.165	2.273	-	2.273	2.314	2.343	2.381	2.429	0.000	17.908
• MPAF 04 Line Item 000999 <i>Replen: Replen Spares/Repair Parts</i>	0.873	0.925	0.945	-	0.945	0.963	0.974	0.990	1.010	0.000	6.680
• MPAF 02 Line Item 2206: <i>Weapons Procurement, Navy</i>	74.264	335.900	439.153	-	439.153	279.715	69.591	69.699	17.109	195.311	1,480.742

Remarks

E. Acquisition Strategy

AMRAAM Acquisition Strategy Report (ASR) was updated on 16 May 2018.

System Improvement Program (SIP) development efforts continually mature capabilities through software and/or hardware upgrades to maximize missile performance to address current and emerging threats. These missile performance improvements are incrementally fielded ensuring inventory viability into the future. SIP development contracts are cost type contract efforts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>	Project (Number/Name) 673777 / <i>AMRAAM</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Electronic Protection Improvement Program (EPIP)	Various	Raytheon : Tucson, AZ	86.959	-		-		-		-		-	0.000	86.959	86.959
System Improvement Program (SIP)	Various	Raytheon : Tucson, AZ	256.973	19.454	Jun 2022	24.946	Jun 2023	25.610	Jun 2024	-		25.610	254.470	581.453	405.098
F-22 Aircraft Integration	MIPR	Wright-Patterson AFB : Dayton, OH	114.890	-		-		-		-		-	0.000	114.890	114.890
Aircraft Integration Support	SS/CPFF	Raytheon : Tucson, AZ	22.459	4.167	May 2022	4.250	May 2023	4.335	May 2024	-		4.335	53.808	89.019	73.378
Subtotal			481.281	23.621		29.196		29.945		-		29.945	308.278	872.321	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test	Various	Various : Various	96.907	9.123	Jan 2022	6.048	Jan 2023	6.878	Jan 2024	-		6.878	61.271	180.227	35.169
Test Support	SS/CPFF	Raytheon : Various	158.651	12.777	Jan 2022	13.210	Jan 2023	13.469	Jan 2024	-		13.469	183.437	381.544	292.585
Subtotal			255.558	21.900		19.258		20.347		-		20.347	244.708	561.771	N/A

Remarks
 Total Cost amount consists of test cost other government agencies and small contracts not associated with the prime vendor, Raytheon. Test cost for manpower at Test Wing. Small various contracts such as Dept of Energy, MANTRAC, SURVICE, and DOTC.
 The Target Value of Contract amount consists of the small various contracts such as Dept of Energy, MANTRAC, SURVICE, and DOTC. This amount does not include the various costs sent to Test Wing for government test.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Administration	Various	Various : Various	22.866	4.165	Jan 2022	4.250	Jan 2023	3.387	Jan 2024	-		3.387	41.418	76.086	0.000
Subtotal			22.866	4.165		4.250		3.387		-		3.387	41.418	76.086	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force							Date: March 2023				
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>				Project (Number/Name) 673777 / AMRAAM				
	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	759.705	49.686	52.704	53.679	-	53.679	594.404	1,510.178	N/A		

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>	Project (Number/Name) 673777 / AMRAAM

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AMRAAM Development Program				
AIM-120C CET Dev	1	2022	3	2022
AIM-120C CET Test	1	2022	4	2022
AIM-120C CET FCA	3	2022	3	2022
AIM-120C CET IOC	1	2023	1	2023
AIM-120D SIP-3 IOC	2	2022	2	2022
AIM-120D SIP-3 Tape 2 Development	4	2022	1	2025
AIM-120D SIP-3 Tape 2 Test	4	2024	1	2025
AIM-120D SIP-3 Tape 2 FCA	1	2025	1	2025
AIM-120D SIP-3 Tape 2 IOC	2	2025	2	2025
AIM-120D3 SIP-3F FCA	2	2023	2	2023
AIM-120D3 SIP-3F IOC	3	2023	3	2023
AIM-120D3 SIP-4 Development	1	2022	3	2025
AIM-120D3 SIP-4 Test	3	2024	3	2025
AIM-120D3 SIP-4 FCA	2	2025	2	2025
AIM-120D3 SIP-4 IOC	3	2025	3	2025
AIM-120D3 SIP-5 Development	3	2024	4	2027
AIM-120D3 SIP-5 Test	1	2027	4	2027
AIM-120D3 SIP-6 Development	4	2026	4	2028

Note

Actual Dates:

AIM-120D SIP-3 EMD began 05 Sep 2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
3600 / 7	PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>	673777 / <i>AMRAAM</i>

The following project titles were removed during FY24 BES Update due to start prior to FY22: SIP-3 EMD, SIP-3 Test, SIP-3F Development, and SIP-3F Test. Some of these efforts may be ongoing.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207227F I <i>Combat Rescue - Pararescue</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.845	0.863	0.726	0.000	0.726	0.742	0.761	0.777	0.774	Continuing	Continuing
675352: <i>Guardian Angel RDT&E</i>	-	0.845	0.863	0.726	0.000	0.726	0.742	0.761	0.777	0.774	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Guardian Angel (GA) is an Air Force non-aircraft weapon system within the overarching Special Warfare Modernization program. GA is a Family of Systems (FoS) based in both human and equipment capabilities formulated to execute Air Force Personnel Recovery (PR) across the full spectrum of military operations. Established by the Air Force Chief of Staff in 2003 and officially captured in AFPD 10-9, the GA FoS is employed by three distinct Air Force specialties: Pararescuemen (PJ), Combat Rescue Officer (CRO), and Survival, Evasion, Resistance, Escape (SERE). The GA FoS is comprised of nine critical mission areas: Precision Aerial Insertion, Information Management, Force Application, Visual Augmentation, Maritime Recovery, Ground Mobility, Technical Rescue, Medical, and SERE. GA focus is on maintaining legacy weapon system capability while modernizing/improving subsystems for better mission effectiveness.

Mission Description and Budget Item Justification To stay aligned with SECAF Operational Imperatives, with OSD Focus Area C2, logistics mobility (land/water), funds will be used to obtain significant improvements in operational capability and develop items within the GA FoS to include but not limited to: Maritime Recovery (open ocean boat), Ground Mobility, Technical Recovery, Precision Aerial Insertion (cargo & personnel parachutes), Medical (Simulators), Information Management, SERE, Visual Augmentation (night vision, augmented reality) and Force Protection. This may be conducted through industry technology demonstrations, prototypes, and associated engineering support to posture the GA program for technology insertion. The Guardian Angel weapon system development activities also include studies, analysis, requirements development and developmental testing to support both current and future program planning and execution. Funding will deliver enhanced capability for the dismounted Guardian Angel Operators in terms of dramatic weight reduction and increased mission effectiveness across the conflict spectrum. This funding request will support potential DMS and obsolescence solutions, to include if optimal, life of type buys or bridge buys limited to the program of record quantity.

Guardian Angel funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Guardian Angel weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F, 0605827F, 0605828F, 0605829F, 0605832F, 0605833F, 0605898F, 0606398F. In FY23 0.578M was expended for civilian pay expenses in this program element, and in FY24 0.591M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207227F / <i>Combat Rescue - Pararescue</i>
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.852	0.863	0.724	0.000	0.724
Current President's Budget	0.845	0.863	0.726	0.000	0.726
Total Adjustments	-0.007	0.000	0.002	0.000	0.002
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.007	0.000			
• Other Adjustments	0.000	0.000	0.002	0.000	0.002

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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Title: Guardian Angel Family of Systems (FoS)	0.845	0.863	0.726
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Description: Standardize, modernize and develop additional capability for the Guardian Angel (GA) weapon system used by Combat Rescue Officers and Pararescuemen. Development efforts provide enhanced and improved capabilities for execution of Air Force combat search and rescue and personnel recovery. This weapon system is utilized across the full spectrum of Personnel Recovery (PR) military operations to include patient treatment, extrication, surface/underwater search and recovery, airborne infil/exfil, and ground recovery operations.

FY 2023 Plans:

- continue to complete studies, strategic planning, and development activities for increased capability.
- continue necessary software upgrades to Special Warfare Assault Kit (SWAK) information management system.
- conduct testing for SECAF OI & OSD Focus Area for Resilient Basing Agile Combat Employment
- conduct development and system enhancements on existing and future systems through incorporating test feedback and user inputs into subsequent iterations for better capability and mission success.
- meet with Rapid Acquisition (AFRL, AFWERX, DIU, TENCAP) periodically to monitor ongoing RDT&E efforts and determine the best use of such funds.

FY 2024 Plans:

- Will continue to complete studies, strategic planning, and development activities for increased capability.
- Will continue necessary software upgrades to Special Warfare Assault Kit (SWAK) information management system.
- Will conduct testing for SECAF OI & OSD Focus Area for Resilient Basing (Agile Combat Employment)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207227F I <i>Combat Rescue - Pararescue</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
-Will conduct development and system enhancements on existing and future systems through incorporating test feedback and user inputs into subsequent iterations for better capability and mission success. -Will meet with AFRL periodically to monitor ongoing RDT&E efforts and determine the best use of such funds.			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Budget decreased due to higher Air Force priorities.			
Accomplishments/Planned Programs Subtotals	0.845	0.863	0.726

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPAF 04 Line Item 842990: <i>Items Less than \$5M (Safety)</i>	23.169	23.509	24.904	-	24.904	24.562	25.304	25.860	26.377	Continuing	Continuing
• OPAF 02 Line Item 823230: <i>Security and Tactical Vehicles</i>	0.281	0.287	0.268	-	0.268	0.300	0.310	0.317	0.317	Continuing	Continuing
• WPN test: <i>test</i>	-	0.000	-	-	-	-	-	-	-	0.000	0.000

Remarks

E. Acquisition Strategy
The Guardian Angel (GA) program will address warfighter immediate needs to standardize, modernize, and develop additional capability for the weapon system used by Combat Rescue Officers and Pararescuemen. The program will also address future requirements for the weapon system that will encompass the needs of all three GA career fields.

The GA program is an incremental evolutionary acquisition effort in which requirements are fulfilled through further sub-system development and integration. These are being identified through updates to the Core Function Support Plan and GA Concept of Employment by HQ Air Combat Command. The program has been divided into phases to more rapidly meet the user's immediate need to standardize and modernize the weapon system.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207227F / <i>Combat Rescue - Pararescue</i>	Project (Number/Name) 675352 / <i>Guardian Angel RDT&E</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Events By Sub Project																												
Information Management Software																												
Test Support																												
GA Equipment Upgrades																												
Human Performance Organization Support (POTFF)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207227F / <i>Combat Rescue - Pararescue</i>	Project (Number/Name) 675352 / <i>Guardian Angel RDT&E</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Events By Sub Project				
Information Management Software	1	2022	4	2028
Test Support	1	2022	4	2028
GA Equipment Upgrades	1	2022	4	2028
Human Performance Organization Support (POTFF)	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207238F / E-11A
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	64.888	0.000	64.888	159.851	132.335	134.600	135.484	Continuing	Continuing
671201: <i>E-11 Development</i>	-	0.000	0.000	34.587	0.000	34.587	37.252	0.224	0.000	0.000	Continuing	Continuing
675383: <i>BATTLEFIELD AIRBORNE COMM NODE (BACN)</i>	-	0.000	0.000	30.301	0.000	30.301	122.599	132.111	134.600	135.484	Continuing	Continuing

Note
 This program, BA 7, PE 0207238F, project , M-Code Military Global Positioning System (MilGPS), is a new start.
 This program, BA 7, PE 0207238F, project 675383, Protected Tactical Waveform (PTW) and Ka-Band Satellite Communications (Ka-SATCOM), is a new start.
 This program, BA 7, PE 0207238F, project 675383, MIDS JTRS BU3 Modernization, is a new start.
 This program, BA 7, PE 0207238F, project 675383, BACN Weapon System Open Mission Systems (OMS), is a new start.
 This program, BA 7, PE 0207238F, project 675383, M-Code Military Global Positioning System (MilGPS), is a new start.

A. Mission Description and Budget Item Justification

Budget Program Activity Code (BPAC) 671201 is primarily focused Operational Systems Development for the E-11 BACN platform, and Budget Program Activity Code (BPAC) 675383 is primarily focused on BACN payload weapon system components.

Battlefield Airborne Communication Node "BACN" enables tactical edge Joint and Coalition information interoperability via air, space, and surface systems, to include a Backbone Network for high capacity data transfer. As requirements emerge, BACN will integrate new hardware and software capabilities that improve system performance, interoperability, availability, prototyping of activities in line with department approach of system development upgrades to support current/future open mission system "OMS" technologies. Efforts may include onboard enhancements such as datalink receiving capability in platform cockpit to include but not limited to Link-16, as well as analysis and developmental efforts to explore feasibility of onboard operators to support onboard payload control capabilities. Efforts include, but are not limited to, expansion of external time reference capabilities, development/integration of additional communications systems/subsystems and components; Ka-Band Satellite Communications "Ka-SATCOM", IBS, PTS, enhancements to Military Global Positioning System "MilGPS", integration of advanced antennas and waveforms, development efforts enabling integration of ABMS/JADC2 capabilities, enhancements to ground support capabilities. Additionally, safety of flight considerations, to include weapon system performance, aircraft structural integrity, availability, continuity of service requirements will be addressed, aircraft avionics upgrades, as well as early system engineering assessments and risk reduction activities associated with weapon system "payload" & "platform" survivability in non-contested through contested environments. Efforts include, if needed, long lead items required for successful integration of subsystems (Ka-Band SATCOM, IBS, PTS, Mil-GPS), required non-recurring engineering and Diminishing Manufacturing Sources "DMS" issues, the development of simulators/trainers, development of training materials, the development of future waveforms that are backwards compatible with existing communications, and technical publications as well as the assimilation of any mandates levied on the BACN weapon system. Execute risk reduction activities for development of future capabilities on BACN payload/aircraft efforts.

*This program element 0207238F is a continuation of legacy program element 0207610F.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207238F / E-11A
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This program element may include necessary civilian pay expenses required to manage, execute, and deliver BACN for emergent or unanticipated weapon system capability. The use of such program's funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	64.888	0.000	64.888
Total Adjustments	0.000	0.000	64.888	0.000	64.888
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	64.888	0.000	64.888

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207238F / E-11A				Project (Number/Name) 671201 / E-11 Development			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
671201: E-11 Development	-	0.000	0.000	34.587	0.000	34.587	37.252	0.224	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 0207238F, project , M-Code Military Global Positioning System (MilGPS), is a new start.

A. Mission Description and Budget Item Justification

Budget Program Activity Code (BPAC) 671201 is primarily focused Operational Systems Development for the E-11 BACN platform.

Battlefield Airborne Communication Node "BACN" enables tactical edge Joint and Coalition information interoperability via air, space, and surface systems, to include a Backbone Network for high capacity data transfer. As requirements emerge, BACN will integrate new hardware and software capabilities that improve system performance, interoperability, availability, prototyping of activities in line with department approach of system development upgrades to support current/future open mission system "OMS" technologies. Efforts may include onboard enhancements such as datalink receiving capability in platform cockpit to include but not limited to Link-16, as well as analysis and developmental efforts to explore feasibility of onboard operators to support onboard payload control capabilities. Efforts include, but are not limited to, expansion of external time reference capabilities, development/integration of additional communications systems/subsystems and components such as Military Global Positioning System "MilGPS", M-code or future software and integration of advanced antennas and waveforms, development efforts enabling integration of ABMS/JADC2 capabilities, enhancements to ground support capabilities.

Additionally, safety of flight considerations, to include weapon system performance, aircraft structural integrity, availability, continuity of service requirements will be addressed, aircraft avionics upgrades, as well as early system engineering assessments and risk reduction activities associated with weapon system "payload" & "platform" survivability in non-contested through contested environments.

Efforts include required non-recurring engineering and Diminishing Manufacturing Sources "DMS" issues, the development of simulators/trainers, development of training materials, the development of future waveforms that are backwards compatible with existing communications, and technical publications as well as the assimilation of any mandates levied on the BACN weapon system. Execute risk reduction activities for development of future capabilities on BACN payload/aircraft efforts.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program's funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 671201 / E-11 Development
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: M-Code Military Global Positioning System (MilGPS)</p> <p>Description: Effort enhances MilGPS, including development and integration of emerging GPS and/or PNT technologies such as M-Code, testing, & complete certification. Funds engineering and integration of M-Code GPS capabilities within the E-11 aircraft avionics suite. All E-11s existing and procured are required to have M-Code GPS and this effort will provide enhanced military grade GPS capabilities to the full BACN fleet. Substantial analysis, design, systems engineering, and developmental activities are required to integrate capabilities onboard existing E-11s as the aircraft are civilian derivative aircraft.</p> <p>FY 2023 Plans: No Prior Year Funding</p> <p>FY 2024 Base Plans: Provides engineering and integration methods for MilGPS M-Code technology on new and existing E-11s. Effort includes test and integration into the BACN E-11A Platform. Due to aircraft being civilian derivative, integration efforts will require extensive testing to assure/maintain airworthiness and complete certifications as required.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: No prior year funding</p>	0.000	0.000	31.846	0.000	31.846
<p>Title: Program Support Costs</p> <p>Description: Various Support Costs to Include: Test Direct Cite Authorization Travel Assessments FFRDC A&AS</p> <p>FY 2023 Plans: No Prior Year Funding</p> <p>FY 2024 Base Plans:</p>	-	0.000	2.741	0.000	2.741

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 671201 / E-11 Development
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Fund support contracts at the program management office.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: No Prior Year Funding					
Accomplishments/Planned Programs Subtotals	0.000	0.000	34.587	0.000	34.587

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

N/A

Remarks

D. Acquisition Strategy

Acquisition strategies varied by effort that provide research, development, integration and interoperability of the BACN platform, payload, supporting systems and equipment and will utilize all contracting options and mechanisms available.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 671201 / E-11 Development
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
M-Code MilGPS	SS/CPAF	Northrop Grumman : San Diego, CA	-	-		-		31.846	Mar 2024	-		31.846	Continuing	Continuing	-
Subtotal			-	-		-		31.846		-		31.846	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	PO	Test Wing : TBD	-	-		-		0.389		-		0.389	Continuing	Continuing	-
Subtotal			-	-		-		0.389		-		0.389	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Direct Cite Authorization	TBD	Civilian Pay : TBD	-	-		-		0.762	Dec 2023	-		0.762	Continuing	Continuing	-
Travel	TBD	Not specified. : TBD	-	-		-		0.044		-		0.044	Continuing	Continuing	-
Assessments	C/TBD	Not specified. : TBD	-	-		-		0.453		-		0.453	Continuing	Continuing	-
FFRDC	SS/CPAF	MITRE Corp. : Bedford, MA	-	-		-		0.888	Oct 2023	-		0.888	Continuing	Continuing	-
A&AS	C/CPAF	ARS, Inc. : Beavercreek, OH	-	-		-		0.205	Mar 2024	-		0.205	Continuing	Continuing	-
Subtotal			-	-		-		2.352		-		2.352	Continuing	Continuing	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-	-	34.587	-	34.587	Continuing	Continuing	N/A

Remarks

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 671201 / E-11 Development
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

E-11 Development	
M-Code MilGPS	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 671201 / E-11 Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
E-11 Development				
M-Code MilGPS	2	2024	2	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207238F / E-11A				Project (Number/Name) 675383 / BATTLEFIELD AIRBORNE COMM NODE (BACN)			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675383: BATTLEFIELD AIRBORNE COMM NODE (BACN)	-	0.000	0.000	30.301	0.000	30.301	122.599	132.111	134.600	135.484	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 0207238F, project 675383, Protected Tactical Waveform (PTW) and Ka-Band Satellite Communications (Ka-SATCOM), is a new start.
 This program, BA 7, PE 0207238F, project 675383, MIDS JTRS BU3 Modernization, is a new start.
 This program, BA 7, PE 0207238F, project 675383, BACN Weapon System Open Mission Systems (OMS), is a new start.
 This program, BA 7, PE 0207238F, project 675383, M-Code Military Global Positioning System (MilGPS), is a new start.

A. Mission Description and Budget Item Justification

Budget Program Activity Code (BPAC) 675383 is primarily focused on BACN payload weapon system components.

Battlefield Airborne Communication Node "BACN" enables tactical edge Joint and Coalition information interoperability via air, space, and surface systems, to include a Backbone Network for high capacity data transfer. As requirements emerge, BACN will integrate new hardware and software capabilities that improve system performance, interoperability, availability, prototyping of activities in line with department approach of system development upgrades to support current/future open mission system "OMS" technologies. Efforts may include onboard enhancements such as datalink receiving capability in platform cockpit to include but not limited to Link-16, as well as analysis and developmental efforts to explore feasibility of onboard operators to support onboard payload control capabilities. Efforts include, but are not limited to, expansion of external time reference capabilities, development/integration of additional communications systems/subsystems and components such as Ka-Band Satellite Communications "Ka-SATCOM", IBS, Protected Tactical Waveform "PTW". Integration of advanced antennas and waveforms, development efforts enabling integration of ABMS/ JADC2 capabilities, enhancements to ground support capabilities. Additionally, safety of flight considerations, to include weapon system performance, aircraft structural integrity, availability, continuity of service requirements will be addressed, aircraft avionics upgrades, as well as early system engineering assessments and risk reduction activities associated with weapon system "payload" & "platform" survivability in non-contested through contested environments. Efforts include required non- recurring engineering and Diminishing Manufacturing Sources "DMS" issues, the development of simulators/trainers, development of training materials, the development of future waveforms that are backwards compatible with existing communications, and technical publications as well as the assimilation of any mandates levied on the BACN weapon system. Execute risk reduction activities for development of future capabilities on BACN payload/aircraft efforts.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program's funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 675383 / BATTLEFIELD AIRBORNE COMM NODE (BACN)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: Protected Tactical Waveform (PTW) and Ka-Band Satellite Communications (Ka-SATCOM)</p> <p>Description: PTW connects tactical users operating in contested and semi contested environments with SATCOM to enable the exchange of tactical information (i.e., threat warnings, time sensitive tracks, mission updates). PTW modems are the only solution for airborne protected, anti-jam tactical SATCOM. This development effort focuses on integrating a COTS SATCOM (Ka-SATCOM) system into the BACN aircraft/payload and additionally integrates a PTW modem, enabling a robust anti-jamming (AJ) system. Provides resilient, AJ SATCOM in contested and semi contested environments for tactical users. Support interoperability among U.S., NATO & Coalition/International Partners.</p> <p>FY 2023 Plans: No prior year funding</p> <p>FY 2024 Base Plans: Begin development effort to integrate PTW onboard BACN/E-11 weapon system. Funding/effort provides for the cabling, software, hardware design work, and systems engineering necessary for full PTW system integration with required testing and airworthiness certification necessary for the military configuration.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: No prior year funding</p>	-	0.000	17.505	0.000	17.505
<p>Title: MIDS JTRS BU3 Modernization</p> <p>Description: MIDS JTRS BU3 fields MIDS MOD Increment 2 software along with current enhancements CCR, CMN, and LET. In addition, data link efficiencies (i.e Timeslot Reallocation (TSR), External Time Reference (ETR), and Link 16 (Voice) provide the tools necessary for modernized network designs in support of COCOM information exchange requirements.</p> <p>Implementation of MIDS-JTRS BU3 is essential to the tactical execution of all operational Air Force missions. Lack of implementation will jeopardize the platform's ability to exchange data in current and future Air Force, Joint and Coalition operations in a denied access environment.</p> <p>FY 2023 Plans:</p>	-	0.000	4.024	0.000	4.024

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 675383 / BATTLEFIELD AIRBORNE COMM NODE (BACN)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>No prior year funding</p> <p>FY 2024 Base Plans: Provides engineering design and integration methods for new MIDS-JTRS BU3 technology on new and existing E-11A payloads. Effort includes test and integration into the BACN E-11A Payload. Due to aircraft being civilian derivative, integration efforts will require extensive testing to assure/maintain airworthiness and complete certifications as required.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: No prior year funding</p>					
<p>Title: BACN Weapon System Open Mission Systems (OMS)</p> <p>Description: Developmental enhancements to the BACN Weapon System capability required for integration of updated enterprise terminals as well as advanced capabilities under development but not yet available. These enhancements may include small scale enhancements to BACN weapon system payload, aircraft, and/or ground sites to enable increased operational effectiveness and/or efficiencies.</p> <p>Open Mission Systems (OMS) is the standard for system design that provides significant cost savings/avoidance, ensures rapid deployment of new technologies and preserves interoperability within fielded or future systems-of systems. OMS is the leading edge plug-n-play technology to rapidly meet warfighter requirements</p> <p>FY 2023 Plans: No prior year funding</p> <p>FY 2024 Base Plans: Begin OMS development efforts to modify the current BACN system's payload software and other components to ensure the weapon system maintains a more standardized interface for future upgrades. These developmental efforts may include but are not limited to analysis, early system engineering, and early developmental/prototype activities well as full scale fielded developments necessary to transform the BACN weapon system into a more modular design, ensuring major system components interface with widely supported standards and allows capabilities to be incrementally added/removed/replace throughout system lifecycle.</p> <p>FY 2024 OCO Plans:</p>	-	0.000	0.733	0.000	0.733

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 675383 / BATTLEFIELD AIRBORNE COMM NODE (BACN)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> No prior year funding					
<i>Title:</i> M-Code Military Global Positioning System (MilGPS) <i>Description:</i> Effort enhances MilGPS, including development and integration of emerging GPS and/or PNT technologies such as M-Code, testing, & complete certification. Funds engineering and integration of M-Code GPS capabilities that will replace P-Y code, which is already in use the payload. All E-11s existing and procured are required to have M-Code GPS and this effort will provide enhanced military grade GPS capabilities to the full BACN fleet. Substantial analysis, design, systems engineering, and developmental activities are required to integrate capabilities onboard existing E-11s as the aircraft are civilian derivative aircraft. <i>FY 2023 Plans:</i> No prior year funding <i>FY 2024 Base Plans:</i> Provides engineering and integration methods for MilGPS M-Code technology on new and existing E-11s. Effort includes test and integration into the BACN E-11A Payload. Due to aircraft being civilian derivative, integration efforts will require extensive testing to assure/maintain airworthiness and complete certifications as required. <i>FY 2024 OCO Plans:</i> N/A <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> No prior year funding	-	0.000	4.182	0.000	4.182
<i>Title:</i> Program Support Costs <i>Description:</i> Various Support Costs to Include: Test Direct Cite Authorization Travel Assessments FFRDC A&AS	-	0.000	3.857	0.000	3.857

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 675383 / BATTLEFIELD AIRBORNE COMM NODE (BACN)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<i>FY 2023 Plans:</i> No prior year funding					
<i>FY 2024 Base Plans:</i> Fund support contracts at the program management office.					
<i>FY 2024 OCO Plans:</i> N/A					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> No prior year funding					
Accomplishments/Planned Programs Subtotals	-	0.000	30.301	0.000	30.301

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

N/A

Remarks

D. Acquisition Strategy

Acquisition strategies varied by effort that provide research, development, integration and interoperability of the BACN platform, payload, supporting systems and equipment and will utilize all contracting options and mechanisms available.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 675383 / BATTLEFIELD AIRBORNE COMM NODE (BACN)
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Protected Tactical Waveform	SS/CPFF	Northrop Grumman : San Diego, CA	-	-		-		17.505	Mar 2024	-		17.505	Continuing	Continuing	-
MIDS JTRS BU3 Modernization	SS/CPAF	Not specified. : TBD	-	-		-		4.024	Mar 2024	-		4.024	Continuing	Continuing	-
Open Mission Systems	Various	Not specified. : TBD	-	-		-		0.733	May 2024	-		0.733	Continuing	Continuing	-
M-Code MilGPS	SS/CPAF	Northrop Grumman : San Diego, CA	-	-		-		4.182	Mar 2024	-		4.182	Continuing	Continuing	-
Subtotal			-	-		-		26.444		-		26.444	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	Various	Various : TBD	-	-		-		0.583	Jan 2024	-		0.583	Continuing	Continuing	-
Subtotal			-	-		-		0.583		-		0.583	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Direct Cite Authorization	TBD	Civilian Pay : TBD	-	-		-		0.762	Dec 2023	-		0.762	Continuing	Continuing	-
Travel	TBD	Not specified. : TBD	-	-		-		0.046		-		0.046	Continuing	Continuing	-
Assessments	C/TBD	TBD : TBD	-	-		-		0.722		-		0.722	Continuing	Continuing	-
FFRDC	SS/CPAF	MITRE Corp. : Bedford, MA	-	-		-		1.283	Oct 2023	-		1.283	Continuing	Continuing	-
A&AS	C/CPAF	ARS, Inc. : Beavercreek, OH	-	-		-		0.461	Mar 2024	-		0.461	Continuing	Continuing	-
Subtotal			-	-		-		3.274		-		3.274	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 675383 / BATTLEFIELD AIRBORNE COMM NODE (BACN)	

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

BACN Systems	
PTW	████████████████████
MIDS JTRS BU3	████████████████████
OMS	████████████████████
M-Code MilGPS	████████████████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207238F / E-11A	Project (Number/Name) 675383 / BATTLEFIELD AIRBORNE COMM NODE (BACN)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>BACN Systems</i>				
PTW	2	2024	2	2025
MIDS JTRS BU3	2	2024	2	2025
OMS	3	2024	3	2025
M-Code MilGPS	2	2024	2	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	23.685	25.559	25.749	0.000	25.749	23.968	24.567	25.071	25.979	Continuing	Continuing
670001: <i>Air Force TENCAP</i>	-	23.685	25.559	25.749	0.000	25.749	23.968	24.567	25.071	25.979	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Air Force Tactical Exploitation of National Capabilities (TENCAP) increases warfighter effectiveness through the exploitation of national capabilities and promotes cross-domain integration of these capabilities into military operations/training and intelligence, surveillance and reconnaissance (ISR) activities.

AF TENCAP exploits existing air, space, cyber, national and global ISR, and Non-Traditional ISR (NTISR) for operational and tactical applications by rapidly prototyping and providing capability demonstrations. Projects are designed to transition to warfighters or national intelligence agencies for operational use, and to appropriate acquisition Programs of Record for sustainment and further development. AF TENCAP projects influence the design and operation of current and future air, space, cyber, national and global ISR, and NTISR systems while providing situational awareness to warfighters, national intelligence agency organizations, and units. AF TENCAP projects will begin an evolution to demonstrate prototype capabilities to accelerate Battlespace Awareness Command and Control prototyping efforts into a single Common Operational Picture.

The program consists of multiple small projects supporting the Air Force Warfighting Integration Capability. Projects are executed to provide continued support to Special Operations Forces and the Air Force warfighter, with impacts at the national, operational, and tactical levels.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In PY \$0.00M was expended for civilian pay expenses in this program element, and in CY \$00.00M is forecasted for civilian pay expenses in this program element.

This program element received \$3.00M Ukraine Security Assistance Initiative (USAI) Funds in FY23.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP
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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	23.685	23.309	25.691	0.000	25.691
Current President's Budget	23.685	25.559	25.749	0.000	25.749
Total Adjustments	0.000	2.250	0.058	0.000	0.058
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	2.250	0.058	0.000	0.058

Change Summary Explanation

FY23: 25.559 Current President's Budget. The correct FY23 Current President's Budget amount is 26.309M. Due to a database administrative error, the FY23 Current President's Budget amount displayed in this document only accounts for \$2.250M of the Congressionally approved USAI \$3.000M funding. The program element has already received the full \$3.000M FY23 USAI appropriation and is executing at \$26.309M.

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

	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Exploitation Applications	16.642	14.320	18.499	0.000	18.499
<p>Description: Exploiting existing air, space, cyber, national and global ISR, and Non-Traditional ISR (NTISR) for operational and tactical applications by rapidly prototyping and demonstrating capabilities. National capabilities are exploited to deliver rapid, cost-dominant and innovative warfighting solutions. Project activities (TALONs) support Intelligence Surveillance and Reconnaissance requirements and the application of combat effects; Battlespace Awareness and Command and Control; support to Space; and support to Special Operations Forces and Advanced Capabilities. Activities also influence the design and operation of future space, cyber, national and global ISR, and NTISR systems for tactical users.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Continues to rapidly prototype projects and focus warfighter support and resource allocation based on AF TENCAP mission/investment areas. - Continues focused efforts to increase Air Domain Awareness and Command and Control; support to Special 					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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<p>Operations Forces and Advanced Capabilities; support to Space; and support to ISR and Combat Applications to meet Air Force and Joint Warfighter requirements.</p> <p>FY 2024 Base Plans: - Will continue to rapidly prototype projects and focus warfighter support and resource allocation based on AF TENCAP mission/investment areas</p> <p>- Will continue focused efforts to increase Air Domain Awareness and Command and Control; support to Special Operations Forces and Advanced Capabilities; support to Space; and support to ISR and Combat Applications to meet Air Force and Joint Warfighter requirements.</p> <p>FY 2024 OCO Plans: None.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to reallocation of the AF TENCAP Portfolio to meet tactical Warfighter needs.</p>					
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<p>Title: TALON CRESTONE</p> <p>Description: TALON CRESTONE provides C-UAS capability in support of JUONS 558 & 576. Capability will be employed from airborne platforms and payloads will be controlled via a remote central server. This effort leverages existing National & Tactical technology and networks focused on the highest priority threats in CCMDs. Capability has been deployed to multiple CCMDs.</p> <p>FY 2023 Plans: TALON CRESTONE will complete handoff of transition activities of the C-UAS capability to the program of record (PoR) in support of JUONS 558 & 576. Funding will bridge transition to PoR, procure additional payloads and support critical integration and test within designated theater(s) of operations.</p> <p>FY 2024 Base Plans: No Activities Planned. Project transferred to Program of Record.</p> <p>FY 2024 OCO Plans: None.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>	1.880	1.800	0.000	0.000	0.000
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
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Funding decreased due to the completion and transfer of project development, demonstration and test to acceptance by Program of Record.					
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<p>Title: TALON CRESTONE 2.0</p> <p>Description: TALON CRESTONE 2.0 develops a new form factor for TALON CRESTONE to increase counter-UAS operational flexibility and incorporate enhanced capabilities provided by TALON AVALANCHE (TALON AVALANCHE, upon completion in FY23, will leverage CRESTONE HW/SW to develop detect/collect/process capabilities against advanced UAV C2.) TALON CRESTONE 2.0 capability will be employed from airborne platforms and payloads and leverages existing National & Tactical technology and networks to focus on the highest priority threats in CCMDs. Capability will be deployed to multiple CCMDs.</p> <p>FY 2023 Plans: TALON CRESTONE 2.0 will start development of a new form factor for the TALON CRESTONE system incorporating enhanced capabilities provided from TALON AVALANCHE.</p> <p>FY 2024 Base Plans: TALON CRESTONE 2.0 will continue development of the new form factor for the TALON CRESTONE/TALON AVALANCHE system. Activities will include critical integration, demonstration and test, and will begin transition tasks to transfer capabilities to a program of record.</p> <p>FY 2024 OCO Plans: None.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to continuing development and adding demonstration and test activities to effort.</p>	0.000	3.275	3.900	0.000	3.900
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<p>Title: TALON POWDERHORN</p> <p>Description: TALON POWDERHORN (previously TALON OMNIA) is a project to incorporate multi-domain Maritime and Air blue force data into the THRESHER common operational picture. TENCAP will develop architectures for blue force location and status data to inform decision makers on the AF JADC2 Awareness and Battle Management operational and tactical pictures. TALON POWDERHORN, will continue to develop methodologies and architectures to ingest blue force location and status data to provide decision makers blue force courses of action during force employment. Includes Grapical User Display development and integration into THRESHER Program of Record (All Domain Awareness tool).</p>	1.503	3.104	2.000	0.000	2.000
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p><i>FY 2023 Plans:</i></p> <ul style="list-style-type: none"> - TALON POWDERHORN continues to accelerate integration of air and maritime blue force data into a single interface and demonstrate a prototype of Blue Force Air and Maritime Domain Awareness capabilities. - Continues to develop methodologies and architectures to ingest blue force location and status data to provide decision makers blue force courses of action during force employment. - Examines different Graphical User Interfaces for development and demonstrations. <p><i>FY 2024 Base Plans:</i></p> <ul style="list-style-type: none"> - TALON POWDERHORN will continue development to integrate air and maritime blue force data into a single interface and demonstrate a prototype of Blue Force Air and Maritime Domain Awareness capabilities. - Will continue to develop methodologies and architectures to ingest blue force location and status data to provide decision makers blue force courses of action during force employment. <p><i>FY 2024 OCO Plans:</i> None.</p> <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding decreased due to transition of project from development phase into test and delivery of demonstrated capabilities.</p>					
<p><i>Title:</i> TALON PHOENIX</p> <p><i>Description:</i> TALON PHOENIX is an effort to develop distributed SAP mission planning.</p> <p><i>FY 2023 Plans:</i> Continues development of distributed SAP mission planning.</p> <p><i>FY 2024 Base Plans:</i> Will continue development and platform deployment of distributed SAP mission planning software and tools. Demonstrate capability through collaborative user operational prototype testing events and transition capability to appropriate programs of record.</p> <p><i>FY 2024 OCO Plans:</i></p>	3.660	3.060	1.350	0.000	1.350

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
None.					
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding decreased due to completion of tasks under project development and start of test, delivery of demonstrated capabilities.					
Accomplishments/Planned Programs Subtotals	23.685	25.559	25.749	0.000	25.749

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

Remarks
N/A

E. Acquisition Strategy
Projects are selected based upon needs identified by the program's customers - DOD Departments, Combatant Commands, Components, MAJCOMs, and/or National Intelligence Agencies. Many projects are executed via existing contracts maintained by other agencies; others are executed via AF TENCAP contracts established with vendors responding to annual Broad Agency Announcements. The U.S. Government organization sponsoring a project is responsible for assuming acquisition, deployment, logistics, sustainment and budgetary responsibilities for the developed capability after it has been successfully demonstrated by AF TENCAP.

AF TENCAP projects typically use an incremental acquisition strategy. AF TENCAP utilizes a disciplined systems engineering approach that allows program teams to solve problems through a series of segments. Each increment has to be successful to pursue the following segment which mitigates cost and schedule risk.

Contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP	Project (Number/Name) 670001 / Air Force TENCAP
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
AF TENCAP Projects																																				
FY 2021 Exploitation Applications Developed, Evaluated, and Released																																				
FY 2022 Exploitation Applications Developed, Evaluated, and Released																																				
FY 2023 Exploitation Applications Developed, Evaluated, and Released																																				
FY 2024 Exploitation Applications Developed, Evaluated, and Released																																				
TALON CRESTONE																																				
TALON CRESTONE 2.0																																				
TALON POWDERHORN																																				
TALON PHOENIX																																				
FY 2025 Exploitation Applications Developed, Evaluated, and Released																																				
FY 2026 Exploitation Applications Developed, Evaluated, and Released																																				
FY 2027 Exploitation Applications Developed, Evaluated, and Released																																				
FY 2028 Exploitation Applications Developed, Evaluated, and Released																																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP	Project (Number/Name) 670001 / Air Force TENCAP
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AF TENCAP Projects				
FY 2021 Exploitation Applications Developed, Evaluated, and Released	1	2022	3	2022
FY 2022 Exploitation Applications Developed, Evaluated, and Released	1	2022	3	2023
FY 2023 Exploitation Applications Developed, Evaluated, and Released	1	2023	3	2024
FY 2024 Exploitation Applications Developed, Evaluated, and Released	1	2024	3	2025
TALON CRESTONE	1	2022	4	2023
TALON CRESTONE 2.0	2	2023	3	2025
TALON POWDERHORN	1	2022	1	2025
TALON PHOENIX	1	2022	2	2025
FY 2025 Exploitation Applications Developed, Evaluated, and Released	1	2025	3	2026
FY 2026 Exploitation Applications Developed, Evaluated, and Released	1	2026	3	2027
FY 2027 Exploitation Applications Developed, Evaluated, and Released	1	2027	3	2028
FY 2028 Exploitation Applications Developed, Evaluated, and Released	1	2028	4	2028

Note

Most project selection activities occur approximately per the timelines shown, but some projects are initiated on a rolling basis throughout each year in response to time-sensitive operational requirements.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207249F / <i>Precision Attack Systems Procurement</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	14.016	12.722	11.872	0.000	11.872	13.304	13.635	13.914	14.209	Continuing	Continuing
675347: <i>Advanced Targeting Pod</i>	-	14.016	12.722	11.872	0.000	11.872	13.304	13.635	13.914	14.209	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Advanced Targeting Pod (ATP) program includes, but is not limited to, modifying and upgrading LITENING and Sniper precision targeting pods supporting F-15E, F-16, A-10, B-1B, and B-52. Each targeting pod provides long-range target acquisition and expanded weapon delivery envelopes during day, night, and all-weather conditions. Targeting pods are equipped with infrared (IR) sensor, laser designator, digital video, and real-time video data link for connectivity with ground forces. Funds will support integrating ATP technology with aircraft Operational Flight Programs, upgrading pod capability, technical analysis, and testing.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.0M was expended for civilian pay expenses in this program element, and in FY23 0.0M is forecasted for civilian pay expenses in this program element.

The FY2024 funding request was reduced by 1.139 million to account for the availability of prior year execution balances.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	12.083	12.722	12.982	0.000	12.982
Current President's Budget	14.016	12.722	11.872	0.000	11.872
Total Adjustments	1.933	0.000	-1.110	0.000	-1.110
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	2.336	0.000			
• SBIR/STTR Transfer	-0.403	0.000			
• Other Adjustments	0.000	0.000	-1.110	0.000	-1.110

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207249F / <i>Precision Attack Systems Procurement</i>
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Change Summary Explanation

FY22 adjustments include -.403 million for SBIR and \$2.336 million of internal reprogrammings

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Title: Advanced Targeting Pod - Sensor Enhancement (ATP-SE) Requirements</p> <p>Description: Sensor enhancement and modifications supporting Sniper and LITENING precision targeting pods supporting F-15E, F-16, A-10, B-1B, & B-52. Efforts include design enhancements, test events, and aircraft Operational Flight Program (OFP) integration.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>	14.016	0.000	0.000
<p>Title: Advanced Targeting Pod-Technical Insertion (ATP-TI) Increment 1</p> <p>Description: ATP-TI serves as a continuation effort of the ATP-SE program. Efforts include upgrading Operational Flight Program for the Sniper and LITENING precision targeting pods, testing, and aircraft integration.</p> <p>FY 2023 Plans: Accomplish ATP Operational Flight Program (OFP) requirements, and further technology improvements, requirements definition, studies, analysis and assessments.</p> <p>FY 2024 Plans: Accomplish ATP Operational Flight Program (OFP) requirements, and further technology improvements, requirements definition, studies, analysis and assessments.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to insufficient execution and obligation of funds in prior years</p>	0.000	12.722	11.872
Accomplishments/Planned Programs Subtotals	14.016	12.722	11.872

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207249F / <i>Precision Attack Systems Procurement</i>
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item 057: <i>Other Aircraft, Precision Attack Systems Modifications</i>	14.818	9.476	53.374	-	53.374	54.351	55.243	56.439	-	Continuing	Continuing
• APAF 06 Line Item 000999: <i>Initial Spares/Repair Parts</i>	3.425	2.292	3.659	-	3.659	3.725	3.786	3.869	-	Continuing	Continuing

Remarks

E. Acquisition Strategy

The Advanced Targeting Pod (ATP) acquisition strategy consists of several development contracts that use a competitive/ Firm Fixed Price (C/FFP) approach.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force			Date: March 2023				
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207249F / Precision Attack Systems Procurement			Project (Number/Name) 675347 / Advanced Targeting Pod		

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

ATP-SE	
FY21 OFP Integration	█
FY22 OFP Integration	██████████
ATP-TI	
FY23 OFP Integration	██████████
FY24 OFP Integration	██████████
FY25 OFP Integration	██████████
FY26 OFP Integration	██████████
FY27 OFP Integration	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207249F / <i>Precision Attack Systems Procurement</i>	Project (Number/Name) 675347 / <i>Advanced Targeting Pod</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ATP-SE				
FY21 OFP Integration	2	2022	2	2022
FY22 OFP Integration	2	2022	2	2023
ATP-TI				
FY23 OFP Integration	2	2023	2	2024
FY24 OFP Integration	2	2024	2	2025
FY25 OFP Integration	2	2025	2	2026
FY26 OFP Integration	2	2026	2	2027
FY27 OFP Integration	2	2027	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	87.925	50.000	66.932	0.000	66.932	82.229	131.884	120.806	125.177	0.000	664.953
674804: <i>Compass Call</i>	-	87.925	50.000	66.932	0.000	66.932	82.229	131.884	120.806	125.177	0.000	664.953
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Compass Call is the Air Force's wide-area, standoff, Airborne Electromagnetic Attack (AEA) Command and Control Warfare/Information Operations (C2W/IO) weapon system. The employment of this weapon system interrupts the adversary's use of the electromagnetic battlespace and is a key active component in the information battlespace and prosecution of current ground and airborne threats. Compass Call's sophisticated electromagnetic attack system is capable of surgical denial and/or disruption of adversary Radio Frequency (RF) communications, radar, and sensor systems. Development funds are required to perform trade studies, accomplish system upgrades and associated test activities, and develop/test Quick Reaction Capabilities (QRCs).

Due to rapid advances in Electromagnetic Attack (EA) techniques and technology, Compass Call is designed to be adaptable, making it well-suited for a continuous modernization strategy. Such a strategy ensures Compass Call techniques evolve at a pace capable of addressing adversary tactics and emerging technologies. The Compass Call weapon system is continuously improved using a rapid development and acquisition process supporting a Baseline upgrade strategy. User needs and technology insertion opportunities are continuously reviewed. As a result of technology refresh initiatives, including incorporation of open architectures, "plug and play" systems, software defined radios, and modular software development, Compass Call is implementing agile processes to support weapon system development activities.

In FY2017, the Compass Call re-host program was initiated prompting transition of mission capabilities from the legacy EC-130H airframe to an EC-37B airframe. The re-hosted Compass Call platform is based on a commercially-available modified G550 aircraft that already holds Federal Aviation Administration (FAA) Supplemental Type Certificates (STCs) for airworthiness. The platform will undergo modifications to host Compass Call's Prime Mission Equipment (PME) and antenna arrays and receive additional STCs and Military Type Certificates (MTCs). The EC-37B aircraft utilize PME harvested from the EC-130H aircraft and upgraded to the latest Baseline. Due to the age of the EC-130H fleet (average is 49 years), re-hosting of the PME is crucial to ensuring the longevity of this critical capability. In an effort to put capability into the warfighter's hands as soon as possible, the EC-37B program pursues concurrent developmental and production activities.

EC-37B Baseline 3 (BL3) updates fielded Mid-Baseline 2 (MBL2) capabilities, while significantly increasing operating altitude and standoff distances through re-host onto the EC-37B airframe. Incremental low band capability has been added to BL3 through the extension of an existing frequency band. Baseline 4 (BL4) transitions the software baseline to an agile software framework and implements System-Wide Open Reconfigurable Dynamic Architecture (SWORD-A) to enable rapid integration of new capabilities offering increased target capacity. Baseline 5 (BL5) requirements are currently being developed and formalized.

As a result of the FY23 Appropriations Act, the Compass Call program received 0.946M for training and simulation activities. This funding will support studies and analysis of future training and simulation upgrades, as well as future simulation capabilities for testing PME effectiveness against adversary threats.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>
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FY24 RDT&E efforts concentrate on BL4 development activities, maturation of AEA technologies, and trade studies for future Baseline efforts. Activities encompassed within the BL3 and BL4 PME upgrade may include, but are not limited to, aircraft system integration; assembly, test and checkout; mission system upgrades; obsolescence resolution; software development; systems engineering; test and evaluation; flight test; training systems; training events; support equipment; and Program Support Costs (PSC).

Specific mission system developmental activities may include, but are not limited to, studies and analyses for future capabilities and baselines; preparation of white papers and technical reports; maturation of Technology Readiness Level (TRL) capabilities for future insertion; development of QRC applications for integration into Compass Call Software Defined Radios (SDRs); technology roadmap development; power expansion; transmit and receive development; size, weight, power and cooling (SWAP-C) reductions; hardware obsolescence and DMS/vanishing vendor items (VVI); transition of Compass Call PME to open architecture compliant standards; and continued migration of the Compass Call Operating System (CCOS) to an agile software construct.

Compass Call funding also supports innovation activities to include studies, analyses, requirements definition, and QRC prototypes/demonstrations to accelerate planning for technology transition, technology insertion, and future acquisition programs.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Compass Call for emergent or unanticipated weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	91.266	49.054	87.991	0.000	87.991
Current President's Budget	87.925	50.000	66.932	0.000	66.932
Total Adjustments	-3.341	0.946	-21.059	0.000	-21.059
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.946			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-3.341	0.000			
• Other Adjustments	0.000	0.000	-21.059	0.000	-21.059

Change Summary Explanation

FY22: Decrease due to SBIR Transfer

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>
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FY23: As a result of the FY23 Appropriations Act, the Compass Call program received 0.964M for training and simulation activities
 FY24: Funding request was reduced by 21.059M to account for the availability of prior year execution balances

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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<p>Title: Baseline Upgrade Development</p> <p>Description: Development of upgraded PME baseline (BL), other subsystem, and platform upgrades in order to ensure Compass Call capabilities remain ahead of emerging adversary tactics and technologies.</p> <p>FY 2023 Plans: Continue PME development, integration, and test on an upgraded platform and associated simulators, address PME anomalies as required, and begin future baseline development activities.</p> <p>Specific efforts may include, but are not limited to, the following:</p> <ul style="list-style-type: none"> • Expanding frequency coverage • Advanced military & commercial communications offensive capabilities • Emerging and modern targets • Platform integration for future capabilities • Updates to PME infrastructure • Platform upgrades and associated non-recurring engineering • Studies and analysis for current/future baseline development planning • System Wide Open Reconfigurable Dynamic-Architecture (SWORD-A) • Training system/simulator upgrades • Software defined radios • Containerized agile software development/implementation • Software applications and QRCs • PME integration and testing • Hardware prototyping and integration analysis • Testing activities • External communications upgrades • Studies and analysis • Investigating opportunities for technology insertion/TRL maturation • Hardware obsolescence and DMS/Vanishing Vendor Items (VVIs) • White papers and technical reports • Technology roadmap development 	87.925	50.000	66.932
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> • Program Support Costs (PSC), advisory & assistance service, and systems engineering support <p>FY 2024 Plans: Will continue PME development, integration, and test on an upgraded platform and associated simulators, address PME anomalies as required, and future baseline development activities.</p> <p>Specific efforts may include, but are not limited to, the following:</p> <ul style="list-style-type: none"> • Expanding frequency coverage • Advanced military & commercial communications offensive capabilities • Emerging and modern targets • Platform integration for future capabilities • Updates to PME infrastructure • Platform upgrades and associated non-recurring engineering • Studies and analysis for current/future baseline development planning • System Wide Open Reconfigurable Dynamic-Architecture (SWORD-A) • Training system/simulator upgrades • Software defined radios • Containerized agile software development/implementation • Software applications and QRCs • PME integration and testing • Hardware prototyping and integration analysis • Testing activities • External communications upgrades • Studies and analysis • Investigating opportunities for technology insertion/TRL maturation • Hardware obsolescence and DMS/Vanishing Vendor Items (VVIs) • White papers and technical reports • Technology roadmap development • Program Support Costs (PSC), advisory & assistance service, and systems engineering support <p>FY 2023 to FY 2024 Increase/Decrease Statement: The FY2023 to FY2024 increase is due to beginning key BL4 integration and test activities, as well as continuing ongoing BL4 development. Additionally, significant BL3 test/range activities will be occurring.</p>			
Accomplishments/Planned Programs Subtotals	87.925	50.000	66.932

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity
 3600: *Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)
 PE 0207253F / *Compass Call*

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

Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To	
			Base	OCO	Total					Complete	Total Cost
• APAF 04 Line item CALL00: <i>Compass Call Aircraft</i>	0.000	553.700	0.000	-	0.000	0.000	0.000	0.000	-	0.000	553.700
• APAF 05 Line item CALL00: <i>Compass Call Mods</i>	195.098	327.330	144.686	-	144.686	94.480	102.262	194.909	198.965	0.000	1,257.730
• APAF 06 Line item CALL00: <i>Compass Call Mod Spares</i>	119.265	11.343	68.555	-	68.555	13.824	22.170	17.271	17.616	0.000	270.044

Remarks

E. Acquisition Strategy

Due to rapid advances in Electromagnetic Attack (EA) techniques and technology, Compass Call was designed to be adaptable, making it well-suited to a continuous modernization strategy. Such a strategy ensures Compass Call techniques evolve at a pace capable of addressing adversary tactics and emerging technologies. The Compass Call weapon system is continuously improved using a rapid development and acquisition process supporting a Baseline upgrade strategy. User needs and technology insertion opportunities are continuously revised. As a result of technology refresh initiatives, including incorporation of open architectures, "plug and play" systems, software defined radios, and modular software development, Compass Call is implementing agile processes to support weapon system development activities. QRCs are used to address urgent warfighter requests that must be delivered prior to a Baseline release. The 645th Aeronautical System Group (645 AESG) has cradle to grave lifecycle management responsibility of Compass Call and rapid acquisition authorities are executed in accordance with the 645 AESG's Program Management Directive (PMD), Class Justification and Approval (J&A), and Life Cycle Management Plan (LCMP). Due to rapidly changing threat environment and operational demand leveraging Compass Call capabilities, the acquisition program manager may redirect funding as necessary to meet current stated and emerging/evolving Combatant Commander requirements.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>	Project (Number/Name) 674804 / <i>Compass Call</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Baseline Upgrade Development Primary Mission Equipment	SS/CPFF	BAE Systems : Nashua, NH	-	80.015	Oct 2021	34.062	Oct 2022	40.798	Oct 2023	-		40.798	Continuing	Continuing	-
Subtotal			-	80.015		34.062		40.798		-		40.798	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Sim & Trainer	TBD	Not specified. : TBD	-	-		0.946	Sep 2023	-		-		-	Continuing	Continuing	-
Subtotal			-	-		0.946		-		-		-	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	Various	Not specified. : TBD	-	7.462	Nov 2021	14.469	Dec 2022	25.545	Dec 2023	-		25.545	Continuing	Continuing	-
Subtotal			-	7.462		14.469		25.545		-		25.545	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Costs (PSC)	Various	AFLCMC : WPAFB, OH	-	0.448	Apr 2022	0.523	Apr 2023	0.589	Apr 2024	-		0.589	Continuing	Continuing	-
Subtotal			-	0.448		0.523		0.589		-		0.589	Continuing	Continuing	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	87.925	50.000	66.932	-	66.932	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>	Project (Number/Name) 674804 / <i>Compass Call</i>
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	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks
 Test and Evaluation costs have increased across FY2022-FY2024 due to the Program entering into Baseline 3 Developmental and Operational Test, with the bulk of testing occurring in the FY24 timeframe.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>	Project (Number/Name) 674804 / <i>Compass Call</i>
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Compass Call</i>	
Baseline 4 Development/Integration	
Test and Evaluation	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207253F / <i>Compass Call</i>	Project (Number/Name) 674804 / <i>Compass Call</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Compass Call</i>				
Baseline 4 Development/Integration	1	2022	2	2028
Test and Evaluation	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207268F / <i>Aircraft Engine Component Improvement Program</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	111.566	136.087	55.223	0.000	55.223	68.626	55.330	91.264	94.567	Continuing	Continuing
671012: <i>Aircraft Engine Component Improvement Program</i>	-	71.605	96.538	45.301	0.000	45.301	68.626	55.330	49.773	51.574	Continuing	Continuing
675365: <i>F135 Aircraft Engine Component Improvement Program</i>	-	39.961	39.549	9.922	0.000	9.922	0.000	0.000	41.491	42.993	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines to maintain flight safety (highest priority), to correct deficiencies, improve system Operational Readiness (OR) and Reliability & Maintainability (R&M), reduce engine Life Cycle Cost (LCC), and sustain engines throughout their service life. It also serves as the primary vehicle to implement emerging technology solutions to resolve these issues and improve engine performance. Past investments have reduced warfighter Class A rates and decreased Engine Related Loss of Aircraft (ERLOA) and generated significant returns on investments. Significant requirements for FY23 and FY24 include Accelerated Mission Tests (AMTs) required to qualify complex redesigns enabling fleet incorporation of the improvement and providing risk reduction of recently fielded redesigns that were qualified by analysis. The AMT provides early identification of safety/reliability issues prior to the operational fleet experiencing the safety and/or reliability issue. Ongoing tasks for this year support addressing obsolescence and Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues on the TF33 engine (B-52 aircraft), developing critical repairs and extending life limited parts to avoid \$220M on the F119 engine (F-22 aircraft) in preparation for its 2nd depot interval, conducting accelerated mission test on the F135 engine, and eliminating critical safety concerns with the J85 engine (T-38 aircraft).

Engine CIP provides the only means to develop solutions to safety issues, obsolescence, reliability, availability, maintainability, and affordability driven by changes in aircraft operational parameters and missions, usage, or age.

Engines are accepted into the CIP program after the first procurement-funded engine and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older engines operational. Engine CIP testing identifies and fixes engine-related problems ahead of operational impacts. R&M related Engine CIP efforts significantly reduce out year Operations and Maintenance (O&M) and spares costs.

The BY funding request was reduced by \$8.592 million to account for the availability of prior year execution balances.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207268F / <i>Aircraft Engine Component Improvement Program</i>
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0606398F. In FY22, \$0.00M was expended for civilian pay expenses in this program element, and in FY23 \$0.00M is forecast for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	115.715	116.087	3.671	0.000	3.671
Current President's Budget	111.566	136.087	55.223	0.000	55.223
Total Adjustments	-4.149	20.000	51.552	0.000	51.552
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	20.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-4.149	0.000			
• Other Adjustments	0.000	0.000	51.552	0.000	51.552

Change Summary Explanation

FY22 reduction of -4.149M for Small Business Innovative Research (SBIR)
 FY23 Congressional Increase of \$20M (\$10M for Engine CIP efforts and \$10M for F135 Engine)
 FY24 increased by 51.552M to fund Engine CIP disconnect.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program				Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
671012: Aircraft Engine Component Improvement Program	-	71.605	96.538	45.301	0.000	45.301	68.626	55.330	49.773	51.574	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines to maintain flight safety, to correct deficiencies, improve system operational readiness (OR) and reliability & maintainability (R&M), reduce engine life cycle cost (LCC), and sustain engines throughout their service life. Engine CIP directly addresses engine related causes to aircraft non-mission-capability rates. Significant requirements for FY23 and FY24 include accelerated mission tests (AMTs) required to qualify complex redesigns enabling fleet incorporation of the improvement and providing risk reduction of recently fielded redesigns that were qualified by analysis. The AMT provides early identification of safety and reliability issues prior to the operational fleet experiencing the issue. Ongoing tasks for this year support addressing obsolescence and DMSMS issues on the TF33 engine (B-52 aircraft), developing critical repairs and extending life limited parts to avoid over \$220M on the F119 engine (F-22 aircraft) program in preparations for its 2nd depot interval induction, and eliminating a safety concern with the J85 engine (T-38 aircraft). Changes in aircraft operational parameters or missions accelerate the discovery of new engine issues and the need to resolve these issues. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity.

Service-related engine deficiencies occur throughout the engine lifecycle. Given the uncertainty with regard to the number and timing of engine-related deficiencies, it is essential for the USAF to have adequate engineering capability and test capacity to rapidly respond to problems as they occur.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$0.00M was expended for civilian pay in this program element, and in FY23 \$0.00M is forecast for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: F100 Aircraft Engine Component Improvement Program	9.694	21.716	6.133
Description: The F100-220 and F100-229 Engine CIP provides critical developmental engineering support to maintain flight safety, to address parts obsolescence, to improve OR and R&M, to reduce engine LCC, in order for engines to be sustainable throughout their service life. Funds may be used to address emerging and short-notice DMSMS.			
FY 2023 Plans: F100-220 and F100-229:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Will execute multiple tasks to address engine issues associated with the F-15 and F-16 aircraft - Address engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis - Validate redesigned parts and new repair procedures - Maintain engine flight safety, address obsolescence deficiencies, improve OR and R&M, reduce engine LCC, and sustain engines throughout their service life -Conduct F100 AMT - Funds may be used to address emerging and short-notice DMSMS issues <p>FY 2024 Plans: F100-220 and F100-229:</p> <ul style="list-style-type: none"> - Will execute multiple tasks to address engine issues associated with the F-15 and F-16 aircraft - Address engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis - Validate redesigned parts and new repair procedures - Maintain engine flight safety, address obsolescence deficiencies, improve OR and R&M, reduce LCC, and sustain engines throughout their service life -Conduct F100 AMT - Funds may be used to address emerging and short-notice DMSMS issues <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease due to efforts across FY23-FY24 nearing completion.</p>				
<p>Title: F110 Aircraft Engine Component Improvement Program</p> <p>Description: The F101, F110-100, F110-129, F118-100, and F118-101 Engine CIP provides critical developmental engineering support for multiple engines to maintain flight safety, to address parts obsolescence, to improve OR and R&M, to reduce engine LCC, and to sustain engines throughout their service life. Funds may be used to address emerging and short-notice DMSMS issues.</p> <p>FY 2023 Plans: F101, F110-100, F110-129, F118-100, and F118-101:</p> <ul style="list-style-type: none"> - Will execute multiple tasks to address engine issues associated with the B1, B-2, F-15, F-16, and U-2 aircraft - Address safety of flight, engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis - Validate redesigned parts and new repair procedures - Conduct F110 AMT - Maintain engine flight safety, address obsolescence deficiencies, improve OR and R&M, reduce engine LCC, and sustain engines throughout their service life 		10.920	13.198	6.909

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>- Funds may be used to address emerging and short-notice DMSMS issues</p> <p>FY 2024 Plans: F101, F110-100, F110-129, F118-100, and F118-101:</p> <ul style="list-style-type: none"> - Will execute multiple tasks to address engine issues associated with the B1, B-2, F-15, F-16, and U-2 aircraft - Address safety of flight, engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis - Validate redesigned parts and new repair procedures - Conduct F110 AMT - Maintain engine flight safety, address obsolescence deficiencies, improve OR and R&M, reduce engine LCC, and sustain engines throughout their service life - Funds may be used to address emerging and short-notice DMSMS issues <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease due to efforts across FY23-FY24 nearing completion.</p>				
<p>Title: F119 Aircraft Engine Component Improvement Program</p> <p>Description: The F-119 Engine CIP provides critical developmental engineering support for approximately 471 engines to maintain flight safety, to address parts obsolescence, to improve OR and R&M, to reduce engine LCC, and to sustain engines throughout their service life. Funds may be used to address emerging and short-notice DMSMS issues.</p> <p>FY 2023 Plans: F-119</p> <ul style="list-style-type: none"> - Will execute multiple tasks to address engine issues associated with the F-22 aircraft - Address engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis - Validate redesigned parts and new repair procedures - An F-119 Engine AMT is currently in process and runs through FY2023 - Maintain engine flight safety, address obsolescence deficiencies, improve OR and R&M, reduce engine LCC, and sustain engines throughout their service life - Funds may be used to address emerging and short-notice DMSMS issues <p>FY 2024 Plans: F-119:</p> <ul style="list-style-type: none"> - Will execute multiple tasks to address engine issues associated with the F-22 aircraft - Address engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis - Validate redesigned parts and new repair procedures 		21.226	25.653	13.429

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Maintain engine flight safety, address obsolescence deficiencies, improve OR and R&M, reduce engine LCC, and sustain engines throughout their service life - Funds may be used to address emerging and short-notice DMSMS issues <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease due to efforts across FY23-FY24 nearing completion.</p>				
<p>Title: Other Aircraft Engine Component Improvement Program</p> <p>Description: CIP provides critical developmental engineering support for approximately 8,000+ engines (e.g., TF33, TF34, T53, T56, T700, T400, J85, F107) and over 16,000 APU/SPS to maintain flight safety, to address parts obsolescence, to improve OR and R&M, to reduce engine LCC, and to sustain engines throughout their service life. Funds may be used to address emerging and short-notice DMSMS issues.</p> <p>FY 2023 Plans: Other Engines (e.g., TF33, TF34, T53, T56, T700, T400, J85, APUs, F107):</p> <ul style="list-style-type: none"> - Will execute multiple tasks to address engine issues associated with the C-130, T38, UH-1N, UH/MH-60/60G, A-10, B-52, AWACS, and JSTARS aircraft, cruise missiles and aircraft APUs - Address engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis - Validate redesigned parts and new repair procedures - Address issues leading to increased UERs and decreased flight safety - Maintain engine flight safety, address obsolescence deficiencies, improve system OR and R&M, reduce engine LCC, and sustain engines throughout their service life - Funds may be used to address emerging and short-notice DMSMS issues - Funds will also be used to stand up any new Engine CIP TMS programs <p>FY 2024 Plans: Other Engines (e.g., TF33, TF34, T53, T56, T700, T400, J85, APUs, F107):</p> <ul style="list-style-type: none"> - Will execute multiple tasks to address engine issues associated with the C-130, T38, UH-1N, UH/MH-60/60G, A-10, B-52, AWACS, and JSTARS aircraft, cruise missiles and aircraft APUs - Address engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis - Validate redesigned parts and new repair procedures - Address issues leading to increased UERs and decreased flight safety - Maintain engine flight safety, address obsolescence deficiencies, improve OR and R&M, reduce engine LCC, and sustain engines throughout their service life - Funds may be used to address emerging and short-notice DMSMS issues 		29.765	35.971	18.830

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
- Funds will also be used to stand up any new Engine CIP TMS programs				
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease due to efforts across FY23-FY24 nearing completion.				
Accomplishments/Planned Programs Subtotals		71.605	96.538	45.301
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
Other APPN RELATED ACTIVITIES				
(U) - PEs 0203752A and 0205633N, Army/Navy Aircraft Engine CIPs				
D. Acquisition Strategy				
Sole Source Indefinite Delivery/Indefinite Quantity (IDIQ) contracts to Original Equipment Manufacturers (OEMs), and DoD agencies with a 8-year ordering period and 10-year delivery period. Supports multiple tasks to accomplish CIP for more than 23 engine models.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Aircraft Engine CIP: Develop aircraft engine improvements - F110/F101/F118	SS/CPFF	GE : Evendale, OH	-	10.920	Dec 2021	13.198	Nov 2022	6.909	Nov 2023	-		6.909	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-F100/F119/TF33/T400	SS/CPFF	Pratt & Whitney : Hartford, CT	-	36.565	Dec 2021	44.190	Nov 2022	23.133	Nov 2023	-		23.133	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-TF34/J85/T700	SS/CPFF	GE : Lynn, MA	-	7.736	Dec 2021	9.349	Nov 2022	4.894	Nov 2023	-		4.894	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-T56	SS/CPFF	Rolls Royce : Indianapolis, IN	-	0.201	Dec 2021	0.243	Nov 2022	0.127	Nov 2023	-		0.127	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft Auxiliary Power Unit improvements/T53	SS/CPFF	Honeywell : Phoenix, AZ	-	2.355	Dec 2021	2.847	Nov 2022	1.490	Nov 2023	-		1.490	Continuing	Continuing	-
Aircraft Engine CIP: Develop engine improvements-F107	SS/CPFF	Various : Various	-	0.099	Dec 2021	0.120	Nov 2022	0.063	Nov 2023	-		0.063	Continuing	Continuing	-
Subtotal			-	57.876		69.947		36.616		-		36.616	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
Aircraft Engine CIP: Non-OEM CIP Tasks	Various	Various : Various	-	0.880	Dec 2021	1.063	Nov 2022	0.557	Nov 2023	-		0.557	Continuing	Continuing	-
Subtotal			-	0.880		1.063		0.557		-		0.557	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
Non-OEM engine CIP tasks include: blade and rotor inspections to identify potential defects or needed repairs.

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Engine CIP: Ground test and validate engine improvements	PO	AEDC : Arnold AFB, TN	-	3.775	Dec 2021	14.562	Dec 2022	2.388	Dec 2023	-		2.388	Continuing	Continuing	-
Subtotal			-	3.775		14.562		2.388		-		2.388	Continuing	Continuing	N/A

Remarks
Fuel costs for contractor-performed T&E are included in the applicable contract.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Engine CIP: PMA	Various	Various : Various	-	4.508	Dec 2021	5.448	Dec 2022	2.852	Dec 2023	-		2.852	Continuing	Continuing	-
Propulsion Center of Excellence (PCOE)	Various	Various : Various	-	4.566	Dec 2021	5.518	Dec 2022	2.888	Dec 2023	-		2.888	Continuing	Continuing	-
Subtotal			-	9.074		10.966		5.740		-		5.740	Continuing	Continuing	N/A

Remarks
PMA Description: Program Management support, travel, and A&AS.

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		-	71.605	96.538	45.301	-	45.301	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

CIP Legacy Activities	
F-100 Engine CIP Activities	
F-110 Engine CIP Activities	
F-119 Engine CIP Activities	
Other Legacy Engine CIP Activities	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 671012 / Aircraft Engine Component Improvement Program

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CIP Legacy Activities				
F-100 Engine CIP Activities	1	2022	4	2028
F-110 Engine CIP Activities	1	2022	4	2028
F-119 Engine CIP Activities	1	2022	4	2028
Other Legacy Engine CIP Activities	1	2022	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program				Project (Number/Name) 675365 / F135 Aircraft Engine Component Improvement Program			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675365: F135 Aircraft Engine Component Improvement Program	-	39.961	39.549	9.922	0.000	9.922	0.000	0.000	41.491	42.993	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F135 Aircraft Engine Component Improvement Program (CIP) supports the F-35 single-engine fighter propulsion system. It provides the only source of critical developmental engineering support for the F135 propulsion system. F135 CIP maintains flight safety (highest priority), corrects service revealed deficiencies, improves system Operational Readiness (OR) and Reliability & Maintainability (R&M), reduces propulsion system Life Cycle Cost (LCC), and sustains the propulsion system throughout its service life. Historically, aircraft systems change missions, tactics, and environment (including new fuels) and meet changing threats throughout their lives. New technical problems can develop in the propulsion system through actual use and the F135 CIP provides the means to develop fixes for these problems. F135 CIP funding is driven by field events and type/maturity of the propulsion system, not by the total quantity of engines. The program starts with government acceptance of the first procurement-funded engine and continues over the propulsion system's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older engines operational. F135 CIP, through "Lead the Fleet" operational use and accelerated mission testing, identifies and fixes propulsion-related problems ahead of operational impacts. F135 CIP ensures continued improvements in R&M, which reduce out year support costs. Historically, R&M related CIP efforts significantly reduce out year O&M and spares costs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 \$0.00M was expended for civilian pay expenses in this program element, and in FY23 \$0.00M is forecast for civilian pay expenses in this program element.

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

	FY 2022	FY 2023	FY 2024
Title: F135 Aircraft Engine Improvement Program	39.961	39.549	9.922
Description: The Aircraft Engine CIP provides the only source of critical developmental engineering support for F-35 propulsion systems to maintain flight safety for this single-engine fighter, correct service revealed deficiencies, improve system OR and R&M, reduce engine LCC, and sustain engines throughout their service life. Funds may be used to address emerging and short-notice DMSMS issues.			
FY 2023 Plans:			
- Execute approximately 80+ AF-funded F135 engine tasks supporting F-35 flying operations.			
- Conduct accelerated mission test and analytical condition inspection.			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 675365 / F135 Aircraft Engine Component Improvement Program

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Address safety of flight, engine component redesign, repair/rework procedures and life limit/mission analysis. - Validate redesigned parts and new repair procedures. - Maintain/improve engine flight safety, improve OR and R&M, reduce engine LCC, and sustain engine throughout service life. - Funds may be used to address emerging and short-notice DMSMS issues. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Execute approximately 80+ AF-funded F135 engine tasks supporting F-35 flying operations. - Conduct accelerated mission test and analytical condition inspection. - Address safety of flight, engine component redesign, repair/rework procedures and life limit/mission analysis. - Validate redesigned parts and new repair procedures. - Maintain/improve engine flight safety, improve OR and R&M, reduce engine LCC, and sustain engine throughout service life. - Funds may be used to address emerging and short-notice DMSMS issues. <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to funding reduction in FY2024.</p>			
Accomplishments/Planned Programs Subtotals	39.961	39.549	9.922

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

Remarks
Program Element 0205633N provides US Navy funding support for the F135 propulsion system.

D. Acquisition Strategy
Contracts within this program are projected to be awarded sole source to each engine manufacturer. F-135 Engine CIP tasks are generally assigned to the original engine manufacturer based on available funding and prioritization of candidates.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 675365 / F135 Aircraft Engine Component Improvement Program
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Engine CIP: Develop F135 engine improvements	SS/CPFF	Pratt & Whitney : Hartford, CT	-	38.543	Jan 2022	38.501	Jan 2023	9.570	Jan 2024	-		9.570	Continuing	Continuing	-
Subtotal			-	38.543		38.501		9.570		-		9.570	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Engine CIP: Ground test and validate engine improvements	PO	AEDC : Arnold AFB, TN	-	1.171	Dec 2021	0.865	Dec 2022	0.291	Dec 2023	-		0.291	Continuing	Continuing	-
Subtotal			-	1.171		0.865		0.291		-		0.291	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Engine CIP: PMA	Various	Various : Various	-	0.247	Dec 2021	0.183	Dec 2022	0.061	Dec 2023	-		0.061	Continuing	Continuing	-
Subtotal			-	0.247		0.183		0.061		-		0.061	Continuing	Continuing	N/A

Remarks
PMA Description: Program Management support, travel, and A&AS.

Project Cost Totals	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
	-	39.961	39.549	9.922	-	9.922	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 675365 / F135 Aircraft Engine Component Improvement Program

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

CIP JSF Activities	
F-135 Engine CIP Tasks	
F-135 Engine CIP Tasks FY27	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F / Aircraft Engine Component Improvement Program	Project (Number/Name) 675365 / F135 Aircraft Engine Component Improvement Program

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CIP JSF Activities				
F-135 Engine CIP Tasks	1	2022	4	2024
F-135 Engine CIP Tasks FY27	1	2027	4	2028

Note
FY25-FY26 funding not supported.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207325F <i>Joint Air-to-Surface Standoff Missile (JASSM)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	453.110	114.018	117.198	132.937	0.000	132.937	57.141	40.945	17.908	21.818	407.772	1,362.847
675356: <i>JASSM Extended Range (JASSM-ER)</i>	453.110	114.018	117.198	132.937	0.000	132.937	57.141	40.945	17.908	21.818	407.772	1,362.847
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 555

A. Mission Description and Budget Item Justification

The Joint Air-to-Surface Standoff Missile (JASSM) family of missiles includes: JASSM Baseline (JASSM-BL/AGM-158A) and JASSM Extended Range (JASSM-ER/AGM-158B, AGM-158B-2, AGM-158B-3, and AGM-158D). JASSM-ER provides a long range, conventional air-to-surface, autonomous, precision-guided, low observable, standoff cruise missile compatible with fighter and bomber aircraft. JASSM-ER provides the capability to attack a variety of high value fixed or relocatable targets with precision, through preplanned missions or target-of-opportunity, deeper into enemy territory than JASSM-BL, all while minimizing the threat to launch aircraft. Aircraft integration of JASSM-ER/AGM-158B is complete on the B-1, F-15E, F-16, B-2, and B-52. Threshold aircraft is the B-1 and Objective aircraft are F-15E, F-16, B-52, B-2, and F-35.

The AGM-158A and AGM-158B are fielded. The AGM-158B-2, AGM-158B-3, and AGM-158D are in development and will gradually insert into the production line as the new missile builds are approved and ready. DD-250'd missiles will not be returned for modification to the newest variant.

Threats to JASSM survivability are being rapidly developed and fielded by peer-to-peer adversaries. JASSM continued development is critical to maintaining its first day of the war capability and to fulfill Combatant Commanders Operational Plan objectives. Continued development enhances capability and provides operational flexibility against current and projected threats. This is accomplished by evaluating high payoff technology development, performing risk reduction activities, and investigating new variants and/or alternate missions that may use JASSM attributes. To maximize effectiveness of existing inventory and address findings from the field, the Air Force also develops, tests, and fields improvements via software upgrades into fielded missiles and/or hardware upgrades inserted into the production line.

The AGM-158B-2 is an upgrade to the existing JASSM-ER/AGM-158B, incorporating multiple development initiatives to respond to rapidly changing threats. The AGM-158B-2 replaces obsolete components and provides a new electronic fuze, a new Global Positioning System (GPS) receiver, an upgraded Missile Control Unit (MCU), and enhanced software. The AGM-158B-2 will begin a gradual production cut-in starting in Lot 19/FY21 funding year. The AGM-158B-3 provides M-code capability and will begin a gradual production cut-in starting in Lot 21/FY23 funding year. The AGM-158D provides Weapon Data Link (WDL) capability to re-target the missile, post-launch, against relocatable or higher priority targets during mission execution. The AGM-158D will begin a gradual production cut-in starting in Lot 22/FY24 funding year.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207325F <i>Joint Air-to-Surface Standoff Missile (JASSM)</i>
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0606398F. In FY22 0.25M was expended for civilian pay expenses in this program element, and in FY23 0.91M is forecasted for civilian pay expenses in this program element.

Implements tenets of Open, Agile, and Digital acquisition for any new subsystem hardware or software development. Integrates the system in weapon portfolio tradespace studies by conducting trade studies, system engineering, test activities, and system modeling and simulation. Builds and refines a mission modeling framework by incorporating higher-fidelity weapon system designs and updates to the threat landscape to conduct ongoing assessment of weapon system performance against the authoritative threat. Leverages common component development, in collaboration with other weapon systems, to reduce redundant costs between systems with similar subsystems requirements. Invests in analytical, data management, digital environments, networks, facilities, and security infrastructure upgrades supporting development of this program's capabilities, while leveraging DoD and DAF enterprise IT solutions.

Funding may be used to address Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	117.325	117.198	99.784	0.000	99.784
Current President's Budget	114.018	117.198	132.937	0.000	132.937
Total Adjustments	-3.307	0.000	33.153	0.000	33.153
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-3.307	0.000			
• Other Adjustments	0.000	0.000	33.153	0.000	33.153

Change Summary Explanation

FY22: The FY22 funding was reduced by 3.307M for Small Business Innovation Research (SBIR).

FY24: The Non Advocate Cost Analysis (NACA) identified additional FY 2024 requirements to include flight tests to support C++, AGM-158B-2, and Weapon Data Link (WDL), which leads to an FY 2024 total adjustment totaling 20.880M. Addition of 12M for M2 software and 0.273M inflation adjustment.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: Warfighting Capability Enhancement	26.017	24.786	32.203

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207325F <i>Joint Air-to-Surface Standoff Missile (JASSM)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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<p>Description: Design and development of software and mission planning changes to ensure the missile maintains operational effectiveness in classified scenarios.</p> <p>FY 2023 Plans: Continue flight tests and update classified software accordingly based on flight test results. Continue modification of classified software to enable the missile to maintain operational effectiveness in classified scenarios. FY2023 includes two planned flight tests for verification of system updates. Complete automation of Terminal Area Model (TAM) process. Continue Weapon Data Link (WDL) software development.</p> <p>FY 2024 Plans: Continue flight tests and update classified software accordingly based on flight test results. Continue modification of classified software to enable the missile to maintain operational effectiveness in classified scenarios. FY2024 includes completion of 54.0.02 software build and associated flight tests for verification of system updates.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased to incorporate M2 sw scope, addition of classified Verification & Validation scope not previously required, and increased risk on sw updates.</p>			
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<p>Title: Advanced Survivability, Integration, and Test</p> <p>Description: This effort includes development, integration and testing and will continue to enhance missile survivability through subsystem updates including cyber security implementation. It also ensures compatibility of the former wing design with new missile subsystems. The AGM-158B-2 will include a new Electronic Safe and Arm Fuze (ESAF), JASSM Anti-Jam Global Positioning System (GPS) Receiver with Selective Availability Anti-Spoofing Module (JAGR-S V5), an upgraded Missile Control Unit (MCU), Gigabit Ethernet Connector, and enhanced C++ software. This missile variant leverages LRASM coatings, Power Converter Assembly (PCA), Aft Cover and Power and Engine Control Unit (PECU) for improved production commonality.</p> <p>FY 2023 Plans: Continue developmental testing for AGM-158B-2 which will include ground mounts, captive carry, and full release missions. Additional efforts to support this development will include agile software validation using Software-in-the-Loop (SIL), Hardware-in-the-Loop (HIL), and Processor-in-the-Loop (PIL) labs, program protection and cyber security efforts in support of Interim Authority to Operate (IATT) and Authority to Operate (ATO) requirements.</p> <p>FY 2024 Plans:</p>	55.935	32.115	15.444
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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207325F <i>I Joint Air-to-Surface Standoff Missile (JASSM)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
Continue and finalize developmental testing for AGM-158B-2 which will include full release missions. Additional efforts to support this development will include program protection and cyber security efforts in support of IATT and ATO requirements. FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased because many design and test activities conclude.				
Title: Electronic Safe and Arm Fuze (ESAF) Description: ESAF will resolve Fuze Munitions Unit-156A/B (FMU-156A/B) obsolescence and reliability issues, improve yield, and potentially lower costs. FY 2023 Plans: Effort will be complete resulting in a fully qualified FMU-156B/B ESAF. FY 2024 Plans: Effort will be complete resulting in a fully qualified FMU-156B/B ESAF. FY 2023 to FY 2024 Increase/Decrease Statement: N/A		1.000	0.000	0.000
Title: Weapon Data Link (WDL) Description: This effort includes development of the Weapon Data Link (WDL), as well as integration and testing efforts. The WDL allows warfighters to retarget the weapons via line-of-sight and beyond-line-of-sight, allowing the missile to attack relocatable and/or time sensitive targets post aircraft release. The WDL program is designed to use an open system architecture standard with outside communication nodes but integrated into a proprietary missile system. FY 2023 Plans: Continue WDL radio, power supply, and antenna development and prototyping events leading to Systems Requirement Review (SRR). Continue fuel tank redesign effort to ensure WDL volume is available to support no degradation to range capabilities. FY 2024 Plans: Continue development efforts leading to Production Readiness Review. Begin sub-system and system-level hardware demonstrations, as well as testing and qualification activities required for flight testing targeted in FY25. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to changes based on services interoperability requirement. This change drives need for fuel tank redesign, WDL radio procurement and additional antennas.		25.681	56.782	81.496
Title: Other Development/Safety/Survivability		5.385	3.515	3.794

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207325F <i>I Joint Air-to-Surface Standoff Missile (JASSM)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Description: This system improvement program (SIP) focuses on maintaining and upgrading capability and includes development, integration, and testing and will continue to enhance missile survivability through subsystem updates, including cyber security implementation. The SIP will explore and exploit new form, fit, function hardware to maximize missile performance and address newly matured capabilities and emerging threats. These updates will be incorporated via engineering change proposals (ECPs). Potential efforts could include development and integration of advanced Precision, Navigation, and Timing (PNT) capabilities (e.g. Global Positioning System (GPS), non-GPS, optical, passive, active, etc.), evaluations (study analysis), survivability enhancements, safety certifications, flight testing, and Diminishing Manufacturing Sources and Material Shortage (DMSMS). A GPS Military (M) Code receiver is being developed to enable the missile to operate in a GPS-denied environment.</p> <p>FY 2023 Plans: Continue evaluation activity addressing JASSM's obsolescence plan directed activities to include safety and survivability studies. Continue GNC and autopilot software allocations and updates.</p> <p>FY 2024 Plans: Continue evaluation activity addressing JASSM's obsolescence plan directed activities to include safety and survivability studies. Continue GNC and autopilot software allocations and updates.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to continued Diminishing Manufacturing Sources and Material Shortage issues.</p>			
Accomplishments/Planned Programs Subtotals	114.018	117.198	132.937

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
			Base	OCO	Total						
• MPAF 02 0207325F: JASSM	710.550	784.971	1,685.668	-	1,685.668	823.060	819.713	827.541	849.067	0.000	6,500.570

Remarks

E. Acquisition Strategy
The JASSM Acquisition Strategy was amended and approved on September 8, 2017. This amendment enables the JASSM program to introduce upgrades which ensure its viability as the threat environment evolves. All current development contracts use a Cost Plus type contract.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)	Project (Number/Name) 675356 / JASSM Extended Range (JASSM-ER)
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Warfighting Capability Enhancement	SS/CPAF	Lockheed Martin : Orlando, FL	57.809	26.017	Nov 2021	24.786	Nov 2022	27.203	Nov 2023	-		27.203	41.466	177.281	153.217
Advanced Survivability, Integration, and Test	SS/CPFF	Lockheed Martin : Orlando, FL	76.097	55.935	Nov 2021	32.115	Nov 2022	15.444	Nov 2023	-		15.444	15.444	195.035	160.000
ESAF	SS/CPFF	Lockheed Martin : Orlando, FL	32.321	1.000	Mar 2022	-		-		-		-	0.000	33.321	22.331
M-code and Related Development Efforts	SS/CPFF	Lockheed Martin : Orlando, FL	13.851	-		-		-		-		-	0.000	13.851	11.531
Weapon Data Link	SS/CPFF	Various : Orlando, FL	14.601	25.681	Dec 2021	56.782	Dec 2022	86.496	Dec 2023	-		86.496	80.218	263.778	170.000
JASSM-ER development test missile procurement (for DT/OT), parts upgrade, software updates, product improvements, survivability enhancements, LTIK, ITIK, and obsolescence.	Various	Lockheed Martin : Orlando, FL	172.536	5.035	Jan 2022	1.595	Mar 2023	0.794	Mar 2024	-		0.794	18.597	198.557	185.000
Subtotal			367.215	113.668		115.278		129.937		-		129.937	155.725	881.823	N/A

Remarks
 -Developmental Test/Operational Test (DT/OT)
 -Intelligent Telemetry Instrumentation Kit (ITIK)
 -Legacy Telemetry Instrumentation Kits (LTIK)
 -Electronic Safe and Arm Fuze (ESAF)

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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	C/CPAF	Not specified. : TBD	0.000	0.250	May 2022	0.910	Mar 2023	-		-		-	0.000	1.160	-
Subtotal			0.000	0.250		0.910		-		-		-	0.000	1.160	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)	Project (Number/Name) 675356 / JASSM Extended Range (JASSM-ER)
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Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test Support. Includes flight test equipment, targets, 96th Test Wing and Range Support, AEDC	Various	96 TW, Eglin AFB : TBD	38.920	-		-		-		-		-	0.000	38.920	-
6 IT/6 OT Assets	SS/CPAF	Lockheed Martin : Orlando, FL	12.733	-		-		-		-		-	0.000	12.733	-
12 Operational Test (OT) assets	SS/FFP	Lockheed Martin : Orlando, FL	24.642	-		-		-		-		-	0.000	24.642	24.642
Subtotal			76.295	-		-		-		-		-	0.000	76.295	N/A

Remarks
 Test and Evaluation in FY19 and beyond will be incorporated into each separate development effort rather than broken out into its own category
 -Arnold Engineering Development Complex (AEDC)

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Administration (PMA). Provides program office oversight of development and upgrade activities.	Various	PMA : Eglin AFB, FL	9.600	0.100	Mar 2022	1.010	Mar 2023	3.000	Apr 2024	-		3.000	0.400	14.110	0.000
Subtotal			9.600	0.100		1.010		3.000		-		3.000	0.400	14.110	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		453.110	114.018	117.198	132.937	-	132.937	156.125	973.388	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)	Project (Number/Name) 675356 / JASSM Extended Range (JASSM-ER)

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>RDT&E Schedule Details</i>																												
Warfighter Capability Enhancement																												
Advanced Survivability, Integration, and Test																												
Electronic Safe and Arm Fuze (ESAF)																												
ESAF Production Readiness Review (PRR)																												
Weapon Data Link																												
Diminishing Manufacture Sources and Obsolescence Evaluation/Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207325F / <i>Joint Air-to-Surface Standoff Missile (JASSM)</i>	Project (Number/Name) 675356 / <i>JASSM Extended Range (JASSM-ER)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>RDT&E Schedule Details</i>				
Warfighter Capability Enhancement	1	2022	4	2028
Advanced Survivability, Integration, and Test	1	2022	3	2024
Electronic Safe and Arm Fuze (ESAF)	2	2022	2	2023
ESAF Production Readiness Review (PRR)	3	2022	1	2023
Weapon Data Link	1	2022	4	2026
Diminishing Manufacture Sources and Obsolescence Evaluation/Development	2	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	31.003	32.713	37.518	0.000	37.518	29.857	24.874	25.373	25.770	Continuing	Continuing
675191: <i>SDB Increment II</i>	-	31.003	32.713	37.518	0.000	37.518	29.857	24.874	25.373	25.770	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
 In FY 2021, PE 0604329F, BA05, Project Small Diameter Bomb (SDB) - EMD efforts were transferred to PE 0207327F, BA07, Project Small Diameter Bomb (SDB), due to SDB II completion of BA05: System Development & Demonstrations (SDD) moved to Operational Systems Development BA07.

A. Mission Description and Budget Item Justification

GBU-53/B Small Diameter Bomb Increment II (SDB II) StormBreaker is a joint interest United States Air Force (USAF) and Department of Navy (DoN) Acquisition Category (ACAT) IC program, with the USAF as the lead service. SDB II addresses the following warfighter requirements: attack moving and stationary targets; adverse weather operations; multiple ordnance carriage; precision munitions capability; reduced munitions footprint; increased weapons effectiveness; minimized potential for collateral damage; reduced susceptibility of munitions to countermeasures; and provides a network-enabled weapon capability via Link-16 and Ultra High Frequency (UHF) weapon data link. SDB II is a key component of the Air Force Global Strike Task Force Concept of Operations (CONOPs). The threshold aircraft for the USAF is the F-15E, and the threshold aircraft for the DoN are the F-35B and F-35C. Objective aircraft include the F-22, F-16, F-35A, B-2, A-10, MQ-9, B-1, B-52, AC-130 and the F/A-18E/F. SDB II is compatible with the Bomb Rack Unit-61 (BRU-61) miniature munitions carriage, Type II carriage systems, the Container Numerical Unit-660/E (CNU-660/E) carriage system, the Common Munitions Built In Test (BIT)/Reprogramming Equipment (CMBRE), and the Joint Mission Planning System (JMPS). SDB II will develop and field a single weapon storage container (USAF) and a dual weapon storage container (DoN).

SDB II completed a competitive Risk Reduction in October 2009 and entered Milestone B Engineering and Manufacturing Development (EMD) in August 2010. A Fixed Price Incentive Firm EMD contract with five options for annual Low Rate Initial Production (LRIP) lots (FY15-FY19) was awarded in August 2010. SDB II received Milestone C approval to enter LRIP in June 2015 and completed an Acquisition Program Baseline (APB) update. Contract options for LRIP Lots 1-5 have been exercised. Initial Operational Test and Evaluation (IOT&E) started June 2018 and completed December 2019. SDB II was fielded for the F-15E in September 2020. DoN's first production lot (Lot 4/FY19) supports F/A-18E/F IOC. The Milestone Decision Authority approved an APB update May 2022 to incorporate the new Air Force inventory objective and adjust for new F-35B/C software schedules.

Implements tenets of Open, Agile, and Digital acquisition for any new subsystem hardware or software development. Integrates the system in weapon portfolio trade space studies by conducting trade studies, system engineering, test activities, and system modeling and simulation. Builds and refines a mission modeling framework by incorporating higher-fidelity weapon system designs and updates to the threat landscape to conduct ongoing assessment of weapon system performance against the authoritative threat. Leverages common component development, in collaboration with other weapon systems, to reduce

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>
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redundant costs between systems with similar subsystems requirements. Invests in analytical, information management, data management, digital environments, networks, facilities, and security infrastructure upgrades directly supporting development and sustainment of this program's capabilities, while leveraging DoD and DAF enterprise IT solutions.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 \$0.296M was expended for civilian pay expenses in this program element, and in FY23 \$0.689M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	32.109	27.713	29.133	0.000	29.133
Current President's Budget	31.003	32.713	37.518	0.000	37.518
Total Adjustments	-1.106	5.000	8.385	0.000	8.385
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	5.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.106	0.000			
• Other Adjustments	0.000	0.000	8.385	0.000	8.385

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

Project: 675191: *SDB Increment II*

Congressional Add: *Precise Navigation*

Congressional Add Subtotals for Project: 675191

Congressional Add Totals for all Projects

	FY 2022	FY 2023
	4.827	5.000
	4.827	5.000
	4.827	5.000

Change Summary Explanation

FY22 Congressional Add final \$4.827M

FY22 SBIR decrease \$1.106M

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>
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FY23 Congressional Add: Precise Navigation.
FY24 increase of \$8.3M to fund SDB II to NACA.

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

	FY 2022	FY 2023	FY 2024
<p>Title: SDB II Development and Engineering Changes</p> <p>Description: Development activities to deliver capabilities in the SDB II Capability Development Document (CDD). Design, develop, integrate, model, test, and qualify engineering changes to SDB II baseline hardware and software to meet emerging threat, new technologies and to maintain compatibility with external systems. Activities include, but are not limited to, DoD-mandated data link cryptographic modernization, program protection, exportability features, cyber security, advanced guidance, navigation and control, enhanced lethality, precise/advance navigation, and address obsolescence issues and affordability opportunities. Conduct trade studies and concept development for technology refresh redesigns as based on obsolescence forecasts.</p> <p>FY 2023 Plans: Continue cryptographic modernization weapon data link integration and subsystem level design verification testing. Complete integration of the TacNet WDL 1.5 into the current SDB II All-Up-Round (AUR) design. Complete production readiness activities at the component level. Continue collaboration with NSA on cryptographic modernized WDL key testing, fielding, and management. Continue enhancements for JMPS and OFP software. Conduct AUR testing.</p> <p>Continue redesign and design verification tests of electronic circuit card assemblies (CCAs) affected by obsolescence and M-Code moving toward Proof of Manufacturing (POM) quality CCAs. Perform OFP and firmware updates to support new CCA designs. Complete POD-level integrated CCA stack design verification testing and qualification. Finalize POM designs and purchase POM test assets. Continue integration of the TacNet 1.5 WDL with the new CCAs and associated OFP changes.</p> <p>Continue development, qualification, and testing of engineering changes associated with program protection, exportability, cyber security, enhanced lethality, survivability, threat defeat, software-based capability enhancements, obsolescence, and affordability. Continue System Improvement Program (SIP) to continually advance capability of the weapon and transition program to a steady OFP update cycle. Procure developmental test assets to support developmental test and conduct developmental Captive Flight Tests and platform integration testing. Continue integration of SDB II with Command and Control Infrastructure, including AOC integration and JTAC kits. Continue technical order updates to support ongoing OFP development efforts. Continue BRU-61 OFP updates and integration. Continue risk reduction activities for technology refresh redesigns as required based on obsolescence forecasts.</p> <p>FY 2024 Plans:</p>	12.949	10.386	23.998

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Complete cryptographic modernization weapon data link integration and subsystem level design verification testing. Continue collaboration with NSA on cryptographic modernized WDL key testing, fielding, and management. Continue enhancements for JMPS and OFP software. Complete all-up-round (AUR) testing.</p> <p>Continue design verification tests of electronic circuit card assemblies (CCAs) affected by obsolescence and M-Code moving toward AUR level testing. Perform OFP and firmware updates to support new CCA designs. Complete POM-level integrated CCA stack design verification testing and qualification. Complete integration and test of the TacNet 1.5 WDL with the new CCAs and associated OFP changes.</p> <p>Continue development, qualification, and testing of engineering changes associated with program protection, exportability, cyber security, enhanced lethality, survivability, threat defeat, software-based capability enhancements, obsolescence, and affordability. Increase System Improvement Program (SIP) to continually advance capability of the weapon and transition program to a steady OFP update cycle. Procure developmental test assets to support developmental test and conduct developmental Captive Flight Tests and platform integration testing. Continue integration of SDB II with Command and Control Infrastructure, including AOC integration and JTAC kits. Continue technical order updates to support ongoing OFP development efforts. Continue BRU-61 OFP updates and integration. Conduct trade studies and concept development for technology refresh redesigns as required based on obsolescence forecasts.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased to support separate integration activities for TacNet 1.5 WDL with the current AUR CCAs in advance of M-Code and new CCAs being ready for AUR testing. Delays in the underlying M-Code ASIC, and stop work on receiver development due to funding constraints, and secure processor test equipment delays all contributed to increased funding in FY24. Program will also increase System Improvement Program activities in response to prioritized warfighter requirements post fielding.</p>				
<p>Title: SDB II M-Code</p> <p>Description: M-Code provides an enhanced anti-jam capability and secures access to military GPS signals. Activities include, but are not limited to, design, development, test and qualification of engineering changes to the SDB II system required for M-Code, and enhanced anti-jam capability. M-Code will provide the ability to operate in increasing adversarial anti-access/area-denial (A2/AD) jamming environments with increased accuracy, better signal acquisition, and enhanced security features.</p> <p>FY 2023 Plans: Continue activities to provide SDB II with M-Code capabilities for improved anti-jam and secure access to military GPS signals. Continue development, test, and qualification activities for M-Code receiver and continue associated component integration. Conduct M-Code receiver-level qualification, including security certification. Conduct production readiness activities at the receiver level. Continue building section level and All Up Round (AUR) developmental test assets and conduct section level design</p>		13.227	17.327	13.520

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>verification testing as well as All Up Round testing and qualification. Update mission planning and threshold aircraft OFP software to ensure aircraft-to-weapon integration and transmission of the appropriate M-Code initialization data and crypto keys. Implement engineering change proposals required by GPS Directorate to comply with signal-in-space interface control documents, key management distribution and security requirements. Begin AUR-level builds in support of ground qualification.</p> <p>FY 2024 Plans: Continue activities to provide SDB II with M-Code capabilities for improved anti-jam and secure access to military GPS signals. Continue development, test, and qualification activities for M-Code receiver and continue associated component integration. Continue M-Code receiver-level qualification, including security certification. Conduct production readiness activities at the receiver level. Continue building section level and All Up Round (AUR) developmental test assets and conduct section level design verification testing as well as All Up Round testing and qualification. Update mission planning and threshold aircraft OFP software to ensure aircraft-to-weapon integration and transmission of the appropriate M-Code initialization data and crypto keys. Implement engineering change proposals required by GPS Directorate to comply with signal-in-space interface control documents, key management distribution and security requirements. Build additional AUR-level builds in support of flight qualification.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease due to completion of CAAP M-Code ASIC and receiver component level testing required for integration into the AUR, and purchase of M-Code test articles in FY23.</p>			
Accomplishments/Planned Programs Subtotals	26.176	27.713	37.518

	FY 2022	FY 2023
<p>Congressional Add: Precise Navigation</p> <p>FY 2022 Accomplishments: Continued design, integration, and test of candidate seeker-based algorithms suitable for operation in a GPS denied environment. Integrate algorithms into the Integrated Flight Simulator (IFS) to characterize performance over various terrains. Integrate software into Captive Flight Test (CFT) pod and conduct Captive Flight Test (CFT) events for data collection. Evaluate candidate algorithm performance to determine if any are suitable for a tactical implementation.</p> <p>FY 2023 Plans: Design, integration, and test of candidate seeker-based algorithms suitable for operation in a GPS denied environment. Integrate algorithms into the Integrated Flight Simulator (IFS) to characterize performance over various terrains. Integrate software into Captive Flight Test (CFT) pod and conduct Captive</p>	4.827	5.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>
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	FY 2022	FY 2023
Flight Test (CFT) events for data collection. Evaluate candidate algorithm performance to determine if any are suitable for a tactical implementation.		
Congressional Adds Subtotals	4.827	5.000

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF 02 Line Item SDB002: <i>Small Diameter Bomb II</i>	275.934	379.006	291.553	-	291.553	327.758	310.736	281.213	315.496	3,262.708	5,444.404
• RDTE 05 PE 0604329N: <i>Small Diameter Bomb II</i>	35.892	39.639	54.500	-	54.500	18.200	10.900	10.500	9.600	0.000	179.231
• WPN Line Item 223800: <i>Small Diameter Bomb II</i>	33.764	100.700	65.500	-	65.500	75.600	86.200	85.700	92.200	0.000	539.664

Remarks

DoN RDT&E funds include F-35B and F-35C Integration and Support Cost.

E. Acquisition Strategy

The SDB II Engineering and Manufacturing Development (EMD) contract was awarded using competitive procedures. At the completion of the 42-month Risk Reduction phase in October 2009, one contractor was selected in April 2010 and awarded the EMD contract in August 2010. The EMD contract is a Fixed-Price Incentive Firm (FPIF) contract with priced production options for the first five production lots. SDB II production Lots 1-3 are FPIF. Production Lots 4-5 are firm fixed price. The Government is buying the SDB II based on the contractor System Performance Specification (SPS) which has been approved by the Government. The contractor is accountable for system performance as defined in the SPS and a system warranty as defined in the EMD contract and follow-on production contracts. Accordingly, the contractor is accountable to the Government for the design of the weapon system, as well as the planning and execution of the Development Test and Evaluation (DT&E) program to verify system performance. The Government formally arranges and funds the use of Government flight test support for DT&E and OT&E.

In September 2017, the Government awarded a sole source indefinite delivery indefinite quantity (IDIQ) contract to Raytheon Missile Systems to design, develop, integrate, model, test, and qualify engineering changes to SDB II baseline hardware and software to meet emerging threats and to maintain compatibility with external systems. Activities include, but are not limited to M-Code GPS, data link cryptographic modernization, program protection, exportability features, cyber security, advanced guidance, navigation and control, enhanced lethality, and address obsolescence issues and affordability opportunities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>
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0606398F. In FY22 \$0.819M was expended for civilian pay expenses in this program element, and in FY23 \$0.844M is forecasted for civilian pay expenses in this program element.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 675191 / <i>SDB Increment II</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Changes & Technical Support	SS/ Various	Raytheon : Tucson, AZ	-	10.210	Dec 2021	5.850	Dec 2022	20.047	Dec 2023	-		20.047	0.000	36.107	136.520
M-Code Integration	SS/ Various	Raytheon : Tucson, AZ	-	13.227	Dec 2021	17.327	Dec 2022	13.520	Dec 2023	-		13.520	0.000	44.074	109.437
Precision Navigation	Various	Not specified. : TBD	-	4.827	Aug 2022	5.000	Aug 2023	-		-		-	Continuing	Continuing	-
F-15E Integration & Test Support	SS/ Various	Boeing : St. Louis, MO	-	1.493	Dec 2021	1.350	Dec 2022	0.750	Dec 2023	-		0.750	0.000	3.593	49.762
Subtotal			-	29.757		29.527		34.317		-		34.317	Continuing	Continuing	N/A

Remarks
 Engineering Changes and Technical Support: FY2023 to FY2024 increase includes upgrades to SDB II baseline hardware/software to meet emerging threats and to maintain compatibility with external systems. Activities include, but are not limited to, data link cryptographic modernization, program protection, exportability, cyber security, advanced guidance, navigation and control, enhanced lethality, and address obsolescence issues and affordability opportunities.

M-Code Integration: Required to meet 2011 NDAA mandate. Integrate M-Code receiver and required electronics into AUR, test and qualify for production cut-in.

The decrease in F-15E Integration and Test Support in FY23 is due to the biennial weapon OFP update.

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DT&E	PO	96th Test Wing : Eglin AFB, FL	-	-		-		-		-		-	0.000	0.000	33.725
Targets	Various	Various : Various	-	-		-		-		-		-	0.000	0.000	-
Other Test Support	Various	Various : Various	-	-		1.400	Mar 2023	1.400	Mar 2024	-		1.400	0.000	2.800	11.896
Subtotal			-	-		1.400		1.400		-		1.400	0.000	2.800	N/A

Remarks
 UTTR: Utah Test and Training Range
 WSMR: White Sands Missile Range

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 675191 / <i>SDB Increment II</i>
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Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
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 Professional Administrative Support Services (EPASS)	Various	Various : Eglin AFB, FL	-	0.750	Jun 2022	0.750	Jun 2023	0.750	Jun 2024	-		0.750	0.000	2.250	25.508
Program Management Administration (PMA)	Various	Various : Eglin AFB, FL	-	0.200	Oct 2021	0.347	Oct 2022	0.347	Oct 2023	-		0.347	0.000	0.894	11.536
DCA Civ Pay	Allot	Allotment : Eglin AFB, FL	-	0.296	Oct 2021	0.689	Oct 2022	0.704	Oct 2023	-		0.704	Continuing	Continuing	-
Subtotal			-	1.246		1.786		1.801		-		1.801	Continuing	Continuing	N/A

Remarks

PMA: Other government costs (travel, Government Purchase Card (GPC), equipment supplies, and IT support)

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	31.003	32.713	37.518	-	37.518	Continuing	Continuing	N/A

Remarks

Engineering Changes: FY2023 to FY2024 increase includes upgrades to SDB II baseline hardware/software to meet emerging threats, maintain compatibility with external systems and improve system performance. Activities include, but are not limited to, data link cryptographic modernization, program protection, exportability, cyber security, advanced guidance, navigation and control, enhanced lethality, and address obsolescence issues and affordability opportunities.

FINANCIAL PERFORMANCE: SDB II is evaluated against traditional Research and Development (R&D) program expenditure benchmarks. Unlike many traditional R&D programs, however, the SDB II LRIP contract is a FPIF contract with progress payments. A 5% percent of incurred costs are withheld until the end of the contract, when they are liquidated. Mandatory funding obligations and progress payment withholds will cause the program to lag traditional expenditure benchmarks, painting an inaccurate portrait of overall program health.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 675191 / <i>SDB Increment II</i>
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>SDB Increment II</i>																												
F-15E Integration & Test Support																												
M-Code Integration & Testing																												
Data Link Crypto Mod Integration & Testing																												
Integration & Testing on Threshold F-35B/C																												
Precision Navigation																												
Lot Integration and Test																												
System Improvement Program																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207327F / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 675191 / <i>SDB Increment II</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>SDB Increment II</i>				
F-15E Integration & Test Support	2	2022	4	2028
M-Code Integration & Testing	1	2022	3	2025
Data Link Crypto Mod Integration & Testing	1	2022	3	2024
Integration & Testing on Threshold F-35B/C	1	2022	3	2028
Precision Navigation	1	2022	1	2025
Lot Integration and Test	1	2022	4	2028
System Improvement Program	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	87.873	78.889	72.059	0.000	72.059	88.521	103.770	106.729	111.669	Continuing	Continuing
674596: <i>AOC WS Modifications</i>	-	87.873	78.889	72.059	0.000	72.059	88.521	103.770	106.729	111.669	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The AOC WS program was removed from the BA-08 Software Pilot Program (PE 0608410F). All funding was transferred back to the original sources in PE 020741F.

A. Mission Description and Budget Item Justification

This budget line funds the Air Operations Center Weapon System (AOC WS), AN/USQ-163 Falconer, the senior element of the Theater Air Control System (TACS). This is the weapon system that the Commander, Air Force Forces (COMAFFOR) provides the Combined/Joint Force Air Component Commander (C/JFACC) for planning, executing, and assessing theater-wide air and space operations. The C/JFACC provides air, space and cyber support to the Combined/Joint Forces Commander (C/JFC) by coordinating, deconflicting, and assessing the progress of various weapon systems to advance the C/JFC's campaign. The AOC WS develops operations strategy and planning documents. The weapon system also disseminates tasking orders, executes day-to-day peacetime and combat air, space and cyber operations, and provides rapid reaction to immediate situations by exercising positive control of friendly forces. This program is part of the overarching Kessel Run portfolio and is dependent on the All Domain Common Platform (ADCP). The ADCP provides an extensible cloud-based Infrastructure and Platform as a Service (IaaS/PaaS) hosting platform built to deliver highly resilient mission applications and data to Airmen deployed around the world.

Funding supports continued software engineering capacity required for AOC WS Modifications to support and enable the transition from legacy systems (e.g., Theater Battle Management Core System - Force Level [TBMCS FL] and AOC 10.1) to Block 20 modernized capabilities. Additionally, funding supports IaaS/PaaS development and operations specific to the AOC program. AOC WS Modifications are required to support mission requirements at Geographic AOCs, Global (formerly Functional) AOCs, and Support and Manpower Augmentation units, and to keep the AOC current and interoperable with the Combatant Commands (CCMDs), cyber requirements, and next generation weapon systems/weapons. AOC WS Modifications modernize the AOC utilizing Agile Methodologies to deliver capabilities that keep pace with evolving COTS/GOTS components, DoD directives, operational energy security and efficiency objectives, and changes in the underlying IT environment, and to remain interoperable, certified, and supportable across the lifecycle of new capabilities and upgrades to the AOC WS. This includes utilization of a managed cloud IaaS/PaaS hosting platform.

The FY24 funding request was reduced by 15.524 million to account for the availability of prior year execution balances.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funding would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, and 0606398F. In FY2022, 13.925M was expended for civilian pay expenses in this program element. In FY2023, 18.016M is forecasted for civilian pay expenses.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.003	0.000	0.000	0.000	0.000
Current President's Budget	87.873	78.889	72.059	0.000	72.059
Total Adjustments	87.870	78.889	72.059	0.000	72.059
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	90.024	79.549			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-2.154	0.000			
• Other Adjustments	0.000	-0.660	72.059	0.000	72.059

Change Summary Explanation

FY2022, \$90.024M was transferred from PE 0608410F

FY2022, \$2.154M was reduced for SBIR tax

FY2023, \$79.949M was transferred from PE 0608410F

Funding Table does not account for:

FY2022, \$9.999M was transferred to ADCP PE 0303248F for Below Threshold Reprogramming

FY2023, \$2.673M was reduced for SBIR tax

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: AOC WS Modifications Development	87.873	78.889	72.059
Description: Plan and execute strategies to deliver war fighting outcomes by leveraging commercial best practices for agile software development, scale a modern IaaS/PaaS solution to the AOC WS enterprise, implement improved solutions for platform architecture and Continuous Integration/Continuous Delivery (CI/CD) pipeline, enable objectives that support operational energy and security efficiencies and maintain continuous Authority to Operate (ATO). Conduct software engineering solutions by leveraging agile engineering methodologies to engineer, integrate, and test modifications to the AOC WS leveraging test-driven development. Utilize CI/CD processes to provide engineering solutions, test, and deliver enhanced operational C2 capabilities including support of multi-domain operations.			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p><i>FY 2023 Plans:</i></p> <ul style="list-style-type: none"> - Continue to improve the Kessel Run All Domain Operations Suite (KRADOS) in operational use and scale across the AOC enterprise. - Continue the transition from legacy applications/systems such as TBMCS FL and AOC 10.1 baseline to AOC WS Block 20 modernized capabilities. - Leverage software engineering capacity to align with FY23 Capability Needs Statement (CNS) priorities which includes maturing Block 20 capabilities to enable global access to KRADOS for all AOCs, scale KRADOS to support Major Theater War, begin supporting Integrated ISR Information Exchange, begin building out Ops Support (e.g., Help Desk & Training) functions, and begin development for KRADOS to process mission execution despite network availability/disconnected ops through delivery of persistent and resilient capability. - Optimize Operational Energy (aviation fuel) use and increase combat capability through operations software development. - Enable development and scaling of an extensible cloud-based IaaS/PaaS hosting platform/enterprise architecture along with the necessary services to support continuous software capability integration and delivery. <p><i>FY 2024 Plans:</i></p> <ul style="list-style-type: none"> - Will continue to improve the KRADOS in operational use and scale across the AOC enterprise. - Will continue the transition from legacy applications/systems such as TBMCS FL and AOC 10.1 baseline to AOC WS Block 20 modernized capabilities. - Will continue to leverage software engineering capacity to align with FY24 CNS priorities which includes continued delivery of Block 20 capabilities to enable global access to KRADOS for all AOCs, continue scaling KRADOS to support Major Theater War, continue supporting Integrated ISR Information Exchange, continue to build out Ops Support (e.g., Help Desk & Training) functions, continue development for KRADOS to process mission execution despite network availability/disconnected ops through delivery of persistent and resilient capability, enable interoperability, integration and collaborate planning with Joint community and begin Process Automation/Improved Decision Making efforts. - Will continue to optimize for Operational Energy (aviation fuel) use and increase combat capability through operations software development - Will continue to enable development and scaling of an extensible cloud-based IaaS/PaaS hosting platform/enterprise architecture along with the necessary services to support continuous software capability integration and delivery. <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding redistributed for higher DoD priorities due to prior year execution balances</p>			
Accomplishments/Planned Programs Subtotals	87.873	78.889	72.059

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207410F / <i>Air & Space Operations Center (AOC)</i>
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D. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPAF 03 834530: <i>Air & Space Operations Center (AOC)</i>	23.019	19.098	5.032	-	5.032	18.210	20.019	20.418	20.828	Continuing	Continuing
• OPAF 03 833140: <i>Strategic Command And Control</i>	0.668	30.738	9.962	-	9.962	5.413	1.866	1.883	28.316	Continuing	Continuing
• RDTE 07 0303248F: <i>All Domain Common Platform</i>	70.894	45.502	88.916	-	88.916	98.464	99.216	98.907	88.153	Continuing	Continuing

Remarks

FY22 to FY23 Project 674596 AOC WS Modification funding incorrect due to a database error. Project 674596 AOC WS Modification funding should equal FY22: \$77.873M; FY23: \$76.216M.

E. Acquisition Strategy

The acquisition strategy builds on agile software engineering solutions and modification of existing capabilities using an evolutionary acquisition approach to standardize and modify the AOC WS. The initial capability was AOC WS Increment 10.0, which fielded the 10.0 configuration to five operational sites, plus a Help Desk and a Formal Training Unit. The second increment, increment 10.1, upgraded these locations to an integrated baseline and fielded the baseline to additional operational and reserve units worldwide. AOC WS Modifications will leverage commercial best practices of Agile DevOps to scale out a modern virtual private cloud to the AOCs and scale up additional software product teams in support of retiring TBMCS FL and other legacy mission critical applications allowing for eventual disposal of the AOC 10.1 infrastructure. This enables dynamic resource allocation based on current warfighter needs. AOC operates under authority FY20 NDAA, Section 800, Software Acquisition Pathway.

AOC WS Modifications will leverage a modular contracting strategy that focuses on evolving needs, continuous market research and streamlined solicitation procedures. AOC WS Modifications leverages both small and large business contracts for specialized services and enterprise AOC support to adopt commercial best practices for software development and to scale out a modern IaaS/PaaS solution. Activities are also accomplished via Military Interdepartmental Purchase Requests (MIPR). Additionally, significant technical expertise will be sought after via modular contracting approach and provided by Government Agencies, DoD Laboratories, Federally Funded Research and Development Centers (FFRDC), Academia, and Engineering & Professional Acquisition Support Services contractors as well as commercial industry partners.

Program management for the AOC program is under direction of PEO Digital, located at Hanscom AFB, MA. The Air Force Life Cycle Management Center (AFLCMC) located at Hanscom AFB, MA is the contracting authority for the AOC program. AFLCMC provides contracting, legal, comptroller, programmatic, engineering, test, and logistics support.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 674596 / AOC WS Modifications
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AOC WS Modifications Development	C/Various	Various : Multiple	-	57.754	Dec 2021	46.613	Jan 2023	38.701	Nov 2023	-		38.701	0.000	143.068	-
Subtotal			-	57.754		46.613		38.701		-		38.701	0.000	143.068	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AOC WS Modifications Direct Mission Support	C/Various	Various : Various	-	2.563	Dec 2021	4.637	Nov 2022	5.913	Oct 2023	-		5.913	0.000	13.113	-
AOC WS Modifications Civilian Direct Cite Authorizations for Product Development	Allot	AFLCMC/FZA : TBD	-	14.056	Oct 2021	18.017	Oct 2022	18.036	Oct 2023	-		18.036	0.000	50.109	-
Subtotal			-	16.619		22.654		23.949		-		23.949	0.000	63.222	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AOC WS Modifications Engineering Services	Various	Various : Various	-	4.389	Oct 2021	3.562	Nov 2022	3.306	Oct 2023	-		3.306	0.000	11.257	-
AOC WS Modifications Program Support	C/Various	Various : Various	-	9.111	Dec 2021	6.060	Jan 2023	6.103	Oct 2023	-		6.103	0.000	21.274	-
Subtotal			-	13.500		9.622		9.409		-		9.409	0.000	32.531	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	87.873	78.889	72.059	-	72.059	0.000	238.821	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 674596 / AOC WS Modifications

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

AOC WS Modifications	
AOC WS Modifications Kessel Run	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207410F / Air & Space Operations Center (AOC)	Project (Number/Name) 674596 / AOC WS Modifications

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AOC WS Modifications				
AOC WS Modifications Kessel Run	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207412F <i>I Control and Reporting Center (CRC)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	9.565	6.615	17.498	0.000	17.498	18.440	18.366	18.742	19.421	0.000	108.647
67485L: <i>CRC Modernization</i>	-	9.565	6.615	17.498	0.000	17.498	18.440	18.366	18.742	19.421	0.000	108.647
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Control and Reporting Center (CRC) is a mobile, ground-based theater air control system (TACS) surveillance and battle management command and control (BMC2) element. It is a customizable, modular, transportable, and persistent weapon system employed at the tactical level to provide direct command and control to all air assets in an assigned Area of Responsibility (AOR) and to report back to the Joint Force Air Combat Commander (JFACC). The CRC is a family of systems which include: AN/TYQ-23A(V)1 Tactical Air Operations Module (TAOM), AN/TSC-250 Multifunctional Information Distribution System-Joint Tactical Radio System (MIDS-JTRS), AN/TRC-213/214 Remote Radio Secure Voice System (RRSVS), and the AN/TPS-75 Radar, CRC's organic radar. CRC is part of the Air Force's Advanced Battle Management System (ABMS) initiative, to which CRC will provide modular capability to support tactical C2. CRC Modernization consolidates previous upgrade efforts into a coordinated initiative focused on upgrading of BMC2, sensors, and communications systems for the current weapon system construct while designing in modularity that will support the future Tactical Operations Center-Light and Medium (TOC-L and TOC-M) capability.

CRC Modernization efforts include but are not limited to: modernization of long-haul SATCOM capability including replacement of the Ground Mount Terminal (GMT), Next Generation CRC weapon system (TOC-L/TOC-M) prototyping support, architecture upgrades to the AN/TYQ-23A(V)1 Tactical Air Operations Module and AN/TRC-213/214 Remote Radio Secure Voice System to support evolution into future ABMS construct. In addition, CRC will continue to develop organic operating software solutions via the ABMS Cloud-Based C2 portfolio that will ingest and disseminate Moving Target Indicator (MTI) feeds and integrate Top Secret (TS)/Sensitive Compartmented Information (SCI)/Special Access Program (SAP) hardware and software capability solutions, TPY-4 Deployable Radar (3DELRR) integration, active and passive 3rd party sensor integration, Joint Worldwide Intelligence Communication System (JWICS), SAP network, and Talon Thresher connectivity, accredited structures and storage solutions in pursuit of Open System Architecture (OSA) advancements.

FY2024 funding will continue to support CRC modernization efforts. Efforts will include, but are not limited to, the analysis, development, integration, and employment of a modern long-haul SATCOM capability and the replacement of GMT. The modernized Long-Haul SATCOM system will provide increased bandwidth, increased mobility, and integration of feeds from both new and legacy sensors employed by the USAF and its partners.

FY2024 funding will be used in the development and integration of an Endpoint Security Solution (ESS) for the appropriate protection, ingestion, processing, and dissemination of TS/SCI information.

FY2024 funding will also pursue the development and integration of applications within the ABMS Cloud-Based C2 portfolio. This development and delivery utilizing Agile and DevSecOps processes will include the periodic delivery of Minimum Viable Capability Releases (MVCR) as well as the evolution of the ABMS roadmap towards a FY27 DoD wide implementation of the ABMS software suite.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207412F <i>I Control and Reporting Center (CRC)</i>
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This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$1.291 million was expended for civilian pay expenses in this program element, and in FY23 \$1.736 million is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	9.875	6.615	17.492	0.000	17.492
Current President's Budget	9.565	6.615	17.498	0.000	17.498
Total Adjustments	-0.310	0.000	0.006	0.000	0.006
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.310	0.000			
• Other Adjustments	0.000	0.000	0.006	0.000	0.006

Change Summary Explanation

N/A

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: CRC Modernization	9.565	6.615	17.498
Description: - CRC Modernization consolidates previous upgrade efforts into a coordinated initiative focused on upgrading of BMC2, sensors, and communications systems for the current weapon system while designing in modularity that will support the future Tactical Operations Center-Light and Medium (TOC-L and TOC-M) as well as organic software development in collaboration with ABMS Software Factories			
FY 2023 Plans:			
- Continue organic software development and architectural upgrades			
- Continue hardware architecture modernization upgrades			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207412F <i>I Control and Reporting Center (CRC)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>- Continue software development/integration/deployment using Agile development, security and operations (DevSecOps).</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue organic software development and architectural upgrades - Continue hardware architecture modernization upgrades, continuous software development/integration/deployment using Agile DevSecOps - Will develop, prototype, test, and cyber harden long-haul communication capabilities - Will develop prototype, test, and cyber harden of TS accredited structures and storage solutions in pursuit of emerging technology <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY2024 funds increase due to ramp up in development of Long-haul SATCOM terminal, a replacement for the current weapon system's Ground Mount Terminal, and Endpoint Security Solution (ESS) which enables a JWICS level security connection.</p>			
Accomplishments/Planned Programs Subtotals	9.565	6.615	17.498

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 833040: <i>Theater Air Control Sys Improvemen</i>	43.442	13.986	0.000	-	0.000	80.867	60.804	38.279	39.084	0.000	276.462

Remarks

E. Acquisition Strategy
The CRC Capability Roadmap provides for the modernization of the CRC family of systems and will be programmed into phased updates through 2037 to further advance current and future battlespace awareness and tactical battle management command and control capabilities. A variety of contract and organic vehicles will be used depending on type of effort and skills required. The management strategy relies on Air Force Program Executive Office for Digital (AFPEO Digital) as the Milestone Decision Authority and the Air Force Life Cycle Management Center (AFLCMC) as the Contracting Authority.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207412F / Control and Reporting Center (CRC)	Project (Number/Name) 67485L / CRC Modernization
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CRC Next Gen	C/Variou	Various : Hill AFB, UT	-	3.901	Dec 2021	-		-		-		-	Continuing	Continuing	-
Long-Haul SATCOM	C/Variou	Various : Hill AFB, UT	-	-		-		5.433	Jan 2024	-		5.433	Continuing	Continuing	-
End Point Security Solutions	C/Variou	Various : Hill AFB, UT	-	-		-		0.800	Feb 2024	-		0.800	Continuing	Continuing	-
CRC 520th Organic Software Development	C/FP	520 SWEG : Hill AFB, UT	-	3.175	Dec 2021	3.754	Jan 2023	6.000	Dec 2023	-		6.000	Continuing	Continuing	-
Subtotal			-	7.076		3.754		12.233		-		12.233	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CRC Modernization Direct Cite Authority - Additional 11 Civilian Positions	RO	Various : Hill AFB, UT	-	1.290	Oct 2021	1.736	Oct 2022	1.850	Oct 2023	-		1.850	Continuing	Continuing	-
Subtotal			-	1.290		1.736		1.850		-		1.850	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CRC Modernization Test Support	Variou	Various : Various	-	0.199	Nov 2021	0.125	Nov 2022	0.615	Nov 2023	-		0.615	Continuing	Continuing	-
Subtotal			-	0.199		0.125		0.615		-		0.615	Continuing	Continuing	N/A

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207412F / <i>Control and Reporting Center (CRC)</i>	Project (Number/Name) 67485L / <i>CRC Modernization</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>AN/TRC-213/214 RRSVS Radio Modernization Upgrade</i>				
Integration and Testing	1	2022	4	2023
<i>CRC Organic Software</i>				
Design, Development, Integration, and Test	1	2022	4	2027
<i>Long-Haul SATCOM</i>				
Design, Development, Integration, and Test	2	2024	2	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	167.956	11.598	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	179.554
67411L: <i>Airborne Warning & Control System (AWACS)</i>	-	167.956	11.598	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	179.554
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Mission: E-3 Airborne Warning and Control System (AWACS) is the premier airborne platform providing Battle Management Command and Control (BMC2) for Commander In Chief and combatant commander tasking in joint, allied, and coalition operations, humanitarian relief, and homeland defense. AWACS provides a real-time picture of friendly, neutral, and hostile air activity. Its capabilities include: All-altitude/all-weather surveillance of the battle space; early warning of enemy actions; a real-time ability to find, fix, track, and assess airborne or maritime threats; and detection, location, and identification of electronic emitters.

Major efforts for the AWACS program include:

1. E-3 Replacement: E-3 Replacement is the planned E-3G AWACS replacement. The limited operational utility of the E-3G AWACS in contested conflicts coupled with its availability challenges create an operational imperative to replace it. E-3 Replacement will provide improved kill-chain effectiveness, enhanced reliability/availability, and reduced operating costs by integrating a modern Electronically Scanned Array sensor on a manned platform. The electronically scanned array is capable of radar beam steering, sector staring and much faster target revisit rates that translate into better target detection and tracking of modern threats well as more robust Electronic Protection that is not possible with the mechanically scanned radar used by E-3 AWACS. E-3 Replacement, now known as E-7A, has been moved to PE 0604007F.

2. E-3 Training, Support, and Infrastructure (TSI): The TSI program provides continuing lab operations and maintenance support for AWACS modernization and enhancement across the enterprise, as well as the development and execution of an AWACS Integration and Test Support (AITS) lab transfer acquisition strategy. These activities include managing the AWACS Development Test and Evaluation (DT&E) infrastructure and tracking and monitoring the AWACS support equipment and program Government Furnished Property, while managing the cost, schedule, and performance of the AITS lab transfer plan. The overall DT&E test infrastructure supports development and production projects and maintains facilities to support AWACS aircraft during system and sub-system testing in Seattle, WA, Baltimore, MD, and Oklahoma City, OK, along with Third Party Integration support from The Boeing Company to AWACS customers in the System AITS labs. The TSI assets also support multiple Foreign Military Sales (FMS) projects on a maintenance fee basis, not limited to, projects for France, Saudi Arabia and Japan efforts. Key programs include contractual management of the AWACS Avionics Integration Laboratory (AIL) integrated with the Block 40/45 Functional Group configured lab and the AWACS Radar Systems Integration Lab/Software Development Facility (SIL/SDF). These labs provide US, FMS, and Direct Commercial Sales customers with a configured development and qualification system and subsystem environment supporting all AWACS system and radar programs. TSI efforts allow new support equipment technologies and test strategies to be analyzed to ensure concurrent capability to sustain existing, modified, and upgraded E-3 equipment.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force Date: March 2023

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0207417F I Airborne Warning and Control System (AWACS)
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3. E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR): C2ISR system improvements investigate and develop future capabilities of the AWACS weapon system. These efforts also includes, but are not limited to, investigation, analysis, and development to ensure that AWACS successfully integrates with joint and coalition forces in a net-centric environment. C2ISR primarily supports pre-systems acquisition in the areas of materiel solution analysis and technology development. This is accomplished by prototyping and demonstrating capabilities required by the warfighter but also includes developing an E-3 Modernization & Sustainment Roadmap that projects user capability needs, as well as materiel solutions for the user needs. C2ISR also supports an analytical comparison of the operational effectiveness, suitability, life-cycle cost and system capabilities of alternative materiel solutions beyond the current AWACS that satisfy an established capability need identified in an Initial Capabilities Document (ICD), Rapid Prototyping Requirements Document (RPRD), or Rapid Fielding Requirements Document (RFRD).

4. E-3 Communication Network Upgrade (CNU): CNU will provide a Link 16 capability with high-jam-resistance, high-speed, crypto-secure computer-to-computer connectivity in support of every type of military platform from airborne assets to submarines. The current 20-year-old Class 2 terminal has sustainability/Diminishing Manufacturing Source (DMS) issues and does not support mandated Crypto Mod (CM) & Freq. Remap (FR). CNU resolves DMS issues, provides CM & FR, Link 16 enhancements & growth for Next Gen Tactical Data Link (TDL). CNU capabilities will be delivered in two phases, comprised of three Minimum Viable Product (MVP) efforts. Phase I: MVP1 (Crypto) will provide Enhanced Link 16 Crypto and Frequency Mapping, and MVP2 will provide High Powered Amplification of Communications (HPAs). Phase II: MVP3 (Link 16 Advanced Capabilities) will provide Link 16 advanced communications throughput via ethernet connection.

5. E-3 AWACS Communications Integration Program (ACIP): ACIP will provide Mobile User Objective System (MUOS) and Second-Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) capability by replacing the existing Have Quick II and Demand Assigned Multiple Access (DAMA) SATCOM radios with new radios capable of communicating via multiple waveforms as a combined integration program on AWACS. Provides continued compatibility with US and Allied forces using frequency hopping UHF in support of airborne AMTI & BMC2 to CCMDs for Joint, Allied & Coalition operations by maintaining compatibility with CAF/Sister service C2 nodes and theater assets.

The total cost of the ACIP Middle Tier of Acquisition effort is \$108.765M, including RDT&E and procurement of prototype units.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program's funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$2.525M was expended for civilian pay expenses in this program element, and in FY23, \$4.538M is forecasted for civilian pay expenses in this program element.

Note: FY22 Funding is incorrect due to database error. Due to database error, rescissions of \$20M and reprogramming action of \$3.925M are not reflected in FY22. FY22 funding should equal \$145.278M

Program Element 0604007F has been established for the E-3 Replacement, now known as E-7A.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>
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This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	167.014	239.658	599.899	0.000	599.899
Current President's Budget	167.956	11.598	0.000	0.000	0.000
Total Adjustments	0.942	-228.060	-599.899	0.000	-599.899
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-1.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	-226.776			
• Reprogrammings	6.603	0.000			
• SBIR/STTR Transfer	-5.661	0.000			
• Other Adjustments	0.000	-0.284	-599.899	0.000	-599.899

Change Summary Explanation

FY2023 Congressional Directed Reduction against CNU -\$1.000M; Congressional Directed Transfer -\$226.776M from PE 0207417F to 0604007F; Other Adjustments -\$0.284M FFRDC reduction

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: E-3 Replacement	22.163	0.000	0.000
Description: E-3 Replacement: E-3 Replacement is the planned E-3G AWACS replacement. The limited operational utility of the E-3G AWACS in contested conflicts coupled with its availability challenges create an operational imperative to replace it. E-3 Replacement will provide improved kill-chain effectiveness, enhanced reliability/availability, and reduced operating costs by integrating a modern Electronically Scanned Array sensor on a manned platform. The electronically scanned array is capable of radar beam steering, sector staring and much faster target revisit rates that translate into better target detection and tracking of modern threats well as more robust Electronic Protection that isn't possible with the mechanically scanned radar used by E-3 AWACS. E-3 Replacement, now known as, E-7A has been moved to PE 0604007F.			
FY 2023 Plans: N/A			
FY 2024 Plans: N/A			
FY 2023 to FY 2024 Increase/Decrease Statement:			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
N/A				
<p>Title: E-3 Training, Support and Infrastructure (TSI)</p> <p>Description: Training, Support, and Infrastructure (TSI): Provides continuing management support for AWACS modernization and enhancement to include managing the AWACS Development Test and Evaluation (DT&E) and Production Qualification infrastructure and tracking and monitoring the AWACS vendor's core mission and aircrew training, support equipment and program Government Furnished Property, as well as providing Third Party Integration support from The Boeing Company to the AWACS Enterprise.</p> <p>FY 2023 Plans: TSI will continue to maintain and provide DT&E labs to AWACS programs and supporting AWACS modernization development and production providing an environment for integration & verification efforts. TSI supports Third Party Integration efforts using The Boeing Company AWACS labs in Oklahoma and Washington. TSI supports AWACS and other OSD mandated interoperability testing and supports mandatory AWACS Operational, Safety, and Suitability and Effectiveness program.</p> <p>FY 2024 Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding discontinued to align with reduced E-3 development activities due to planned transition to E-3 Replacement.</p>		6.586	1.413	0.000
<p>Title: E-3 Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR)</p> <p>Description: Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR): Investigate and develops future capabilities of the AWACS weapon system to include but are not limited to investigation, analysis, and development to ensure that AWACS successfully integrates with joint and coalition forces in a net-centric environment. Primarily supports pre-systems acquisition in the areas of materiel solution analysis and technology development (i.e., risk reduction activities).</p> <p>FY 2023 Plans: Continue to conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support risk reduction activities for program planning. Continue to execute cooperative independent research and development.</p> <p>FY 2024 Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>		34.867	1.801	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 0207417F <i>I Airborne Warning and Control System (AWACS)</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
Funding discontinued to align with reduced E-3 development activities due to planned transition to E-3 Replacement.				
Title: E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Description: Combat Identification (CID) Diminishing Manufacturing Sources (DMS): Addresses C2 CID shortfalls with a modern, persistent Airborne Moving Target Indication (AMTI) BMC2 CID. Supports the kill chain and decision superiority. FY 2023 Plans: N/A FY 2024 Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: N/A		20.610	0.000	0.000
Title: E-3 Communication Network Upgrade (CNU) Description: Communication Network Upgrade (CNU): Provides a Link 16 capability with high-jam-resistance, high-speed, crypto-secure computer-to-computer connectivity in support of every type of military platform from from airborne assets to submarines. FY 2023 Plans: Continue rapid prototyping and development contract. FY 2024 Plans: N/A FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to planned completion of Rapid Prototyping.		41.734	1.000	0.000
Title: E-3 AWACS Communications Integration Program (ACIP) Description: AWACS Communications Integration Program (ACIP) Development: Provides Mobile User Objective System (MUOS) and Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) capability by replacing the existing Have Quick II and DAMA SATCOM radios with new radios capable of communicating via multiple waveforms as a combined integration program on AWACS. FY 2023 Plans:		41.996	7.384	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Continue Rapid Prototyping and development of the SATURN effort			
FY 2024 Plans: N/A			
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to planned completion of Rapid Prototyping.			
Accomplishments/Planned Programs Subtotals	167.956	11.598	0.000

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item E00300: <i>E-3</i>	91.301	29.187	1.350	-	1.350	32.577	0.818	0.873	1.396	0.000	157.502
• APAF 05 0207417F: <i>Airborne Warning and Control System (AWACS)</i>	24.827	-	-	-	-	-	-	-	-	0.000	24.827
• APAF 06 Line Item 000999: <i>Initial Spares/Repair Parts</i>	4.274	-	-	-	-	-	-	-	-	0.000	4.274

Remarks

E. Acquisition Strategy

The modernization of the AWACS weapon system consists of multiple capability upgrades that are developed and fielded on competitive and sole source contracts. Full and open competition is explored for all new efforts where market research indicates opportunities exist.

Air Force Program Executive Officer (PEO) for Digital is the Milestone Decision Authority (MDA) for AWACS Programs, with the exception of the E-3 Block 40/45 Upgrade. The E-3 Block 40/45 Upgrade MDA is the Secretary of the Air Force, with authority delegated to the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics). Of note, E-3 Block 40/45 Upgrade has completed development activities, so it has no RDT&E funding and therefore not referenced in this document. The Decision Authority for current AWACS Middle Tier of Acquisition (MTA) and ACAT III programs is delegated to the E-3 Material Leaders. Air Force Life Cycle Management Center (AFLCMC) is the contracting authority for the AWACS portfolio and provides contracts, legal, and comptroller Support.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR)	SS/ Various	BAH & Various : Washington, DC	-	11.780	Jan 2022	-		-		-		-	Continuing	Continuing	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) GTRI Study	SS/CPFF	Georgia Tech Research Ins : Atlanta, GA	-	1.523	Jan 2022	-		-		-		-	Continuing	Continuing	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) Follow on Studies and Analysis	SS/CPFF	Boeing : Oklahoma City, OK	-	8.289	May 2022	-		-		-		-	Continuing	Continuing	-
E-3 Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) Software Engineering Institute (SEI)	SS/CPFF	SEI : Pittsburgh, PA	-	1.703	May 2022	-		-		-		-	Continuing	Continuing	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Prototype Development	MIPR	DMEA : McClellan, CA	-	2.109	Jun 2022	-		-		-		-	Continuing	Continuing	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Software and Sub-System Level Development	SS/CPFF	Raytheon : Fort Wayne, IN	-	18.240	Jan 2022	-		-		-		-	Continuing	Continuing	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources	Various	76 SWES : Tinker AFB, OK	-	0.261	Jan 2022	-		-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(SMS) Software Development															
E-3 Communication Network Upgrade (CNU)	Various	Space & Naval Warfare Sys : San Diego, CA	-	2.500	Jun 2022	-		-		-		-	Continuing	Continuing	-
E-3 Communication Network Upgrade (CNU) GTRI	Various	Georgia Tech Research Ins : Atlanta, GA	-	32.282	May 2023	-		-		-		-	Continuing	Continuing	-
E-3 Communication Network Upgrade (CNU) Software Development	Various	76 SWES : Tinker AFB, OK	-	3.814	Jan 2022	0.980	Oct 2023	-		-		-	Continuing	Continuing	-
ACIP Rapid Prototyping Alpha Phase	SS/CPFF	BAH : Lexington, MA	-	32.214	Aug 2022	6.627	Jun 2023	-		-		-	Continuing	Continuing	-
ACIP Rapid Prototyping Gov't Furnished Equipment (GFE)	MIPR	Various : TBD	-	1.609	Apr 2022	-		-		-		-	Continuing	Continuing	-
ACIP Rapid Prototyping Risk Reduction Studies and Analysis	MIPR	Various : TBD	-	1.040	Mar 2023	-		-		-		-	Continuing	Continuing	-
ACIP Rapid Prototyping Software Development	PO	76 SWES : Tinker AFB, OK	-	2.299	Mar 2023	-		-		-		-	Continuing	Continuing	-
E-3 Replacement Rapid Prototyping	SS/CPIF	The Boeing Company : Tukwila, OK	-	11.759	Feb 2023	-		-		-		-	Continuing	Continuing	-
Subtotal			-	131.422		7.607		-		-		-	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
E-3 Training, Support & Infrastructure (TSI) Systems AITS II	C/Various	Boeing : Oklahoma City, OK	-	3.481	Apr 2022	1.413	Dec 2023	-		-		-	Continuing	Continuing	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AWACS PE 0207417F																												
TSI																												
C2ISR																												
CID DMS Alpha Phase																												
CNU Development																												
ACIP Risk Reduction																												
ACIP Prototyping																												
E-3 Replacement Prototyping																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AWACS PE 0207417F				
TSI	1	2022	1	2025
C2ISR	1	2022	4	2023
CID DMS Alpha Phase	1	2022	2	2022
CNU Development	1	2022	4	2024
ACIP Risk Reduction	1	2022	4	2022
ACIP Prototyping	4	2022	1	2025
E-3 Replacement Prototyping	2	2023	2	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207418F / AFSPECWAR - TACP
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	3.678	5.982	2.106	0.000	2.106	4.221	4.328	4.417	2.207	0.000	26.939
675234: <i>TACP Support</i>	-	3.678	5.982	2.106	0.000	2.106	4.221	4.328	4.417	2.207	0.000	26.939
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

a. The Joint Terminal Control Training and Rehearsal (JTC TRS) Program, under the Tactical Airborne Control System, funds development necessary to provide a Distributed Mission Operations [DMO] capable, high-fidelity simulator for Special Warfare airmen, to include Tactical Air Control Party (TACP), Special Tactics Combat Control Team (CCT), Joint Terminal Attack Controller (JTAC) operations and Air Support Operations Center (ASOC) operations.

JTC TRS is essential to provide initial training, mission qualification training, continuation training, and currency control requirements to JTACs and Special Tactics personnel. JTAC control training requirements exceed the ability of live-fly aircraft to meet, and JTC TRS is the only capability enabling JTACs to achieve and maintain minimum required training for both qualification and proficiency in accordance with the U.S and Partner Nation Memorandum of Agreement for JTAC certification and qualification.

The JTC TRS Program provides research and development to facilitate interoperability with joint and sister Service air-ground simulation using industry standards. JTC TRS will provide the capability to network aircrew full mission trainers and training centers in a live-virtual-constructive network. This development effort will also integrate ASOCs with the Joint Theater Air Ground Simulation System (JTAGSS) trainer for Joint Fires integration. The simulator will supplement live field training and live-fly sorties to provide realistic introductory, proficiency, currency, and upgrade training in a simulated battlefield, disaster, or humanitarian relief environment. FY24 funds are required to complete development of Digitally Aided Close Air Support (DACAS) and the integration of Joint Air Ground Integration Center (JAGIC) Command and Control (C2) into JTAGSS.

b. JTAGSS is a continuation of the ASOC simulation trainer initially funded in 2009 and complements the JTC TRS trainer by providing a total air-ground constructive simulation environment for integrated networked training and mission rehearsal capability that will develop TACP/CCT/JTAC and ASOC/Special Operations Forces (SOF) C2 battle staff skills. JTAGSS will provide the ASOC, SOF, and TACP with the vertical and horizontal C2 communications and coordination training and mission rehearsal required for mission effectiveness. There are insufficient exercises and live training events available to meet mandated readiness requirements. The system will include a secure network connection, a constructive simulation environment generator with sharable databases, computer workstations that have synthetic reflex agent applications for each ASOC/SOF crew position to execute the Air Tasking Order (ATO).

Funds may be used to address emerging and short notice Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues. DMS efforts to include removal of end-of-life software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Implement requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative. This program element may include necessary civilian pay expenses required to manage, execute, and deliver the JTC TRS weapon system capability.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207418F / AFSPECWAR - TACP
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This program element may include necessary civilian pay expenses required to manage, execute, and deliver JTC TRS capability. The use of such program's funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 0.00M was expended for civilian pay expenses in this program element, and in FY23 0.00M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	4.598	5.982	4.120	0.000	4.120
Current President's Budget	3.678	5.982	2.106	0.000	2.106
Total Adjustments	-0.920	0.000	-2.014	0.000	-2.014
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.920	0.000	-2.014	0.000	-2.014

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: JTC TRS Trainer Development	3.678	5.982	2.106
Description: Development and test of Engineering Change Proposals (ECPs) for TACP-Close Air Support System (CASS).			
FY 2023 Plans: Will complete development of PRC 161 and PRC 163 concurrently & integration of Army C2 and Fire Support Systems into JTAGSS.			
FY 2024 Plans: Will develop JTAGGs-JAGIC Interface.			
FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease due to reduced requirement for trainer development.			
Accomplishments/Planned Programs Subtotals	3.678	5.982	2.106

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207418F / AFSPECWAR - TACP
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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 Line Item 837100: <i>Tactical C-E Equipment</i>	3.961	2.722	3.335	0.000	3.335	3.608	3.715	3.785	2.411	Continuing	Continuing

Remarks

E. Acquisition Strategy

The JTC TRS acquisition has provided full capability as defined in the Capability Production Document (CPD). A Full and Open competitive source selection was conducted and resulted in the award of a single contract to produce and sustain the JTC TRS family of systems. The contract includes pre-priced production options for additional JTC TRS production; Emulated Military Equipment [EME] program management; cybersecurity support, Contractor Logistic Support (CLS), Training System Support Center (TSSC) for both JTC TRS and JTAGSS devices; training; and device relocation. The contract structure allows for maintaining concurrency, fidelity and connectivity; implementing system improvements/technical refresh; and other modifications as required. JTC TRS awarded the competitive contract in June 2021.

b. The acquisition strategy for the JTAGSS trainer will be to field advance technology demonstration units to continue to perform proof of concept and technology validation of mission simulations for all ASOC crew positions including detailed communications planning, asset deconfliction, integration of joint fires, and other critical mission areas required for integrated TACP/ASOC C2 mission success. At the completion of the technology validation, a contract will be competitively awarded to complete JTAGSS development, deployment and integration. Current software is Government or Commercial Off-the-Shelf technologies (GOTS/COTS) allowing almost any training technology development company to compete, which lowers technical risk, schedule risk, and cost.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207418F / AFSPECWAR - TACP	Project (Number/Name) 675234 / TACP Support
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>JTC TRS Trainer Development</i>	
Develop and Test TACP Engineering Change Proposals	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207418F / AFSPECWAR - TACP	Project (Number/Name) 675234 / TACP Support

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>JTC TRS Trainer Development</i>				
Develop and Test TACP Engineering Change Proposals	1	2022	4	2028