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**Department of Defense  
Fiscal Year (FY) 2023 Budget Estimates**

April 2022



**Air Force**

*Justification Book Volume 3 of 4*

***Research, Development, Test & Evaluation, Air Force  
Vol-3a***

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Air Force • Budget Estimates FY 2023 • RDT&E Program

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## **Fiscal Year (FY) 2023 Budget Estimates RDT&E Descriptive Summaries Budget Activities April 2022**

### **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 FY 2023 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 2022 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 RDTE& 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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### CLASSIFICATION

- 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.

### Exhibit footnotes for FY 2020 actuals and FY 2021 Enacted:

#### a. Fiscal Year (FY) 2023 Overseas Operations Costs funding accounted for in the Base budget include:

- Operation INHERENT RESOLVE (OIR) \$0 thousands.
- European Deterrence Initiative (EDI) \$0 thousands.
- Other theater requirements and related missions \$1,065 thousands.

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Department of Defense  
FY 2023 President's Budget  
Exhibit R-1 FY 2023 President's Budget  
Total Obligational Authority  
(Dollars in Thousands)

25 Mar 2022

	FY 2021 (Base + OCO)	FY 2022 Less Supplementals Enactment	FY 2022 Division B Division C P.L.117-43 Enactment*	FY 2022 Division B P.L.117-70 Enactment**	FY 2022 Division A P.L. 117-86 Enactment***	FY 2022 Division N P.L. 117-103 Enactment****
Summary Recap of Budget Activities -----						
Basic Research	496,255	540,706				
Applied Research	1,794,038	1,872,076				
Advanced Technology Development	929,477	1,207,122				
Advanced Component Development & Prototypes	8,528,913	11,293,813				47,500
System Development & Demonstration	5,904,910	5,692,659				
Management Support	4,072,703	3,508,829				
Operational Systems Development	24,647,644	28,920,584				
Software and Digital Technology Pilot Programs	155,067	154,529				
Total Research, Development, Test & Evaluation	46,529,007	53,190,318				47,500

R-123PBP: FY 2023 President's Budget (Total Base Published Version), as of March 25, 2022 at 15:49:52

\*Includes enacted funding pursuant to the Extending Government Funding and Delivering Emergency Assistance Act (Public Law 117-43).

\*\*Includes enacted funding pursuant to the Further Extending Government Funding Act (Public Law 117-70).

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25 Mar 2022

	FY 2022 Total Supplemental Enactment	FY 2022 Total Enactment	FY 2023 Request
Summary Recap of Budget Activities -----			
Basic Research		540,706	546,517
Applied Research		1,872,076	1,549,524
Advanced Technology Development		1,207,122	1,391,486
Advanced Component Development & Prototypes	47,500	11,341,313	10,937,696
System Development & Demonstration		5,692,659	11,774,613
Management Support		3,508,829	3,458,471
Operational Systems Development		28,920,584	29,193,876
Software and Digital Technology Pilot Programs		154,529	1,101,490
Total Research, Development, Test & Evaluation	47,500	53,237,818	59,953,673

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Summary Recap of FYDP Programs						
Strategic Forces	897,413	1,157,141				
General Purpose Forces	3,542,013	4,578,366				
Intelligence and Communications	1,143,506	1,142,450				47,500
Mobility Forces	886,208	825,887				
Research and Development	14,431,656	16,605,652				
Central Supply and Maintenance	122,916	155,648				
Training Medical and Other	7,012	17,944				
Administration and Associated Activities	68,180	89,612				
Support of Other Nations	3,592	2,420				
Space	6,979,949	7,040,836				
Classified Programs	18,446,562	21,574,362				
Total Research, Development, Test & Evaluation	46,529,007	53,190,318				47,500

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25 Mar 2022

	FY 2022 Total Supplemental Enactment	FY 2022 Total Enactment	FY 2023 Request
-----	-----	-----	-----
Summary Recap of FYDP Programs -----			
Strategic Forces		1,157,141	1,217,682
General Purpose Forces		4,578,366	4,818,319
Intelligence and Communications	47,500	1,189,950	1,509,185
Mobility Forces		825,887	765,678
Research and Development		16,605,652	18,433,261
Central Supply and Maintenance		155,648	66,133
Training Medical and Other		17,944	27,538
Administration and Associated Activities		89,612	29,823
Support of Other Nations		2,420	2,593
Space		7,040,836	10,869,462
Classified Programs		21,574,362	22,213,999
Total Research, Development, Test & Evaluation	47,500	53,237,818	59,953,673

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Summary Recap of Budget Activities -----						
Basic Research	496,255	540,706				
Applied Research	1,579,544	1,585,571				
Advanced Technology Development	929,477	968,538				
Advanced Component Development & Prototypes	7,193,095	9,695,253				47,500
System Development & Demonstration	2,266,274	2,524,849				
Management Support	3,534,738	3,037,687				
Operational Systems Development	20,022,756	23,240,309				
Software and Digital Technology Pilot Programs						
Total Research, Development, Test & Evaluation	36,022,139	41,592,913				47,500

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Summary Recap of Budget Activities -----			
Basic Research		540,706	546,517
Applied Research		1,585,571	1,305,787
Advanced Technology Development		968,538	827,271
Advanced Component Development & Prototypes	47,500	9,742,753	7,945,238
System Development & Demonstration		2,524,849	6,438,954
Management Support		3,037,687	3,033,528
Operational Systems Development		23,240,309	23,090,569
Software and Digital Technology Pilot Programs			946,437
Total Research, Development, Test & Evaluation	47,500	41,640,413	44,134,301

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General Purpose Forces	3,542,013	4,578,366				
Intelligence and Communications	1,143,506	1,142,450				47,500
Mobility Forces	886,208	825,887				
Research and Development	14,431,656	16,605,652				
Central Supply and Maintenance	122,916	155,648				
Training Medical and Other	7,012	17,944				
Administration and Associated Activities	68,180	89,612				
Support of Other Nations	3,592	2,420				
Space	9,974	6,740				
Classified Programs	14,909,669	17,011,053				
Total Research, Development, Test & Evaluation	36,022,139	41,592,913				47,500

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General Purpose Forces		4,578,366	4,818,319
Intelligence and Communications	47,500	1,189,950	1,509,185
Mobility Forces		825,887	765,678
Research and Development		16,605,652	18,432,445
Central Supply and Maintenance		155,648	66,133
Training Medical and Other		17,944	27,538
Administration and Associated Activities		89,612	29,823
Support of Other Nations		2,420	2,593
Space		6,740	24,264
Classified Programs		17,011,053	17,240,641
Total Research, Development, Test & Evaluation	47,500	41,640,413	44,134,301

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25 Mar 2022

Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line	Program Element No Number	Item ----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
1	0601102F	Defense Research Sciences	01	303,718	353,303					U
2	0601103F	University Research Initiatives	01	178,083	187,403					U
3	0601108F	High Energy Laser Research Initiatives	01	14,454						U
	Basic Research			496,255	540,706					
4	0602020F	Future AF Capabilities Applied Research	02	73,226	79,901					U
5	0602102F	Materials	02	228,115	220,960					U
6	0602201F	Aerospace Vehicle Technologies	02	148,576	183,032					U
7	0602202F	Human Effectiveness Applied Research	02	127,160	156,863					U
8	0602203F	Aerospace Propulsion	02	190,732	190,683					U
9	0602204F	Aerospace Sensors	02	221,779	255,918					U
10	0602212F	Defense Laboratories R&D Projects (10 U.S.C, Sec 2358)	02	106,964						U
11	0602298F	Science and Technology Management - Major Headquarters Activities	02	8,910	8,891					U
12	0602602F	Conventional Munitions	02	118,541	151,757					U
13	0602605F	Directed Energy Technology	02	122,816	116,456					U
14	0602788F	Dominant Information Sciences and Methods	02	205,839	221,110					U

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--	-----	----	---	-----	-----	-----	-
1	0601102F	Defense Research Sciences	01		353,303	375,325	U
2	0601103F	University Research Initiatives	01		187,403	171,192	U
3	0601108F	High Energy Laser Research Initiatives	01				U
	Basic Research				540,706	546,517	
4	0602020F	Future AF Capabilities Applied Research	02		79,901	88,672	U
5	0602102F	Materials	02		220,960	134,795	U
6	0602201F	Aerospace Vehicle Technologies	02		183,032	159,453	U
7	0602202F	Human Effectiveness Applied Research	02		156,863	135,771	U
8	0602203F	Aerospace Propulsion	02		190,683	172,861	U
9	0602204F	Aerospace Sensors	02		255,918	192,733	U
10	0602212F	Defense Laboratories R&D Projects (10 U.S.C, Sec 2358)	02				U
11	0602298F	Science and Technology Management - Major Headquarters Activities	02		8,891	8,856	U
12	0602602F	Conventional Munitions	02		151,757	137,303	U
13	0602605F	Directed Energy Technology	02		116,456	109,302	U
14	0602788F	Dominant Information Sciences and Methods	02		221,110	166,041	U

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15	0602890F	High Energy Laser Research	02	26,886	-----	-----	-----	-----	-----	U
		Applied Research		1,579,544	1,585,571					
16	0603032F	Future AF Integrated Technology Demos	03	135,940	112,643					U
17	0603112F	Advanced Materials for Weapon Systems	03	57,221	63,378					U
18	0603199F	Sustainment Science and Technology (S&T)	03	15,631	19,112					U
19	0603203F	Advanced Aerospace Sensors	03	33,162	53,750					U
20	0603211F	Aerospace Technology Dev/Demo	03	34,321	105,486					U
21	0603216F	Aerospace Propulsion and Power Technology	03	159,354	110,273					U
22	0603270F	Electronic Combat Technology	03	33,804	44,938					U
23	0603273F	Science & Technology for Nuclear Re-entry Systems	03							U
24	0603401F	Advanced Spacecraft Technology	03	63,088						U
25	0603444F	Maui Space Surveillance System (MSSS)	03	11,486						U
26	0603456F	Human Effectiveness Advanced Technology Development	03	29,412	23,459					U
27	0603601F	Conventional Weapons Technology	03	124,025	155,306					U
28	0603605F	Advanced Weapons Technology	03	29,094	31,855					U

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15	0602890F	High Energy Laser Research	02				U
		Applied Research			1,585,571	1,305,787	
16	0603032F	Future AF Integrated Technology Demos	03		112,643	152,559	U
17	0603112F	Advanced Materials for Weapon Systems	03		63,378	29,116	U
18	0603199F	Sustainment Science and Technology (S&T)	03		19,112	10,695	U
19	0603203F	Advanced Aerospace Sensors	03		53,750	36,997	U
20	0603211F	Aerospace Technology Dev/Demo	03		105,486	54,727	U
21	0603216F	Aerospace Propulsion and Power Technology	03		110,273	64,254	U
22	0603270F	Electronic Combat Technology	03		44,938	33,380	U
23	0603273F	Science & Technology for Nuclear Re-entry Systems	03			39,431	U
24	0603401F	Advanced Spacecraft Technology	03				U
25	0603444F	Maui Space Surveillance System (MSSS)	03				U
26	0603456F	Human Effectiveness Advanced Technology Development	03		23,459	20,652	U
27	0603601F	Conventional Weapons Technology	03		155,306	187,374	U
28	0603605F	Advanced Weapons Technology	03		31,855	98,503	U

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29	0603680F	Manufacturing Technology Program	03	143,334	176,200					U
30	0603788F	Battlespace Knowledge Development and Demonstration	03	59,605	72,138					U
		Advanced Technology Development		929,477	968,538					
31	0603036F	Modular Advanced Missile	04							U
32	0603260F	Intelligence Advanced Development	04	4,312	5,795					U
33	0603742F	Combat Identification Technology	04	25,824	21,939					U
34	0603790F	NATO Research and Development	04	3,506	4,114					U
35	0603851F	Intercontinental Ballistic Missile - Dem/Val	04	34,755	76,621					U
36	0604001F	NC3 Advanced Concepts	04		6,900					U
37	0604002F	Air Force Weather Services Research	04	2,151	3,855					U
38	0604003F	Advanced Battle Management System (ABMS)	04	152,691	268,849					U
39	0604004F	Advanced Engine Development	04	642,581	583,712					U
40	0604006F	Dept of the Air Force Tech Architecture	04		25,138					U
41	0604015F	Long Range Strike - Bomber	04	2,744,473	2,872,624					U
42	0604032F	Directed Energy Prototyping	04	19,023	15,820					U
43	0604033F	Hypersonics Prototyping	04	374,426	318,687					U

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29	0603680F	Manufacturing Technology Program	03		176,200	47,759	U
30	0603788F	Battlespace Knowledge Development and Demonstration	03		72,138	51,824	U
	Advanced Technology Development				968,538	827,271	
31	0603036F	Modular Advanced Missile	04			125,688	U
32	0603260F	Intelligence Advanced Development	04		5,795	6,101	U
33	0603742F	Combat Identification Technology	04		21,939	17,318	U
34	0603790F	NATO Research and Development	04		4,114	4,295	U
35	0603851F	Intercontinental Ballistic Missile - Dem/Val	04		76,621	46,432	U
36	0604001F	NC3 Advanced Concepts	04		6,900	5,098	U
37	0604002F	Air Force Weather Services Research	04		3,855		U
38	0604003F	Advanced Battle Management System (ABMS)	04		268,849	231,408	U
39	0604004F	Advanced Engine Development	04		583,712	353,658	U
40	0604006F	Dept of the Air Force Tech Architecture	04		25,138	66,615	U
41	0604015F	Long Range Strike - Bomber	04		2,872,624	3,253,584	U
42	0604032F	Directed Energy Prototyping	04		15,820	4,269	U
43	0604033F	Hypersonics Prototyping	04		318,687	431,868	U

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Line	Program Element No Number	Item ----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
44	0604183F	Hypersonics Prototyping - Hypersonic Attack Cruise Missile (HACM)	04		190,116					U
45	0604201F	PNT Resiliency, Mods, and Improvements	04		39,742					U
46	0604257F	Advanced Technology and Sensors	04	25,901	23,745					U
47	0604288F	Survivable Airborne Operations Center	04	50,038	95,788					U
48	0604317F	Technology Transfer	04	16,823	56,768					U
49	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04	53,026	12,886					U
50	0604414F	Cyber Resiliency of Weapon Systems-ACS	04	67,616	71,229					U
51	0604668F	Joint Transportation Management System (JTMS)	04							U
52	0604776F	Deployment & Distribution Enterprise R&D	04	25,474	40,103					U
53	0604858F	Tech Transition Program	04	297,254	359,045					U
54	0604860F	Operational Energy and Installation Resilience	04		104,000					U
55	0605230F	Ground Based Strategic Deterrent	04	1,397,485	2,553,541					U
56	0207110F	Next Generation Air Dominance	04	869,740	1,524,667					U
57	0207179F	Autonomous Collaborative Platforms	04							U

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Department of the Air Force  
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Line	Program Element No Number	Item ----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
44	0604183F	Hypersonics Prototyping - Hypersonic Attack Cruise Missile (HACM)	04		190,116	144,891	U
45	0604201F	PNT Resiliency, Mods, and Improvements	04		39,742	12,010	U
46	0604257F	Advanced Technology and Sensors	04		23,745	13,311	U
47	0604288F	Survivable Airborne Operations Center	04		95,788	203,213	U
48	0604317F	Technology Transfer	04		56,768	16,759	U
49	0604327F	Hard and Deeply Buried Target Defeat System (HDBTDS) Program	04		12,886	106,826	U
50	0604414F	Cyber Resiliency of Weapon Systems-ACS	04		71,229	44,526	U
51	0604668F	Joint Transportation Management System (JTMS)	04			51,758	U
52	0604776F	Deployment & Distribution Enterprise R&D	04		40,103	27,586	U
53	0604858F	Tech Transition Program	04		359,045	649,545	U
54	0604860F	Operational Energy and Installation Resilience	04		104,000		U
55	0605230F	Ground Based Strategic Deterrent	04		2,553,541		U
56	0207110F	Next Generation Air Dominance	04		1,524,667	1,657,733	U
57	0207179F	Autonomous Collaborative Platforms	04			51,747	U

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Line	Program Element No Number	Item -----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
58	0207420F	Combat Identification	04							U
59	0207455F	Three Dimensional Long-Range Radar (3DELRR)	04	18,862						U
60	0207522F	Airbase Air Defense Systems (ABADS)	04	8,451	10,905					U
61	0208030F	War Reserve Materiel - Ammunition	04		3,943					U
62	0208099F	Unified Platform (UP)	04	5,869						U
63	0304369F	Cyber Capabilities Support Office (CCSO)	04	19,964						U
64	0305236F	Common Data Link Executive Agent (CDL EA)	04	39,221	43,881					U
65	0305601F	Mission Partner Environments	04	10,991	16,420					U
66	0306250F	Cyber Operations Technology Support	04	226,073	242,499				38,900	U
67	0306415F	Enabled Cyber Activities	04	10,166	16,578				8,600	U
68	0401310F	C-32 Executive Transport Recapitalization	04	6,151						U
69	0708051F	Rapid Sustainment Modernization (RSM)	04	34,693	65,000					U
70	0808737F	CVV Integrated Prevention	04							U
71	0901410F	Contracting Information Technology System	04	5,555	20,343					U

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58	0207420F	Combat Identification	04			1,866	U
59	0207455F	Three Dimensional Long-Range Radar (3DELRR)	04			14,490	U
60	0207522F	Airbase Air Defense Systems (ABADS)	04		10,905	52,498	U
61	0208030F	War Reserve Materiel - Ammunition	04		3,943	10,288	U
62	0208099F	Unified Platform (UP)	04				U
63	0304369F	Cyber Capabilities Support Office (CCSO)	04				U
64	0305236F	Common Data Link Executive Agent (CDL EA)	04		43,881	37,460	U
65	0305601F	Mission Partner Environments	04		16,420	17,378	U
66	0306250F	Cyber Operations Technology Support	04	38,900	281,399	234,576	U
67	0306415F	Enabled Cyber Activities	04	8,600	25,178	16,728	U
68	0401310F	C-32 Executive Transport Recapitalization	04				U
69	0708051F	Rapid Sustainment Modernization (RSM)	04		65,000		U
70	0808737F	CVV Integrated Prevention	04			9,315	U
71	0901410F	Contracting Information Technology System	04		20,343	14,050	U

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72	1206415F	U.S. Space Command Research and Development Support	04							U
		Advanced Component Development & Prototypes		7,193,095	9,695,253				47,500	
73	0604200F	Future Advanced Weapon Analysis & Programs	05	22,478	18,499					U
74	0604201F	PNT Resiliency, Mods, and Improvements	05	37,409	163,520					U
75	0604222F	Nuclear Weapons Support	05	24,502	30,050					U
76	0604270F	Electronic Warfare Development	05	2,017	7,110					U
77	0604281F	Tactical Data Networks Enterprise	05	111,125	159,836					U
78	0604287F	Physical Security Equipment	05	5,979	8,469					U
79	0604602F	Armament/Ordnance Development	05	20,199	9,047					U
80	0604604F	Submunitions	05	3,085	2,954					U
81	0604617F	Agile Combat Support	05	18,398	27,938					U
82	0604618F	Joint Direct Attack Munition	05	6,555						U
83	0604706F	Life Support Systems	05	27,748	25,437					U
84	0604735F	Combat Training Ranges	05	23,054	23,980					U
85	0604800F	F-35 - EMD	05	5,214						U
86	0604932F	Long Range Standoff Weapon	05	373,499	599,042					U
87	0604933F	ICBM Fuze Modernization	05	151,158	129,709					U

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Line	Program Element No Number	Item -----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
72	1206415F	U.S. Space Command Research and Development Support	04			10,350	U
		Advanced Component Development & Prototypes		47,500	9,742,753	7,945,238	
73	0604200F	Future Advanced Weapon Analysis & Programs	05		18,499	9,879	U
74	0604201F	PNT Resiliency, Mods, and Improvements	05		163,520	176,824	U
75	0604222F	Nuclear Weapons Support	05		30,050	64,425	U
76	0604270F	Electronic Warfare Development	05		7,110	2,222	U
77	0604281F	Tactical Data Networks Enterprise	05		159,836	133,117	U
78	0604287F	Physical Security Equipment	05		8,469	8,493	U
79	0604602F	Armament/Ordnance Development	05		9,047	5,279	U
80	0604604F	Submunitions	05		2,954	3,273	U
81	0604617F	Agile Combat Support	05		27,938	14,252	U
82	0604618F	Joint Direct Attack Munition	05				U
83	0604706F	Life Support Systems	05		25,437	47,442	U
84	0604735F	Combat Training Ranges	05		23,980	91,284	U
85	0604800F	F-35 - EMD	05				U
86	0604932F	Long Range Standoff Weapon	05		599,042	928,850	U
87	0604933F	ICBM Fuze Modernization	05		129,709	98,376	U

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88	0605030F	Joint Tactical Network Center (JTNC)	05							U
89	0605056F	Open Architecture Management	05	29,709	37,109					U
90	0605223F	Advanced Pilot Training	05	216,765	188,898					U
91	0605229F	HH-60W	05	32,196	62,255					U
92	0605238F	Ground Based Strategic Deterrent EMD	05							U
93	0101125F	Nuclear Weapons Modernization	05	9,595						U
94	0207171F	F-15 EPAWSS	05	165,691	112,012					U
95	0207279F	Isolated Personnel Survivability and Recovery	05							U
96	0207328F	Stand In Attack Weapon	05	145,858	166,570					U
97	0207701F	Full Combat Mission Training	05	9,060	12,064					U
98	0303267F	Auctioned Spectrum Relocation Fund	05	36,154						U
99	0303667F	Citizen Broadband Radio System	05	2,306						U
100	0303767F	AMBIT - Pre-Auctioned SRF	05	5,270						U
101	0305176F	Combat Survivor Evader Locator	05	935						U
102	0401221F	KC-46A Tanker Squadrons	05	35,818	66,758					U
103	0401319F	VC-25B	05	720,155	655,665					U
104	0701212F	Automated Test Systems	05	12,418	15,445					U

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Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line No	Program Element Number	Item	Act	FY 2022 Total Supplemental Enactment	FY 2022 Total Enactment	FY 2023 Request	Se
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88	0605030F	Joint Tactical Network Center (JTNC)	05			2,222	U
89	0605056F	Open Architecture Management	05		37,109	38,222	U
90	0605223F	Advanced Pilot Training	05		188,898	37,121	U
91	0605229F	HH-60W	05		62,255	58,974	U
92	0605238F	Ground Based Strategic Deterrent EMD	05			3,614,290	U
93	0101125F	Nuclear Weapons Modernization	05				U
94	0207171F	F-15 EPAWSS	05		112,012	67,956	U
95	0207279F	Isolated Personnel Survivability and Recovery	05			27,881	U
96	0207328F	Stand In Attack Weapon	05		166,570	283,152	U
97	0207701F	Full Combat Mission Training	05		12,064	3,028	U
98	0303267F	Auctioned Spectrum Relocation Fund	05				U
99	0303667F	Citizen Broadband Radio System	05				U
100	0303767F	AMBIT - Pre-Auctioned SRF	05				U
101	0305176F	Combat Survivor Evader Locator	05				U
102	0401221F	KC-46A Tanker Squadrons	05		66,758	197,510	U
103	0401319F	VC-25B	05		655,665	492,932	U
104	0701212F	Automated Test Systems	05		15,445	16,664	U

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105	0804772F	Training Developments	05	4,471	2,482					U
106	0901299F	AF A1 Systems	05	7,453						U
107	1206442F	Next Generation OPIR	05							U
		System Development & Demonstration		2,266,274	2,524,849					
108	0604256F	Threat Simulator Development	06	56,987	46,909					U
109	0604759F	Major T&E Investment	06	207,103	130,766					U
110	0605101F	RAND Project Air Force	06	35,195	36,017					U
111	0605502F	Small Business Innovation Research	06	662,308						U
112	0605712F	Initial Operational Test & Evaluation	06	10,407	12,582					U
113	0605807F	Test and Evaluation Support	06	770,149	811,032					U
114	0605826F	Acq Workforce- Global Power	06	264,371						U
115	0605827F	Acq Workforce- Global Vig & Combat Sys	06	263,868	267,919					U
116	0605828F	Acq Workforce- Global Reach	06	164,440	429,659					U
117	0605829F	Acq Workforce- Cyber, Network, & Bus Sys	06	251,517	439,571					U
118	0605830F	Acq Workforce- Global Battle Mgmt	06	173,987						U
119	0605831F	Acq Workforce- Capability Integration	06	227,357	263,014					U

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Line No	Program Element Number	Item	Act	FY 2022 Total Supplemental Enactment	FY 2022 Total Enactment	FY 2023 Request	Se
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105	0804772F	Training Developments	05		2,482	15,138	U
106	0901299F	AF A1 Systems	05				U
107	1206442F	Next Generation OPIR	05			148	U
		System Development & Demonstration			2,524,849	6,438,954	
108	0604256F	Threat Simulator Development	06		46,909	21,067	U
109	0604759F	Major T&E Investment	06		130,766	44,714	U
110	0605101F	RAND Project Air Force	06		36,017	37,921	U
111	0605502F	Small Business Innovation Research	06			86	U
112	0605712F	Initial Operational Test & Evaluation	06		12,582	13,926	U
113	0605807F	Test and Evaluation Support	06		811,032	826,854	U
114	0605826F	Acq Workforce- Global Power	06				U
115	0605827F	Acq Workforce- Global Vig & Combat Sys	06		267,919	255,995	U
116	0605828F	Acq Workforce- Global Reach	06		429,659	457,589	U
117	0605829F	Acq Workforce- Cyber, Network, & Bus Sys	06		439,571	459,223	U
118	0605830F	Acq Workforce- Global Battle Mgmt	06			3,696	U
119	0605831F	Acq Workforce- Capability Integration	06		263,014	229,610	U

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120	0605832F	Acq Workforce- Advanced Prgm Technology	06	53,577	62,755					U
121	0605833F	Acq Workforce- Nuclear Systems	06	174,318	227,425					U
122	0605898F	Management HQ - R&D	06	5,424	5,537					U
123	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06	60,856	70,788					U
124	0605978F	Facilities Sustainment - Test and Evaluation Support	06	29,826	30,057					U
125	0606017F	Requirements Analysis and Maturation	06	66,233	90,799					U
126	0606398F	Management HQ - T&E	06	6,929	6,163					U
127	0303166F	Support to Information Operations (IO) Capabilities	06		537					U
128	0303255F	Command, Control, Communication, and Computers (C4) - STRATCOM	06	21,525	35,340					U
129	0308602F	ENTEPRISE INFORMATION SERVICES (EIS)	06	9,561	26,720					U
130	0702806F	Acquisition and Management Support	06	12,943	37,211					U
131	0804731F	General Skill Training	06	1,260	1,506					U
132	0804772F	Training Developments	06		2,957					U
133	0909999F	Financing for Cancelled Account Adjustments	06	1,005						U

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Line	Program Element No Number	Item -----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
120	0605832F	Acq Workforce- Advanced Prgm Technology	06		62,755	92,648	U
121	0605833F	Acq Workforce- Nuclear Systems	06		227,425	241,226	U
122	0605898F	Management HQ - R&D	06		5,537	4,347	U
123	0605976F	Facilities Restoration and Modernization - Test and Evaluation Support	06		70,788	77,820	U
124	0605978F	Facilities Sustainment - Test and Evaluation Support	06		30,057	31,561	U
125	0606017F	Requirements Analysis and Maturation	06		90,799	101,844	U
126	0606398F	Management HQ - T&E	06		6,163	6,285	U
127	0303166F	Support to Information Operations (IO) Capabilities	06		537	556	U
128	0303255F	Command, Control, Communication, and Computers (C4) - STRATCOM	06		35,340	15,559	U
129	0308602F	ENTEPRISE INFORMATION SERVICES (EIS)	06		26,720	83,231	U
130	0702806F	Acquisition and Management Support	06		37,211	24,306	U
131	0804731F	General Skill Training	06		1,506	871	U
132	0804772F	Training Developments	06		2,957		U
133	0909999F	Financing for Cancelled Account Adjustments	06				U

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Line	Program Element No Number	Item -----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
134	1001004F	International Activities	06	3,592	2,420					U
135	1206864F	Space Test Program (STP)	06		3					U
		Management Support		3,534,738	3,037,687					
136	0604233F	Specialized Undergraduate Flight Training	07	13,438	8,589					U
137	0604445F	Wide Area Surveillance	07		2,760					U
138	0604617F	Agile Combat Support	07							U
139	0604776F	Deployment & Distribution Enterprise R&D	07	479						U
140	0604840F	F-35 C2D2	07	684,931	1,105,404					U
141	0605018F	AF Integrated Personnel and Pay System (AF-IPPS)	07	29,526	22,010					U
142	0605024F	Anti-Tamper Technology Executive Agency	07	46,785	51,492					U
143	0605117F	Foreign Materiel Acquisition and Exploitation	07	68,962	71,391					U
144	0605278F	HC/MC-130 Recap RDT&E	07	15,552	46,796					U
145	0606018F	NC3 Integration	07	30,521	26,532					U
146	0606942F	Assessments and Evaluations Cyber Vulnerabilities	07	2,885						U
147	0101113F	B-52 Squadrons	07	453,605	646,811					U

R-123PBP: FY 2023 President's Budget (Total Base Published Version), as of March 25, 2022 at 15:49:52

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Department of the Air Force  
FY 2023 President's Budget  
Exhibit R-1 FY 2023 President's Budget  
Total Obligational Authority  
(Dollars in Thousands)

25 Mar 2022

Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line	Program Element No Number	Item -----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
134	1001004F	International Activities	06		2,420	2,593	U
135	1206864F	Space Test Program (STP)	06		3		U
		Management Support			3,037,687	3,033,528	
136	0604233F	Specialized Undergraduate Flight Training	07		8,589	18,037	U
137	0604445F	Wide Area Surveillance	07		2,760		U
138	0604617F	Agile Combat Support	07			8,199	U
139	0604776F	Deployment & Distribution Enterprise R&D	07			156	U
140	0604840F	F-35 C2D2	07		1,105,404	1,014,708	U
141	0605018F	AF Integrated Personnel and Pay System (AF-IPPS)	07		22,010	37,901	U
142	0605024F	Anti-Tamper Technology Executive Agency	07		51,492	50,066	U
143	0605117F	Foreign Materiel Acquisition and Exploitation	07		71,391	80,338	U
144	0605278F	HC/MC-130 Recap RDT&E	07		46,796	47,994	U
145	0606018F	NC3 Integration	07		26,532	23,559	U
146	0606942F	Assessments and Evaluations Cyber Vulnerabilities	07				U
147	0101113F	B-52 Squadrons	07		646,811	770,313	U

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Department of the Air Force  
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(Dollars in Thousands)

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Line	Program Element No Number	Item ----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
148	0101122F	Air-Launched Cruise Missile (ALCM)	07	1,377	453					U
149	0101126F	B-1B Squadrons	07	15,276	39,127					U
150	0101127F	B-2 Squadrons	07	147,390	131,647					U
151	0101213F	Minuteman Squadrons	07	63,535	113,622					U
152	0101316F	Worldwide Joint Strategic Communications	07	30,124	15,202					U
153	0101324F	Integrated Strategic Planning & Analysis Network	07	23,420	29,564					U
154	0101328F	ICBM Reentry Vehicles	07	108,625	96,313					U
156	0102110F	UH-1N Replacement Program	07	34,524	16,132					U
157	0102326F	Region/Sector Operation Control Center Modernization Program	07	9,846	771					U
158	0102412F	North Warning System (NWS)	07	96	99					U
159	0102417F	Over-the-Horizon Backscatter Radar	07		67,400					U
160	0202834F	Vehicles and Support Equipment - General	07		5,889					U
161	0205219F	MQ-9 UAV	07	103,245	79,121					U
162	0205671F	Joint Counter RCIED Electronic Warfare	07	4,080	3,111					U
163	0207040F	Multi-Platform Electronic Warfare Equipment	07		36,607					U

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Department of the Air Force  
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Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line No	Program Element Number	Item	Act	FY 2022 Total Supplemental Enactment	FY 2022 Total Enactment	FY 2023 Request	Se
--	-----	----	---	-----	-----	-----	-
148	0101122F	Air-Launched Cruise Missile (ALCM)	07		453	571	U
149	0101126F	B-1B Squadrons	07		39,127	13,144	U
150	0101127F	B-2 Squadrons	07		131,647	111,990	U
151	0101213F	Minuteman Squadrons	07		113,622	69,650	U
152	0101316F	Worldwide Joint Strategic Communications	07		15,202	22,725	U
153	0101324F	Integrated Strategic Planning & Analysis Network	07		29,564	3,180	U
154	0101328F	ICBM Reentry Vehicles	07		96,313	118,616	U
156	0102110F	UH-1N Replacement Program	07		16,132	17,922	U
157	0102326F	Region/Sector Operation Control Center Modernization Program	07		771	451	U
158	0102412F	North Warning System (NWS)	07		99	76,910	U
159	0102417F	Over-the-Horizon Backscatter Radar	07		67,400	12,210	U
160	0202834F	Vehicles and Support Equipment - General	07		5,889	14,483	U
161	0205219F	MQ-9 UAV	07		79,121	98,499	U
162	0205671F	Joint Counter RCIED Electronic Warfare	07		3,111	1,747	U
163	0207040F	Multi-Platform Electronic Warfare Equipment	07		36,607	23,195	U

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Department of the Air Force  
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Line	Program Element No Number	Item ----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
164	0207131F	A-10 Squadrons	07	24,274	34,224					U
165	0207133F	F-16 Squadrons	07	197,641	225,573					U
166	0207134F	F-15E Squadrons	07	230,299	239,616					U
167	0207136F	Manned Destructive Suppression	07	14,462	15,855					U
168	0207138F	F-22A Squadrons	07	642,138	647,296					U
169	0207142F	F-35 Squadrons	07	104,264	69,365					U
170	0207146F	F-15EX	07	79,866	107,126					U
171	0207161F	Tactical AIM Missiles	07	18,779	32,974					U
172	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	50,074	51,288					U
173	0207227F	Combat Rescue - Pararescue	07	668	852					U
174	0207247F	AF TENCAP	07	21,605	23,685					U
175	0207249F	Precision Attack Systems Procurement	07	8,983	12,083					U
176	0207253F	Compass Call	07	15,228	91,266					U
177	0207268F	Aircraft Engine Component Improvement Program	07	121,206	115,715					U
178	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07	63,712	117,325					U
179	0207327F	Small Diameter Bomb (SDB)	07	20,010	32,109					U

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Exhibit R-1 FY 2023 President's Budget  
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(Dollars in Thousands)

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Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line	Program Element No Number	Item ----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
164	0207131F	A-10 Squadrons	07		34,224	72,393	U
165	0207133F	F-16 Squadrons	07		225,573	244,696	U
166	0207134F	F-15E Squadrons	07		239,616	213,272	U
167	0207136F	Manned Destructive Suppression	07		15,855	16,695	U
168	0207138F	F-22A Squadrons	07		647,296	559,709	U
169	0207142F	F-35 Squadrons	07		69,365	70,730	U
170	0207146F	F-15EX	07		107,126	83,830	U
171	0207161F	Tactical AIM Missiles	07		32,974	34,536	U
172	0207163F	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07		51,288	52,704	U
173	0207227F	Combat Rescue - Pararescue	07		852	863	U
174	0207247F	AF TENCAP	07		23,685	23,309	U
175	0207249F	Precision Attack Systems Procurement	07		12,083	12,722	U
176	0207253F	Compass Call	07		91,266	49,054	U
177	0207268F	Aircraft Engine Component Improvement Program	07		115,715	116,087	U
178	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	07		117,325	117,198	U
179	0207327F	Small Diameter Bomb (SDB)	07		32,109	27,713	U

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Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line	Program Element No Number	Item ----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
180	0207410F	Air & Space Operations Center (AOC)	07	50,133	90,027					U
181	0207412F	Control and Reporting Center (CRC)	07	15,514	9,875					U
182	0207417F	Airborne Warning and Control System (AWACS)	07	108,779	167,014					U
183	0207418F	AFSPECWAR - TACP	07	497	4,598					U
185	0207431F	Combat Air Intelligence System Activities	07	16,534	17,863					U
186	0207438F	Theater Battle Management (TBM) C4I	07	7,660	7,905					U
187	0207439F	Electronic Warfare Integrated Reprogramming (EWIR)	07		15,000					U
188	0207444F	Tactical Air Control Party-Mod	07	12,589	13,081					U
189	0207452F	DCAPES	07	14,135	4,305					U
190	0207521F	Air Force Calibration Programs	07	1,966	1,984					U
191	0207522F	Airbase Air Defense Systems (ABADS)	07		7,392					U
192	0207573F	National Technical Nuclear Forensics	07	380	1,971					U
193	0207590F	Seek Eagle	07	29,572	30,539					U
194	0207601F	USAF Modeling and Simulation	07	17,023	17,110					U
195	0207605F	Wargaming and Simulation Centers	07	6,113	7,535					U

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Department of the Air Force  
FY 2023 President's Budget  
Exhibit R-1 FY 2023 President's Budget  
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Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line	Program Element No Number	Item -----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
180	0207410F	Air & Space Operations Center (AOC)	07		90,027		U
181	0207412F	Control and Reporting Center (CRC)	07		9,875	6,615	U
182	0207417F	Airborne Warning and Control System (AWACS)	07		167,014	239,658	U
183	0207418F	AFSPECWAR - TACP	07		4,598	5,982	U
185	0207431F	Combat Air Intelligence System Activities	07		17,863	23,504	U
186	0207438F	Theater Battle Management (TBM) C4I	07		7,905	5,851	U
187	0207439F	Electronic Warfare Integrated Reprogramming (EWIR)	07		15,000	15,990	U
188	0207444F	Tactical Air Control Party-Mod	07		13,081	10,315	U
189	0207452F	DCAPES	07		4,305	8,049	U
190	0207521F	Air Force Calibration Programs	07		1,984	2,123	U
191	0207522F	Airbase Air Defense Systems (ABADS)	07		7,392		U
192	0207573F	National Technical Nuclear Forensics	07		1,971	2,039	U
193	0207590F	Seek Eagle	07		30,539	32,853	U
194	0207601F	USAF Modeling and Simulation	07		17,110	19,341	U
195	0207605F	Wargaming and Simulation Centers	07		7,535	7,004	U

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Line	Program Element No Number	Item ----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
196	0207610F	Battlefield Abn Comm Node (BACN)	07	5,450	32,008					U
197	0207697F	Distributed Training and Exercises	07	3,260	4,007					U
198	0208006F	Mission Planning Systems	07	80,193	96,057					U
199	0208007F	Tactical Deception	07		14,338					U
200	0208064F	OPERATIONAL HQ - CYBER	07	5,323	2,115					U
201	0208087F	Distributed Cyber Warfare Operations	07	65,402	72,487					U
202	0208088F	AF Defensive Cyberspace Operations	07	29,255	18,449					U
203	0208097F	Joint Cyber Command and Control (JCC2)	07	35,060	79,079					U
204	0208099F	Unified Platform (UP)	07	91,886	91,893					U
208	0208288F	Intel Data Applications	07	1,224	493					U
209	0301025F	GeoBase	07		2,782					U
210	0301112F	Nuclear Planning and Execution System (NPES)	07	31,576	15,120					U
211	0301113F	Cyber Security Intelligence Support	07		5,224					U
218	0301401F	Air Force Space and Cyber Non-Traditional ISR for Battlespace Awareness	07	1,404	2,463					U
219	0302015F	E-4B National Airborne Operations Center (NAOC)	07	3,940	26,331					U

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Line	Program Element No Number	Item -----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
196	0207610F	Battlefield Abn Comm Node (BACN)	07		32,008		U
197	0207697F	Distributed Training and Exercises	07		4,007	4,628	U
198	0208006F	Mission Planning Systems	07		96,057	99,214	U
199	0208007F	Tactical Deception	07		14,338	17,074	U
200	0208064F	OPERATIONAL HQ - CYBER	07		2,115	2,347	U
201	0208087F	Distributed Cyber Warfare Operations	07		72,487	76,592	U
202	0208088F	AF Defensive Cyberspace Operations	07		18,449	8,367	U
203	0208097F	Joint Cyber Command and Control (JCC2)	07		79,079	80,740	U
204	0208099F	Unified Platform (UP)	07		91,893	107,548	U
208	0208288F	Intel Data Applications	07		493	1,065	U
209	0301025F	GeoBase	07		2,782	2,928	U
210	0301112F	Nuclear Planning and Execution System (NPES)	07		15,120		U
211	0301113F	Cyber Security Intelligence Support	07		5,224	8,972	U
218	0301401F	Air Force Space and Cyber Non-Traditional ISR for Battlespace Awareness	07		2,463	3,069	U
219	0302015F	E-4B National Airborne Operations Center (NAOC)	07		26,331	25,701	U

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220	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07	38,298	58,165					U
221	0303140F	Information Systems Security Program	07	9,592	8,032					U
222	0303142F	Global Force Management - Data Initiative	07	1,294	452					U
223	0303248F	All Domain Common Platform	07		64,000					U
224	0303260F	Joint Military Deception Initiative	07							U
226	0304260F	Airborne SIGINT Enterprise	07	117,859	93,546					U
227	0304310F	Commercial Economic Analysis	07	3,887	3,770					U
230	0305015F	C2 Air Operations Suite - C2 Info Services	07							U
231	0305020F	CCMD Intelligence Information Technology	07	1,646	1,663					U
232	0305022F	ISR Modernization & Automation Dvmt (IMAD)	07	19,230	15,888					U
233	0305099F	Global Air Traffic Management (GATM)	07	4,133	4,672					U
234	0305103F	Cyber Security Initiative	07	368	290					U
235	0305111F	Weather Service	07	34,618	39,228					U
236	0305114F	Air Traffic Control, Approach, and Landing System (ATCALs)	07	5,729	15,749					U

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Line	Program Element No Number	Item -----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
220	0303131F	Minimum Essential Emergency Communications Network (MEECN)	07		58,165	41,171	U
221	0303140F	Information Systems Security Program	07		8,032	70,582	U
222	0303142F	Global Force Management - Data Initiative	07		452		U
223	0303248F	All Domain Common Platform	07		64,000		U
224	0303260F	Joint Military Deception Initiative	07			2,588	U
226	0304260F	Airborne SIGINT Enterprise	07		93,546	108,528	U
227	0304310F	Commercial Economic Analysis	07		3,770	4,542	U
230	0305015F	C2 Air Operations Suite - C2 Info Services	07			8,097	U
231	0305020F	CCMD Intelligence Information Technology	07		1,663	1,751	U
232	0305022F	ISR Modernization & Automation Dvmt (IMAD)	07		15,888	13,138	U
233	0305099F	Global Air Traffic Management (GATM)	07		4,672	4,895	U
234	0305103F	Cyber Security Initiative	07		290	91	U
235	0305111F	Weather Service	07		39,228	11,716	U
236	0305114F	Air Traffic Control, Approach, and Landing System (ATCALs)	07		15,749	8,511	U

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Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line	Program Element No Number	Item -----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
237	0305116F	Aerial Targets	07	438	1,528					U
240	0305128F	Security and Investigative Activities	07	415	223					U
241	0305146F	Defense Joint Counterintelligence Activities	07	4,881	8,733					U
243	0305179F	Integrated Broadcast Service (IBS)	07	8,848	21,335					U
244	0305202F	Dragon U-2	07	36,593	35,846					U
245	0305206F	Airborne Reconnaissance Systems	07	133,247	108,291					U
246	0305207F	Manned Reconnaissance Systems	07	14,679	14,799					U
247	0305208F	Distributed Common Ground/Surface Systems	07	14,126	24,568					U
248	0305220F	RQ-4 UAV	07	163,278	83,124					U
249	0305221F	Network-Centric Collaborative Targeting	07	15,022	17,224					U
250	0305238F	NATO AGS	07	36,664	19,473					U
251	0305240F	Support to DCGS Enterprise	07	33,486	40,421					U
252	0305600F	International Intelligence Technology and Architectures	07	13,603	14,473					U
253	0305881F	Rapid Cyber Acquisition	07	4,098	4,326					U
254	0305984F	Personnel Recovery Command & Ctrl (PRC2)	07	2,122	2,567					U

R-123PBP: FY 2023 President's Budget (Total Base Published Version), as of March 25, 2022 at 15:49:52

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Department of the Air Force  
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Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line No	Program Element Number	Item	Act	FY 2022 Total Supplemental Enactment	FY 2022 Total Enactment	FY 2023 Request	Se
--	-----	----	---	-----	-----	-----	-
237	0305116F	Aerial Targets	07		1,528	1,365	U
240	0305128F	Security and Investigative Activities	07		223	223	U
241	0305146F	Defense Joint Counterintelligence Activities	07		8,733	8,328	U
243	0305179F	Integrated Broadcast Service (IBS)	07		21,335	22,123	U
244	0305202F	Dragon U-2	07		35,846	20,170	U
245	0305206F	Airborne Reconnaissance Systems	07		108,291	55,048	U
246	0305207F	Manned Reconnaissance Systems	07		14,799	14,590	U
247	0305208F	Distributed Common Ground/Surface Systems	07		24,568	26,901	U
248	0305220F	RQ-4 UAV	07		83,124	68,801	U
249	0305221F	Network-Centric Collaborative Targeting	07		17,224	17,564	U
250	0305238F	NATO AGS	07		19,473	826	U
251	0305240F	Support to DCGS Enterprise	07		40,421	28,774	U
252	0305600F	International Intelligence Technology and Architectures	07		14,473	15,036	U
253	0305881F	Rapid Cyber Acquisition	07		4,326	3,739	U
254	0305984F	Personnel Recovery Command & Ctrl (PRC2)	07		2,567	2,702	U

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Line	Program Element No Number	Item ----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
255	0307577F	Intelligence Mission Data (IMD)	07	6,266	6,169					U
256	0401115F	C-130 Airlift Squadron	07	48,698	12,552					U
257	0401119F	C-5 Airlift Squadrons (IF)	07	22,742	17,507					U
258	0401130F	C-17 Aircraft (IF)	07	11,653	16,360					U
259	0401132F	C-130J Program	07	6,179	24,112					U
260	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07	4,949	5,540					U
261	0401218F	KC-135s	07	4,583	3,564					U
262	0401318F	CV-22	07	17,823	17,189					U
263	0408011F	Special Tactics / Combat Control	07	7,457	6,640					U
264	0708055F	Maintenance, Repair & Overhaul System	07	20,422	26,921					U
265	0708610F	Logistics Information Technology (LOGIT)	07	32,122	11,071					U
266	0708611F	Support Systems Development	07	10,318						U
267	0804743F	Other Flight Training	07	1,281	5,999					U
268	0808716F	Other Personnel Activities	07		5,000					U
269	0901202F	Joint Personnel Recovery Agency	07	2,019	1,841					U
270	0901218F	Civilian Compensation Program	07	3,093	3,560					U
271	0901220F	Personnel Administration	07	1,536	3,368					U

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Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line	Program Element No Number	Item ----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
255	0307577F	Intelligence Mission Data (IMD)	07		6,169	6,332	U
256	0401115F	C-130 Airlift Squadron	07		12,552	407	U
257	0401119F	C-5 Airlift Squadrons (IF)	07		17,507	6,100	U
258	0401130F	C-17 Aircraft (IF)	07		16,360	25,387	U
259	0401132F	C-130J Program	07		24,112	11,060	U
260	0401134F	Large Aircraft IR Countermeasures (LAIRCM)	07		5,540	2,909	U
261	0401218F	KC-135s	07		3,564	12,955	U
262	0401318F	CV-22	07		17,189	10,121	U
263	0408011F	Special Tactics / Combat Control	07		6,640	6,297	U
264	0708055F	Maintenance, Repair & Overhaul System	07		26,921	19,892	U
265	0708610F	Logistics Information Technology (LOGIT)	07		11,071	5,271	U
266	0708611F	Support Systems Development	07				U
267	0804743F	Other Flight Training	07		5,999	2,214	U
268	0808716F	Other Personnel Activities	07		5,000		U
269	0901202F	Joint Personnel Recovery Agency	07		1,841	2,164	U
270	0901218F	Civilian Compensation Program	07		3,560	4,098	U
271	0901220F	Personnel Administration	07		3,368	3,191	U

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Line	Program Element No Number	Item -----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
272	0901226F	Air Force Studies and Analysis Agency	07	1,151	1,248					U
273	0901538F	Financial Management Information Systems Development	07	6,740	4,852					U
274	0901554F	Defense Enterprise Acntng and Mgt Sys (DEAMS)	07	39,628	54,400					U
275	1201921F	Service Support to STRATCOM - Space Activities	07	991						U
276	1202140F	Service Support to SPACECOM Activities	07	8,983	6,737					U
9999	9999999999	Classified Programs		14,909,669	17,011,053					U
		Operational Systems Development		20,022,756	23,240,309					
278	0608158F	Strategic Mission Planning and Execution System - Software Pilot Program	08							U
279	0608410F	Air & Space Operations Center (AOC) - Software Pilot Program	08							U
280	0608920F	Defense Enterprise Accounting and Management System (DEAMS) - Software Pilot Pro	08							U
281	0208087F	Distributed Cyber Warfare Operations	08							U
282	0308605F	Air Force Defensive Cyber Systems (AFDCS) - Software Pilot Program	08							U

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Department of the Air Force  
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Line	Program Element No Number	Item -----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
272	0901226F	Air Force Studies and Analysis Agency	07		1,248	899	U
273	0901538F	Financial Management Information Systems Development	07		4,852	5,421	U
274	0901554F	Defense Enterprise Acntng and Mgt Sys (DEAMS)	07		54,400		U
275	1201921F	Service Support to STRATCOM - Space Activities	07				U
276	1202140F	Service Support to SPACECOM Activities	07		6,737	13,766	U
9999	9999999999	Classified Programs			17,011,053	17,240,641	U
		Operational Systems Development			23,240,309	23,090,569	
278	0608158F	Strategic Mission Planning and Execution System - Software Pilot Program	08			100,167	U
279	0608410F	Air & Space Operations Center (AOC) - Software Pilot Program	08			177,827	U
280	0608920F	Defense Enterprise Accounting and Management System (DEAMS) - Software Pilot Pro	08			136,202	U
281	0208087F	Distributed Cyber Warfare Operations	08			37,346	U
282	0308605F	Air Force Defensive Cyber Systems (AFDCS) - Software Pilot Program	08			240,926	U

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Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line	Program Element No Number	Item -----	Act ---	FY 2021 (Base + OCO) -----	FY 2022 Less Supplementals Enactment -----	FY 2022 Division B Division C P.L.117-43 Enactment* -----	FY 2022 Division B P.L.117-70 Enactment** -----	FY 2022 Division A P.L. 117-86 Enactment*** -----	FY 2022 Division N P.L. 117-103 Enactment**** -----	S e c -
283	0308606F	All Domain Common Platform (ADCP) - Software Pilot Program	08							U
284	0308607F	Air Force Weather Programs - Software Pilot Program	08							U
285	0308608F	Electronic Warfare Integrated Reprogramming (EWIR) - Software Pilot Program	08							U
		Software and Digital Technology Pilot Progr								
Total Research, Development, Test & Eval, AF				36,022,139	41,592,913				47,500	

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Appropriation: 3600F Research, Development, Test &amp; Eval, AF

Line	Program Element No Number	Item -----	Act ---	FY 2022 Total Supplemental Enactment -----	FY 2022 Total Enactment -----	FY 2023 Request -----	S e c -
283	0308606F	All Domain Common Platform (ADCP) - Software Pilot Program	08			190,112	U
284	0308607F	Air Force Weather Programs - Software Pilot Program	08			58,063	U
285	0308608F	Electronic Warfare Integrated Reprogramming (EWIR) - Software Pilot Program	08			5,794	U
		Software and Digital Technology Pilot Progr		-----	-----	946,437	
				-----	-----	-----	
		Total Research, Development, Test & Eval, AF		47,500	41,640,413	44,134,301	

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	FY 2021 (Base + OCO)	FY 2022 Less Supplementals Enactment	FY 2022 Division B Division C P.L.117-43 Enactment*	FY 2022 Division B P.L.117-70 Enactment**	FY 2022 Division A P.L. 117-86 Enactment***	FY 2022 Division N P.L. 117-103 Enactment****
Summary Recap of Budget Activities -----						
Applied Research	214,494	286,505				
Advanced Technology Development		238,584				
Advanced Component Development & Prototypes	1,335,818	1,598,560				
System Development & Demonstration	3,638,636	3,167,810				
Management Support	537,965	471,142				
Operational System Development	4,624,888	5,680,275				
Software & Digital Technology Pilot Programs	155,067	154,529				
Total Research, Development, Test & Evaluation	10,506,868	11,597,405				
Summary Recap of FYDP Programs -----						
Research and Development						
Space	6,969,975	7,034,096				
Classified Programs	3,536,893	4,563,309				
Total Research, Development, Test & Evaluation	10,506,868	11,597,405				

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	FY 2022 Total Supplemental Enactment	FY 2022 Total Enactment	FY 2023 Request
Summary Recap of Budget Activities -----			
Applied Research		286,505	243,737
Advanced Technology Development		238,584	564,215
Advanced Component Development & Prototypes		1,598,560	2,992,458
System Development & Demonstration		3,167,810	5,335,659
Management Support		471,142	424,943
Operational System Development		5,680,275	6,103,307
Software & Digital Technology Pilot Programs		154,529	155,053
Total Research, Development, Test & Evaluation		11,597,405	15,819,372
Summary Recap of FYDP Programs -----			
Research and Development			816
Space		7,034,096	10,845,198
Classified Programs		4,563,309	4,973,358
Total Research, Development, Test & Evaluation		11,597,405	15,819,372

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Date: April 2022

Department of the Air Force  
TOTAL CIVILIAN PERSONNEL COSTS  
FY 2023 Enactment President's Budget  
(FY 2021)

	a Begin Strength	b End Strength	c FTEs	d Basic Comp	e Overtime Pay	f Holiday Pay	g Other O.C.11	h Total Variables
Direct Funded Personnel (includes OC 13)	19,660	17,831	19,354	2,800,044			4,174	4,174
D1. US Direct Hire (USDH)								
D1a. Senior Executive Schedule	19,658	17,829	19,352	2,799,720			4,174	4,174
D1b. General Schedule	13	13	13	2,005			45	45
D1c. Special Schedule	16,310	14,787	16,049	2,580,411			4,129	4,129
D1d. Wage System								
D1e. Highly Qualified Experts	3,335	3,029	3,290	217,304				
D1f. Other								
D2. Direct Hire Program Foreign Nationals (DHFN)								
D3. Total Direct Hire	19,658	17,829	19,352	2,799,720			4,174	4,174
D4. Indirect Hire Foreign Nationals (IHFN)	2	2	2	324				
Subtotal - Direct Funded (excludes OC 13)	19,660	17,831	19,354	2,800,044			4,174	4,174
D5. Other Object Class 13 Benefits								
D5a. USDH - Benefits for Former Employees								
D5b. DHFN - Benefits for Former Employees								
D5c. Voluntary Separation Incentive Pay (VSIP)								
D5d. Foreign National Separation Liability Accrual								
Reimbursable Funded Personnel (includes OC 13)	4,026	4,141	2,449	351,805				
R1. US Direct Hire (USDH)								
R1a. Senior Executive Schedule	4,026	4,141	2,449	351,805				
R1b. General Schedule								
R1c. Special Schedule	4,026	4,141	2,449	351,805				
R1d. Wage System								
R1e. Highly Qualified Experts								
R1f. Other								
R2. Direct Hire Program Foreign Nationals (DHFN)								
R3. Total Direct Hire	4,026	4,141	2,449	351,805				
R4. Indirect Hire Foreign Nationals (IHFN)								
Subtotal - Reimbursable Funded (excludes OC 13)	4,026	4,141	2,449	351,805				
R5. Other Object Class 13 Benefits								
R5a. USDH - Benefits for Former Employees								
R5b. DHFN - Benefits for Former Employees								
R5c. Voluntary Separation Incentive Pay (VSIP)								
R5d. Foreign National Separation Liability Accrual								

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Date: April 2022

Department of the Air Force  
TOTAL CIVILIAN PERSONNEL COSTS  
FY 2023 Enactment President's Budget  
(FY 2021)

	a Begin Strength	b End Strength	c FTEs	d Basic Comp	e Overtime Pay	f Holiday Pay	g Other O.C.11	h Total Variables
Total Funded Personnel (includes OC 13)	23,686	21,972	21,803	3,151,849			4,174	4,174
T1. US Direct Hire (USDH)								
T1a. Senior Executive Schedule	23,684	21,970	21,801	3,151,525			4,174	4,174
T1b. General Schedule	13	13	13	2,005			45	45
T1c. Special Schedule	20,336	18,928	18,498	2,932,216			4,129	4,129
T1d. Wage System								
T1e. Highly Qualified Experts	3,335	3,029	3,290	217,304				
T1f. Other								
T2. Direct Hire Program Foreign Nationals (DHFN)								
T3. Total Direct Hire	23,684	21,970	21,801	3,151,525			4,174	4,174
T4. Indirect Hire Foreign Nationals (IHFN)	2	2	2	324				
Subtotal - Total Funded (excludes OC 13)	23,686	21,972	21,803	3,151,849			4,174	4,174
T5. Other Object Class 13 Benefits								
T5a. USDH - Benefits for Former Employees								
T5b. DHFN - Benefits for Former Employees								
T5c. Voluntary Separation Incentive Pay (VSIP)								
T5d. Foreign National Separation Liability Accrual								

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Department of the Air Force  
TOTAL CIVILIAN PERSONNEL COSTS  
FY 2023 Enactment President's Budget  
(FY 2022)

	a Begin Strength	b End Strength	c FTES	d Basic Comp	e Overtime Pay	f Holiday Pay	g Other O.C.11	h Total Variables
Direct Funded Personnel (includes OC 13)	17,831	18,218	18,325	1,930,128	6,499	1,915	53,152	61,566
D1. US Direct Hire (USDH)								
D1a. Senior Executive Schedule	17,829	18,216	18,323	1,929,916	6,499	1,915	53,152	61,566
D1b. General Schedule	13	13	13	2,005			45	45
D1c. Special Schedule	14,787	15,110	15,172	1,701,929	1,988	1,216	39,891	43,095
D1d. Wage System								
D1e. Highly Qualified Experts	3,029	3,093	3,138	225,882	4,511	699	13,216	18,426
D1f. Other								
D2. Direct Hire Program Foreign Nationals (DHFN)								
D3. Total Direct Hire	17,829	18,216	18,323	1,929,816	6,499	1,915	53,152	61,566
D4. Indirect Hire Foreign Nationals (IHFN)	2	2	2	312				
Subtotal - Direct Funded (excludes OC 13)	17,831	18,218	18,325	1,930,128	6,499	1,915	53,152	61,566
D5. Other Object Class 13 Benefits								
D5a. USDH - Benefits for Former Employees								
D5b. DHFN - Benefits for Former Employees								
D5c. Voluntary Separation Incentive Pay (VSIP)								
D5d. Foreign National Separation Liability Accrual								
Reimbursable Funded Personnel (includes OC 13)	4,141	4,153	4,096	352,124	406	248	8,152	8,806
R1. US Direct Hire (USDH)								
R1a. Senior Executive Schedule	4,141	4,153	4,096	352,124	406	248	8,152	8,806
R1b. General Schedule								
R1c. Special Schedule	4,141	4,153	4,096	352,124	406	248	8,152	8,806
R1d. Wage System								
R1e. Highly Qualified Experts								
R1f. Other								
R2. Direct Hire Program Foreign Nationals (DHFN)								
R3. Total Direct Hire	4,141	4,153	4,096	352,124	406	248	8,152	8,806
R4. Indirect Hire Foreign Nationals (IHFN)								
Subtotal - Reimbursable Funded (excludes OC 13)	4,141	4,153	4,096	352,124	406	248	8,152	8,806
R5. Other Object Class 13 Benefits								
R5a. USDH - Benefits for Former Employees								
R5b. DHFN - Benefits for Former Employees								
R5c. Voluntary Separation Incentive Pay (VSIP)								
R5d. Foreign National Separation Liability Accrual								

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Department of the Air Force  
TOTAL CIVILIAN PERSONNEL COSTS  
FY 2023 Enactment President's Budget  
(FY 2022)

	a Begin Strength	b End Strength	c FTEs	d Basic Comp	e Overtime Pay	f Holiday Pay	g Other O.C.11	h Total Variables
Total Funded Personnel (includes OC 13)	21,972	22,371	22,421	2,282,252	6,905	2,163	61,304	70,372
T1. US Direct Hire (USDH)								
T1a. Senior Executive Schedule	21,970	22,369	22,419	2,281,940	6,905	2,163	61,304	70,372
T1b. General Schedule	13	13	13	2,005			45	45
T1c. Special Schedule	18,928	19,263	19,268	2,054,053	2,394	1,464	48,043	51,901
T1d. Wage System								
T1e. Highly Qualified Experts	3,029	3,093	3,138	225,882	4,511	699	13,216	18,426
T1f. Other								
T2. Direct Hire Program Foreign Nationals (DHFN)								
T3. Total Direct Hire	21,970	22,369	22,419	2,281,940	6,905	2,163	61,304	70,372
T4. Indirect Hire Foreign Nationals (IHFN)	2	2	2	312				
Subtotal - Total Funded (excludes OC 13)	21,972	22,371	22,421	2,282,252	6,905	2,163	61,304	70,372
T5. Other Object Class 13 Benefits								
T5a. USDH - Benefits for Former Employees								
T5b. DHFN - Benefits for Former Employees								
T5c. Voluntary Separation Incentive Pay (VSIP)								
T5d. Foreign National Separation Liability Accrual								

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Department of the Air Force  
TOTAL CIVILIAN PERSONNEL COSTS  
FY 2023 Enactment President's Budget  
(FY 2023)

Date: April 2022

	a Begin Strength	b End Strength	c FTEs	d Basic Comp	e Overtime Pay	f Holiday Pay	g Other O.C.11	h Total Variables
Direct Funded Personnel (includes OC 13)	18,218	19,087	18,944	2,572,425	6,505	1,916	53,186	61,607
D1. US Direct Hire (USDH)								
D1a. Senior Executive Schedule	18,216	19,085	18,942	2,572,107	6,505	1,916	53,186	61,607
D1b. General Schedule	13	13	13	2,005			45	45
D1c. Special Schedule	15,110	15,816	15,673	2,344,011	1,989	1,217	39,925	43,131
D1d. Wage System								
D1e. Highly Qualified Experts	3,093	3,256	3,256	226,091	4,516	699	13,216	18,431
D1f. Other								
D2. Direct Hire Program Foreign Nationals (DHFN)								
D3. Total Direct Hire	18,216	19,085	18,942	2,572,107	6,505	1,916	53,186	61,607
D4. Indirect Hire Foreign Nationals (IHFN)	2	2	2	318				
Subtotal - Direct Funded (excludes OC 13)	18,218	19,087	18,944	2,572,425	6,505	1,916	53,186	61,607
D5. Other Object Class 13 Benefits								
D5a. USDH - Benefits for Former Employees								
D5b. DHFN - Benefits for Former Employees								
D5c. Voluntary Separation Incentive Pay (VSIP)								
D5d. Foreign National Separation Liability Accrual								
Reimbursable Funded Personnel (includes OC 13)	4,153	4,091	4,091	532,000	475	290	9,532	10,297
R1. US Direct Hire (USDH)								
R1a. Senior Executive Schedule	4,153	4,091	4,091	532,000	475	290	9,532	10,297
R1b. General Schedule								
R1c. Special Schedule	4,153	4,091	4,091	532,000	475	290	9,532	10,297
R1d. Wage System								
R1e. Highly Qualified Experts								
R1f. Other								
R2. Direct Hire Program Foreign Nationals (DHFN)								
R3. Total Direct Hire	4,153	4,091	4,091	532,000	475	290	9,532	10,297
R4. Indirect Hire Foreign Nationals (IHFN)								
Subtotal - Reimbursable Funded (excludes OC 13)	4,153	4,091	4,091	532,000	475	290	9,532	10,297
R5. Other Object Class 13 Benefits								
R5a. USDH - Benefits for Former Employees								
R5b. DHFN - Benefits for Former Employees								
R5c. Voluntary Separation Incentive Pay (VSIP)								
R5d. Foreign National Separation Liability Accrual								

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Date: April 2022

Department of the Air Force  
TOTAL CIVILIAN PERSONNEL COSTS  
FY 2023 Enactment President's Budget  
(FY 2023)

	a Begin Strength	b End Strength	c FTEs	d Basic Comp	e Overtime Pay	f Holiday Pay	g Other O.C.11	h Total Variables
Total Funded Personnel (includes OC 13)	22,371	23,178	23,035	3,104,425	6,980	2,206	62,718	71,904
T1. US Direct Hire (USDH)								
T1a. Senior Executive Schedule	22,369	23,176	23,033	3,104,107	6,980	2,206	62,718	71,904
T1b. General Schedule	13	13	13	2,005			45	45
T1c. Special Schedule	19,263	19,907	19,764	2,876,011	2,464	1,507	49,457	53,428
T1d. Wage System								
T1e. Highly Qualified Experts	3,093	3,256	3,256	226,091	4,516	699	13,216	18,431
T1f. Other								
T2. Direct Hire Program Foreign Nationals (DHFN)								
T3. Total Direct Hire	22,369	23,176	23,033	3,104,107	6,980	2,206	62,718	71,904
T4. Indirect Hire Foreign Nationals (IHFN)	2	2	2	318				
Subtotal - Total Funded (excludes OC 13)	22,371	23,178	23,035	3,104,425	6,980	2,206	62,718	71,904
T5. Other Object Class 13 Benefits								
T5a. USDH - Benefits for Former Employees								
T5b. DHFN - Benefits for Former Employees								
T5c. Voluntary Separation Incentive Pay (VSIP)								
T5d. Foreign National Separation Liability Accrual								



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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>											
3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	PE 0604256F / <i>Threat Simulator Development</i>											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	56.987	46.909	21.067	0.000	21.067	16.771	20.272	42.567	48.711	Continuing	Continuing
662907: <i>Electronic Combat Intel Support</i>	-	2.643	2.661	2.801	0.000	2.801	2.857	2.910	2.971	3.037	Continuing	Continuing
663321: <i>Electronic Warfare Ground Test Resources</i>	-	46.855	36.714	16.125	0.000	16.125	5.821	9.117	31.177	37.068	Continuing	Continuing
667500: <i>Foreign Materiel Acquisition/Analysis</i>	-	7.489	7.534	2.141	0.000	2.141	8.093	8.245	8.419	8.606	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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	57.620	41.909	0.000	0.000	0.000
Current President's Budget	56.987	46.909	21.067	0.000	21.067
Total Adjustments	-0.633	5.000	21.067	0.000	21.067
• 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	-0.633	0.000			
• Other Adjustments	0.000	0.000	21.067	0.000	21.067

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0604256F I Threat Simulator Development	
<p><b>Change Summary Explanation</b></p> <p>FY2022: Increase of \$5.0 million associated with Congressional add for commercial physics-based modeling and simulation technology.</p> <p>FY2023: 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.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
662907: Electronic Combat Intel Support	-	2.643	2.661	2.801	0.000	2.801	2.857	2.910	2.971	3.037	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 2021	FY 2022	FY 2023	
Title: FMOT&E									2.643	2.661	2.801	
Description: Supports Foreign Materiel Operational Test and Evaluation (FMOT&E)												
FY 2022 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 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 2022 to FY 2023 Increase/Decrease Statement: NA.												
Accomplishments/Planned Programs Subtotals									2.643	2.661	2.801	
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• RDTE 06 0605807F: Test and Evaluation Support	770.149	811.032	826.854	-	826.854	863.012	834.939	945.630	1,003.260	Continuing	Continuing	

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600 / 6				R-1 Program Element (Number/Name) PE 0604256F / Threat Simulator Development				Project (Number/Name) 662907 / Electronic Combat Intel Support				
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• RDTE 06 0605976F: Facilities Restoration and Modernization - Test and Evaluation Support	60.856	70.788	77.820	-	77.820	93.723	94.656	216.958	202.442	Continuing	Continuing	
• RDTE 06 0605978F: Facilities Sustainment - Test and Evaluation Support	29.826	30.057	31.561	-	31.561	35.065	41.224	54.190	53.417	Continuing	Continuing	
• RDTE 06 0604759F: Major T&E Investment	207.103	130.766	44.714	-	44.714	76.815	73.662	206.538	476.653	Continuing	Continuing	
Remarks												
D. Acquisition Strategy												
N/A												

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
663321: Electronic Warfare Ground Test Resources	-	46.855	36.714	16.125	0.000	16.125	5.821	9.117	31.177	37.068	Continuing	Continuing
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)

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Electronic Warfare Ground Test Resources	46.855	36.714	16.125
<b>Description:</b> 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 2023 Air Force									Date: April 2022		
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			
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023
the following EW efforts which may be accelerated or delayed due to variations in customer requirements and overall project execution.											
<b>FY 2022 Plans:</b> Continue executing development, procurement and integration of EW programs such as Red Integrated Air Defense System (Red-IADS), Electronics Warfare Test Capability Improvement Program (EWTCIP), Jammer Electronic Counter Measures (JECM) Enhancement and Integration, National RCS Test Facility (NRTF) Modernization and Measurement, and Infra-Red Countermeasure-Capability Modernization (IRCM-CM). NEWEG for J-PRIMES (NEWEG-J Phase I), CIGTF GPS NAVWAR Upgrade (CGNU), and NRTF-Capability Modernization (CM) Programs are nearing the end of their development. 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.											
<b>FY 2023 Plans:</b> Continue executing development, procurement and integration of EW programs such as Red Integrated Air Defense System (Red-IADS), Electronics Warfare Test Capability Improvement Program (EWTCIP), Jammer Electronic Counter Measures (JECM) Enhancement and Integration, 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.											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> From FY2022 to FY2023 there is a total funding decrease of \$20.6 million due to a base funding decrease of \$15.6 million associated with an AF directed reduction for higher priorities as well as a \$5.0 million decrease associated with a one-time Congressional add.											
Accomplishments/Planned Programs Subtotals									46.855	36.714	16.125
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• RDTE 06 0605807F: Test and Evaluation Support	761.307	811.032	703.736	-	703.736	747.680	719.874	902.226	956.686	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022		
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			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• RDTE 06 0605976F: Facilities Restoration and Modernization - Test and Evaluation Support	60.856	70.788	77.820	-	77.820	93.723	94.656	216.958	202.442	Continuing	Continuing
• RDTE 06 0605978F: Facilities Sustainment - Test and Evaluation Support	29.826	30.057	31.561	-	31.561	35.065	41.224	54.190	53.417	Continuing	Continuing
• RDTE 06 0604759F: Major T&E Investment	207.103	130.766	44.714	-	44.714	76.815	73.662	206.538	476.653	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
N/A											

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
667500: Foreign Materiel Acquisition/Analysis	-	7.489	7.534	2.141	0.000	2.141	8.093	8.245	8.419	8.606	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 2021	FY 2022	FY 2023	
Title: FMP									7.489	7.534	2.141	
Description: Supports USAF Foreign Materiel Program (FMP) Requirements through the acquisition and analysis of foreign materiel.												
FY 2022 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 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 2022 to FY 2023 Increase/Decrease Statement: Funding decreased by \$5.6 million for other Air Force priorities.												
Accomplishments/Planned Programs Subtotals									7.489	7.534	2.141	

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6				R-1 Program Element (Number/Name) PE 0604256F / Threat Simulator Development				Project (Number/Name) 667500 / Foreign Materiel Acquisition/Analysis				
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• RDTE 06 0605807F: Test and Evaluation Support	770.149	811.032	826.854	-	826.854	863.012	834.939	945.630	1,003.260	Continuing	Continuing	
• RDTE 06 0605976F: Facilities Restoration and Modernization - Test and Evaluation Support	60.856	70.788	77.820	-	77.820	93.723	94.656	216.958	202.442	Continuing	Continuing	
• RDTE 06 0605978F: Facilities Sustainment - Test and Evaluation Support	29.826	30.057	31.561	-	31.561	35.065	41.224	54.190	53.417	Continuing	Continuing	
• RDTE 06 0604759F: Major T&E Investment	207.103	130.766	44.714	-	44.714	76.815	73.662	206.538	476.653	Continuing	Continuing	
Remarks												
D. Acquisition Strategy												
N/A												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0604759F I Major T&E Investment							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	207.103	130.766	44.714	0.000	44.714	76.815	73.662	206.538	476.653	Continuing	Continuing
664597: AF Test Investments	-	207.103	130.766	44.714	0.000	44.714	76.815	73.662	206.538	476.653	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 412th 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0604759F / <i>Major T&amp;E Investment</i>
<p>environment while also coordinating and scheduling all US Air Force test operations at White Sands Missile Range. The 704th TG OL-AC at Wright-Patterson AFB, OH provides independent developmental T&amp;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&amp;E Range Asset Modernization, Hypersonics, Directed Energy, Cyberspace and Avionics Cyber, Autonomy, and Space Test Infrastructure.</p> <p>1) T&amp;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>6) Space Test Infrastructure refers to the development of a Space Combined Test Force and the development of technical capabilities, both terrestrial and space-based assets, in order to deploy an initial level of ability to test and evaluate the capability and resilience of DoD Space systems in a contested environment.</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 FY21 \$0.0M was expended for civilian pay expenses in this program element, and in FY22 \$0.0M is forecasted for civilian pay expenses in this program element.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0604759F I Major T&E 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.						
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	208.299	130.766	0.000	0.000	0.000	
Current President's Budget	207.103	130.766	44.714	0.000	44.714	
Total Adjustments	-1.196	0.000	44.714	0.000	44.714	
• 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	-1.196	0.000				
• Other Adjustments	0.000	0.000	44.714	0.000	44.714	
Change Summary Explanation						
FY 2021: Decrease of \$1.196 million to reflect the annual reduction for SBIR.						
FY 2023: 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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: T&E Range and Test Asset Modernization				62.229	53.273	30.629
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 2022 Plans: Continue planning and/or executing of the following programs: CRIIS Production, Network Telemetry Integration Program (NTIP) (formerly iSIS), Common Airborne Network Instrumentation System (CANIS), Modular Mission Control Room Upgrade (MMCRU), Voice Communication System Upgrade (VCSU), Improved C2 Test Operations Center (I - C2TOC), Airborne Sensor Data Correlation Project (ASDC), Improved Data Link HITLS - Gen 4 & 5, Multi-Level Security - Joint Collaborative Environment (MLS - JCE), Improve Plant Reliability and Efficiency/Transonic Aero Test Capability (IMTPC), Improve Large Model Supersonic						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0604759F <i>I Major T&amp;E Investment</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Aerodynamic Ground T&E Capability (ILMSC) [formerly Tunnel 16S Reactivation], Advanced Engine Requirements for Power and Thermal Loads, High-speed Small Engine Test Capability (HSETC) (previously ASMEC-II), and the Gulf Range Enhancement (GRE) project.  <b>FY 2023 Plans:</b> Continue planning and/or executing of the following programs: CRIIS Production, Network Telemetry Integration Program (NTIP) (formerly iSIS), Common Airborne Network Instrumentation System (CANIS), Cross Platform Data Center (CPDC), Modular Mission Control Room Upgrade (MMCRU), Multi-Level Security - Joint Collaborative Environment (MLS - JCE), Improve Plant Reliability and Efficiency/Transonic Aero Test Capability (IMTPC), and the Gulf Range Enhancement (GRE) project. Start projects such as the Next Generation Engineering Targets (OPTICAMS) and the Major cooling water capacity system upgrade at AEDC.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased to support other Air Force higher priorities.				
<b>Title:</b> Hypersonics  <b>Description:</b> 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.  The Department of Defense Test Resource Management Center (TRMC) oversees and manages all hypersonic test investment.  <b>FY 2022 Plans:</b> Continue planning and/or executing of the Imaging Improvement and Modernization Program (I2MP).  <b>FY 2023 Plans:</b> Continue planning and/or executing of the Imaging Improvement and Modernization Program (I2MP).  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to beginning phase of hypersonics investment project scheduled for FY24-FY27.		1.338	1.338	2.300
<b>Title:</b> Directed Energy/Electronic Combat  <b>Description:</b> 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.		89.033	63.450	4.235

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0604759F <i>I Major T&amp;E Investment</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>FY 2022 Plans:</b> Start of the Advanced Multispectral Development - Phase I (AMD-I) program and outfitting the JSE facilities.				
<b>FY 2023 Plans:</b> Continue Planning/Executing of the Advanced Multispectral Development - Phase I (AMD-I) program and the final year of the JSE investment phase before the program moves to sustainment.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased \$58.9 million because JSE is currently in a transition phase from investment to sustainment with funding moving to Test and Evaluation Support, PE 65807F, in FY23.				
<b>Title:</b> Cyberspace and Avionics Cyber  <b>Description:</b> 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.		9.410	12.505	7.350
<b>FY 2022 Plans:</b> Equip the cyberspace facility and continue the planning and execution of the Weapon System Cybersecurity (WSCS) Program tool development.				
<b>FY 2023 Plans:</b> Equip the cyberspace facility and continue the planning and execution of the Weapon System Cybersecurity (WSCS) Program tool development; Improved Data Link HITLS - Gen 4 & 5; and Advanced Battle Management System Test Capability (ABMS)/ Joint All Domain C2 (JADC2) Test Capability.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased to support other higher Air Force priorities				
<b>Title:</b> Autonomy  <b>Description:</b> 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.		0.200	0.200	0.200
<b>FY 2022 Plans:</b> No planned projects but limited funding is available should an opportunity arise.				
<b>FY 2023 Plans:</b>				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support				R-1 Program Element (Number/Name) PE 0604759F I Major T&E Investment								
C. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
No planned projects but limited funding is available should an opportunity arise.												
FY 2022 to FY 2023 Increase/Decrease Statement: NA												
Title: Space									44.893	0.000	0.000	
Description: Space Test Infrastructure refers to the development of a Space Combined Test Force and the development of technical capabilities, both terrestrial and space-based assets, in order to deploy an initial level of ability to test and evaluate the capability and resilience of DoD Space systems in a contested environment.												
FY 2022 Plans: Space T&E funding has been transferred to Space Force PE, 1206759SF.												
FY 2023 Plans: Space T&E funding has been transferred to Space Force PE, 1206759SF.												
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to Space T&E funding realignment to Space Force PE (-\$70.772M) and AF directed reduction for higher priorities.												
Accomplishments/Planned Programs Subtotals									207.103	130.766	44.714	
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• RDTE 06 0605807F: Test and Evaluation Support	770.149	811.032	826.854	-	826.854	863.012	834.939	945.630	1,003.260	Continuing	Continuing	
• RDTE 06 0605976F: Facilities Restoration and Modernization - Test and Evaluation Support	60.856	70.788	77.820	-	77.820	93.723	94.656	216.958	202.442	Continuing	Continuing	
• RDTE 06 0605978F: Facilities Sustainment - Test and Evaluation Support	29.826	30.057	31.561	-	31.561	35.065	41.224	54.190	53.417	Continuing	Continuing	
• RDTE 06 0604256F: Threat Simulator Development	56.987	41.909	21.067	-	21.067	16.771	20.272	42.567	48.711	Continuing	Continuing	
Remarks												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0604759F I Major T&E Investment	
E. Acquisition Strategy N/A		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0605101F I RAND Project Air Force							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	35.195	36.017	37.921	0.000	37.921	38.698	39.418	40.252	41.146	Continuing	Continuing
661110: Project Air Force	-	35.195	36.017	37.921	0.000	37.921	38.698	39.418	40.252	41.146	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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0605101F I RAND Project Air Force				
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 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)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		35.738	36.017	0.000	0.000	0.000
Current President's Budget		35.195	36.017	37.921	0.000	37.921
Total Adjustments		-0.543	0.000	37.921	0.000	37.921
• 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		-0.543	0.000	37.921	0.000	37.921
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Strategy & Doctrine				8.480	8.614	9.046
Description: Provides for continuing analytical research across a broad spectrum of aerospace issues and concerns--strategy and doctrine.						
FY 2022 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0605101F I <i>RAND Project Air Force</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Conduct analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support <b>FY 2023 Plans:</b> Will conduct analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increased for inflation.				
<b>Title:</b> Force Development <b>Description:</b> Provides analytical research across a broad spectrum of aerospace issues and concerns--force development employment. <b>FY 2022 Plans:</b> Conduct analytical research across a broad spectrum of aerospace issues and concerns--force development employment. <b>FY 2023 Plans:</b> Will conduct analytical research across a broad spectrum of aerospace issues and concerns--force development employment. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increased for inflation.		8.171	8.201	8.733
<b>Title:</b> Manpower, Personnel & Training <b>Description:</b> Provides analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training. <b>FY 2022 Plans:</b> Conduct analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training. <b>FY 2023 Plans:</b> Will conduct analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increased for inflation.		8.305	8.623	9.062
<b>Title:</b> Resource Management <b>Description:</b> Provides analytical research across a broad spectrum of aerospace issues and concerns--resource management. <b>FY 2022 Plans:</b>		8.302	8.580	8.948

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0605101F / <i>RAND Project Air Force</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Conduct analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training. <b>FY 2023 Plans:</b> Will conduct analytical research across a broad spectrum of aerospace issues and concerns--manpower, personnel and training. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increased for inflation.				
<b>Title:</b> Integrative Research/Direct Support <b>Description:</b> Provides for continuing analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support. <b>FY 2022 Plans:</b> Conduct analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support. <b>FY 2023 Plans:</b> Will conduct analytical research across a broad spectrum of aerospace issues and concerns--integrative research/direct support. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increased for inflation.		1.937	1.999	2.132
<b>Accomplishments/Planned Programs Subtotals</b>		35.195	36.017	37.921
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> N/A				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0605502F I Small Business Innovation Research							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	662.308	0.000	0.086	0.000	0.086	0.118	0.123	0.126	0.128	Continuing	Continuing
663005: Small Business Innovation Research	-	662.308	0.000	0.086	0.000	0.086	0.118	0.123	0.126	0.128	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'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 64317F (Technology Transfer) Project 646030 (AFWERX) and PE 64858F (Tech Transition Program) Project 640858 (Agility Prime) as this program improves Air Force and Space Force capabilities by connecting innovators, simplifying technology transfer, and accelerating results.

This document reflects actual FY 2021 3600 funds aligned to the SBIR/STTR program in accordance with the legislative authority to direct 3.65% of enacted funds anticipated for extramural awards to the program.

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.

Legacy funding accounts for pre-existing topics (i.e., prior to FY 2020) that either have select notices for Phase IIs or would like to release a Request For Proposal for a Phase II award. This budget allocation category will be phased out by FY 2023. Specific topics funding is dedicated for defense-focused technologies that do not have clear non-defense potential in the near term. Open Topics are an opportunity for any qualified small-business offeror to seek product-market fit within the DAF, demonstrate value to early-adopter communities, and scale their solution to meet market demand.

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 2023 Air Force				Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0605502F I Small Business Innovation Research					
B. Program Change Summary (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget		0.000	0.000	0.000	0.000	0.000	
Current President's Budget		662.308	0.000	0.086	0.000	0.086	
Total Adjustments		662.308	0.000	0.086	0.000	0.086	
• 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		662.308	0.000				
• Other Adjustments		0.000	0.000	0.086	0.000	0.086	
C. Accomplishments/Planned Programs (\$ in Millions)					FY 2021	FY 2022	FY 2023
Title: Small Business Innovation Research & Small Business Technology Transfer					662.308	0.000	0.086
Description: FY 2021 SBIR/STTR funds were allocated in the following manner: Legacy: 18% Specific Topic: 16% Open Topic: 41% Supplemental Funding Pilot Program (SFPP): 21% In FY 2021, the DAF introduced the SFPP. SFPP expands STRATFI initiative with the Tactical Funding Increase (TACFI) program. The TACFI program supports smaller scale, tactical level requirements (e.g., on-going operations at a Wing or Delta). The TACFI program allows for up to \$1.7 million of SBIR/STTR funds per effort, and may also require individual effort approval from the SBA. Given smaller amounts of supplemental funding as compared to STRATFI, TACFI requires a lower matched funding ratio at 1:1 (1 Government non-SBIR to 1 SBIR OR 1 Private to 1 SBIR) matching. Administrative: 4%							
FY 2022 Plans: FY 2022 SBIR/STTR funds are intended to be allocated as follows: Legacy: 2% Specific Topic: 35% Open Topic: 39% SFPP: 20%							

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605502F / <i>Small Business Innovation Research</i>			
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Administrative: 4%  <b><i>FY 2023 Plans:</i></b> FY 2023 SBIR/STTR funds are intended to be allocated as follows: Specific Topic: 38% Open Topic: 38% SFPP: 20% Administrative: 4%  FY 2024 SBIR/STTR funds are intended to be allocated as follows: Specific Topic: 38% Open Topic: 38% SFPP: 20% Administrative: 4%  <b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Increase of 0.086 million is a programming error that will be fixed in the enactment position				
<b>Accomplishments/Planned Programs Subtotals</b>		662.308	0.000	0.086
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> Not applicable				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0605712F I Initial Operational Test & Evaluation							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	10.407	12.582	13.926	0.000	13.926	13.873	14.137	14.430	14.750	Continuing	Continuing
660191: Initial Operational Test and Eval	-	10.407	12.582	13.926	0.000	13.926	13.873	14.137	14.430	14.750	Continuing	Continuing
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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity		R-1 Program Element (Number/Name)				
3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		PE 0605712F I Initial Operational Test & Evaluation				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	13.532	12.582	0.000	0.000	0.000	
Current President's Budget	10.407	12.582	13.926	0.000	13.926	
Total Adjustments	-3.125	0.000	13.926	0.000	13.926	
• 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	-3.125	0.000				
• SBIR/STTR Transfer	0.000	0.000				
• Other Adjustments	0.000	0.000	13.926	0.000	13.926	
Change Summary Explanation						
FY21: Reduction of \$3.125 million for higher AF priorities.						
FY23: 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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Air Systems OT&E				5.134	6.985	9.169
Description: Plan, execute and report OT&E for Air Systems						
FY 2022 Plans:						
-B-52 Commercial Engine Replacement Program (B-52 CERP): Plan for OUE						
-B-52 Radar Modernization Program (B-52 RMP): Plan for OA						
-Combat Rescue Helicopter (CRH): Conduct IOT&E						
-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): Conduct IOT&E						
-KC-46A: Conduct OA						
-MH-139: Plan for IOT&E						
-T-7A: Conduct OA						
-VC-25B: Conduct IT&E						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0605712F / <i>Initial Operational Test &amp; Evaluation</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
-Conduct other planning and operational testing for new air system programs as the requirement becomes known to AFOTEC  <b>FY 2023 Plans:</b> -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  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increased testing requirements				
<b>Title:</b> Weapons Systems OT&E  <b>Description:</b> Plan, execute and report OT&E for Weapons Systems  <b>FY 2022 Plans:</b> -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  <b>FY 2023 Plans:</b> -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  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> NA		0.733	0.453	0.406
<b>Title:</b> C4ISR Systems OT&E		3.373	4.159	3.457

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0605712F <i>I Initial Operational Test &amp; Evaluation</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Description:</b> Plan, execute and report OT&E for C4ISR Systems  <b>FY 2022 Plans:</b> -Air Force Integrated Personnel and Pay System (AFIPPS): Conduct IOT&E -Air Operations Center Weapon System Modification Program (AOC WS Mod): Conduct agile release tests -Distributed Common Ground System (DCGS): Conduct 2 OUEs -Global Aircrew Strategic Network Terminal (ASNT) Inc 2: Conduct COT -Integrated Strategic Planning and Analysis Network Increment 5 (ISPAN Inc 5): Plan for OA -Joint Cyber Command and Control (JCC2): Conduct agile release tests -Nuclear Planning and Execution System Recapitalization (NPES): Conduct OA -Survivable Airborne Operations Center (SAOC): Conduct agile release tests -Three Dimensional Expeditionary Long Range Radar (3DELRR): Conduct early involvement -Unified Platform (UP): Conduct agile release tests -Wide Area Surveillance (WAS): Conduct FOT&E -Conduct other planning and operational testing for new C4ISR programs as the requirement becomes known to AFOTEC  <b>FY 2023 Plans:</b> -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 -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  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decreased testing requirements				
<b>Title:</b> Combat Support OT&E  <b>Description:</b> Plan, execute and report OT&E for Combat Support OT&E  <b>FY 2022 Plans:</b>		1.167	0.985	0.894

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0605712F <i>I Initial Operational Test &amp; Evaluation</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> -Common Munitions Built-In Test Reprogramming Equipment Service Life Extension Program (CMBRE SLEP): Plan for 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  <b><i>FY 2023 Plans:</i></b> -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  <b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Decreased testing requirements		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Accomplishments/Planned Programs Subtotals</b>		10.407	12.582	13.926
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>          <b>E. Acquisition Strategy</b> N/A				

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>					<b>R-1 Program Element (Number/Name)</b> PE 0605807F / <i>Test and Evaluation Support</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	770.149	811.032	826.854	0.000	826.854	863.012	834.939	945.630	1,003.260	Continuing	Continuing
6606TG: <i>704th Test Group</i>	-	39.801	52.868	46.257	0.000	46.257	44.337	45.249	56.067	49.565	Continuing	Continuing
6606TS: <i>Test and Evaluation Support</i>	-	730.348	758.164	780.597	0.000	780.597	818.675	789.690	889.563	953.695	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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	<b>R-1 Program Element (Number/Name)</b> 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>B. Program Change Summary (\$ in Millions)</b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023 Base</u></b>	<b><u>FY 2023 OCO</u></b>	<b><u>FY 2023 Total</u></b>
Previous President's Budget	761.307	811.032	0.000	0.000	0.000
Current President's Budget	770.149	811.032	826.854	0.000	826.854
Total Adjustments	8.842	0.000	826.854	0.000	826.854
• 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	8.842	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	826.854	0.000	826.854

**Change Summary Explanation**

FY 2021: Increase of \$8.842 million for to support additional sustainment requirements.

FY 2023: 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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605807F / Test and Evaluation Support				Project (Number/Name) 6606TG / 704th Test Group			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
6606TG: 704th Test Group	-	39.801	52.868	46.257	0.000	46.257	44.337	45.249	56.067	49.565	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 2021	FY 2022	FY 2023
<b>Title:</b> Civ Pay	23.715	31.207	25.380
<b>Description:</b> Provide civilian pay at the 704th Test Group (TG) to support testing of DoD, other Government Agencies, foreign military sales, and commercial weapon systems. The FY23 PB provides 193 DBA workyears with an FY23 Average Work Year Cost (AWYC) of \$127.254K.			
<b>FY 2022 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605807F / <i>Test and Evaluation Support</i>	<b>Project (Number/Name)</b> 6606TG / <i>704th Test Group</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
Continue civilian pay at the 704th Test Group (TG) to support testing of DoD, other Government Agencies, foreign military sales, and commercial weapon systems.			
<b>FY 2023 Plans:</b> Continue civilian pay at the 704th Test Group (TG) to support testing of DoD, other Government Agencies, foreign military sales, and commercial weapon systems.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The 5.8M decrease from FY22 to FY23 is due an increase in work years to 193 without a corresponding increase in civ pay.			
<b>Title:</b> Non Pay		16.086	21.661
<b>Description:</b> Provide infrastructure at the 704th Test Group (TG) to support testing of DoD, other Government Agencies, foreign military sales, and commercial weapon systems.			
<b>FY 2022 Plans:</b> 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).			
<b>FY 2023 Plans:</b> 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).			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>		39.801	52.868
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
N/A			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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>			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
6606TS: <i>Test and Evaluation Support</i>	-	730.348	758.164	780.597	0.000	780.597	818.675	789.690	889.563	953.695	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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Civ Pay	159.609	352.905	346.712

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022			
Appropriation/Budget Activity 3600 / 6		R-1 Program Element (Number/Name) PE 0605807F / Test and Evaluation Support	Project (Number/Name) 6606TS / Test and Evaluation Support		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023
<p><b>Description:</b> 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. The FY23 PB provides 2,731 DBA work years. The FY23 budgeted Average Work Year Cost (AWYC) is \$127.254K.</p> <p><b>FY 2022 Plans:</b> 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><b>FY 2023 Plans:</b> 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><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The \$6.2 million decrease from FY22 to FY23 is a result of an increase in work years from 2,717 in FY22 to 2,731 in FY23 without a corresponding increase in civ pay funding.</p>					
<p><b>Title:</b> Non Pay</p> <p><b>Description:</b> 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><b>FY 2022 Plans:</b> 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><b>FY 2023 Plans:</b> 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><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The FY22 increase over FY23 is a result of \$9.4 million added to restore sustainment for NFAC, \$14.9 million to address non-pay/ non-fuel inflation, and \$8.3 million to continue hypersonic infrastructure sustainment.</p>			570.739	405.259	433.885
Accomplishments/Planned Programs Subtotals			730.348	758.164	780.597
C. Other Program Funding Summary (\$ in Millions)					
N/A					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
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>
C. Other Program Funding Summary (\$ in Millions)		
Remarks		
D. Acquisition Strategy		
N/A		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0605826F I Acq Workforce- Global Power							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	264.371	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
664127: Acq Workforce - Direct	-	264.371	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 0605826F, Acq Workforce - Global Power, Project 664127, Acq Workforce - Direct, was transferred to PE 0605828F, Acq Workforce - Global Reach, 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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0605826F I Acq Workforce- Global Power			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	270.781	0.000	0.000	0.000	0.000
Current President's Budget	264.371	0.000	0.000	0.000	0.000
Total Adjustments	-6.410	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	-6.410	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000
Change Summary Explanation In FY 2021, the \$6.410M 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 \$0.00M and was necessary to correct funds alignment for proper execution.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Acquisition Workforce - Civilian Pay	257.525	0.000	0.000	0.000	0.000
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 2022 Plans: N/A					
FY 2023 Base Plans: N/A					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: N/A					
Title: Acquisition Workforce - Non-Civilian Pay	6.846	0.000	0.000	0.000	0.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0605826F / <i>Acq Workforce- Global Power</i>				
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Base Plans:</b> N/A  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A						
<b>Accomplishments/Planned Programs Subtotals</b>		264.371	0.000	0.000	0.000	0.000
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A						
<b>Remarks</b> N/A						
<b>E. Acquisition Strategy</b> N/A						

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>					<b>R-1 Program Element (Number/Name)</b> PE 0605827F I <i>Acq Workforce- Global Vig &amp; Combat Sys</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	263.868	267.919	255.995	0.000	255.995	267.682	279.635	285.620	291.618	Continuing	Continuing
664127: <i>Acq Workforce - Direct</i>	-	263.868	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
665827: <i>Acq Workforce-Global Vig &amp; Combat Sys</i>	-	0.000	267.919	255.995	0.000	255.995	267.682	279.635	285.620	291.618	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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		PE 0605827F I Acq Workforce- Global Vig & Combat Sys			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	254.768	243.796	0.000	0.000	0.000
Current President's Budget	263.868	267.919	255.995	0.000	255.995
Total Adjustments	9.100	24.123	255.995	0.000	255.995
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	24.123			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	9.100	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	255.995	0.000	255.995
<b>Change Summary Explanation</b>					
In FY 2021, the \$9.100M 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 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605827F / Acq Workforce- Global Vig & Combat Sys				Project (Number/Name) 664127 / Acq Workforce - Direct			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
664127: Acq Workforce - Direct	-	263.868	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 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. These program elements support both civilian pay and non-pay support requirements.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Acquisition Workforce - Civilian Pay								263.768	0.000	0.000	0.000	0.000
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 2022 Plans: N/A												
FY 2023 Base Plans: N/A												
FY 2023 OCO Plans: N/A												
FY 2022 to FY 2023 Increase/Decrease Statement:												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605827F / Acq Workforce- Global Vig & Combat Sys		<b>Project (Number/Name)</b> 664127 / Acq Workforce - Direct	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A					
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Base Plans:</b> N/A  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A	0.100	0.000	0.000	0.000	0.000
<b>Accomplishments/Planned Programs Subtotals</b>	263.868	0.000	0.000	0.000	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b>					
N/A					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
665827: Acq Workforce-Global Vig & Combat Sys	-	0.000	267.919	255.995	0.000	255.995	267.682	279.635	285.620	291.618	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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Acquisition Workforce - Civilian Pay								0.000	267.819	255.895	0.000	255.895
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 2022 Plans: Fund the Global Vigilance and Combat Systems acquisition and product support workforce.												
FY 2023 Base Plans: N/A												
FY 2023 OCO Plans: N/A												
FY 2022 to FY 2023 Increase/Decrease Statement: Both the FY22 PB and FY23 PB fund 1,959 Work Years (WY). The FY22 and FY23 budgeted Average Work Year Cost (AWYC) is \$124,398 and \$130,625, respectively. The \$12.199M FY22 to FY23 increase is due to an AWYC increase of \$6,227 per WY. A \$22.223M technical adjustment was required in the FY22 Omnibus Appropriations Act to increase the FY22 funded AWYC \$11,344 per WY to \$135,742 due to the FY22 PB												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605827F / Acq Workforce- Global Vig & Combat Sys		<b>Project (Number/Name)</b> 665827 / Acq Workforce-Global Vig & Combat Sys		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
not fully funding the approved 1,959 authorizations. Another technical adjustment will be required in FY23 to increase the FY23 budgeted AWYC.						
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> Fund the Global Vigilance and Combat Systems acquisition and product support workforce.  <b>FY 2023 Base Plans:</b> N/A  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A		0.000	0.100	0.100	0.000	0.100
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	267.919	255.995	0.000	255.995
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A						
<b>Remarks</b>						
<b>D. Acquisition Strategy</b> N/A						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0605828F I Acq Workforce- Global Reach							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	164.440	429.659	457.589	0.000	457.589	477.129	497.230	507.868	518.541	Continuing	Continuing
664127: Acq Workforce - Direct	-	164.440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
665826: acq workforce-global power	-	0.000	276.365	288.806	0.000	288.806	301.039	313.764	320.475	327.213	Continuing	Continuing
665828: Acq Workforce-Global Reach	-	0.000	153.294	168.783	0.000	168.783	176.090	183.466	187.393	191.328	0.000	1,060.354
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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		PE 0605828F I Acq Workforce- Global Reach			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	157.964	435.930	0.000	0.000	0.000
Current President's Budget	164.440	429.659	457.589	0.000	457.589
Total Adjustments	6.476	-6.271	457.589	0.000	457.589
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-6.271			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	6.476	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	457.589	0.000	457.589
Change Summary Explanation					
In FY 2021, the \$6.476M 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 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605828F / Acq Workforce- Global Reach				Project (Number/Name) 664127 / Acq Workforce - Direct			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
664127: Acq Workforce - Direct	-	164.440	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 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. These program elements support both civilian pay and non-pay support requirements.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Acquisition Workforce - Civilian Pay	164.340	0.000	0.000	0.000	0.000
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b> N/A					
<b>FY 2023 Base Plans:</b> N/A					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605828F / Acq Workforce- Global Reach		<b>Project (Number/Name)</b> 664127 / Acq Workforce - Direct	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A					
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A <b>FY 2023 Base Plans:</b> N/A <b>FY 2023 OCO Plans:</b> N/A <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A	0.100	0.000	0.000	0.000	0.000
<b>Accomplishments/Planned Programs Subtotals</b>	164.440	0.000	0.000	0.000	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
N/A					
<b>D. Acquisition Strategy</b>					
N/A					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
665826: acq workforce-global power	-	0.000	276.365	288.806	0.000	288.806	301.039	313.764	320.475	327.213	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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Acquisition Workforce - Civilian Pay	0.000	270.914	283.355	0.000	283.355
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b> N/A					
<b>FY 2023 Base Plans:</b> N/A					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Both the FY22 PB and FY23 PB fund 1,933 Work Years (WY). The FY22 and FY23 budgeted Average Work Year Costs (AWYC) are \$140,152 and \$146,588, respectively. The \$12.441M FY22 to FY23 increase is due to an AWYC increase of \$6,436 per WY. A \$5.090M technical adjustment was required in the FY22 Omnibus Appropriations Act to decrease the FY22 funded AWYC \$2,633 per WY to \$137,519 due to the FY22 PB over					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605828F / Acq Workforce- Global Reach		<b>Project (Number/Name)</b> 665826 / acq workforce-global power		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
funding the approved 1,933 authorizations. Another technical adjustment will be required in FY23 to decrease the current FY23 budgeted AWYC.						
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> Fund the Global Power Systems acquisition and product support workforce and requirements related to the F-35 Fleet Management Office.  <b>FY 2023 Base Plans:</b> N/A  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A		0.000	5.451	5.451	0.000	5.451
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	276.365	288.806	0.000	288.806
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A						
<b>Remarks</b> N/A						
<b>D. Acquisition Strategy</b> N/A						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
665828: Acq Workforce-Global Reach	-	0.000	153.294	168.783	0.000	168.783	176.090	183.466	187.393	191.328	0.000	1,060.354
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Acquisition Workforce - Civilian Pay								0.000	153.194	168.683	0.000	168.683
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 2022 Plans: N/A												
FY 2023 Base Plans: N/A												
FY 2023 OCO Plans: N/A												
FY 2022 to FY 2023 Increase/Decrease Statement: Both the FY22 PB and FY23 PB fund 1,178 Work Years (WY). The FY22 and FY23 budgeted Average Work Year Costs (AWYC) are \$135,369 and \$143,194, respectively. The \$9.218M FY22 to FY23 increase is due to an AWYC increase of \$7,825 per WY.												
Title: Acquisition Workforce Non-Civilian Pay								0.000	0.100	0.100	0.000	0.100

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605828F / Acq Workforce- Global Reach		<b>Project (Number/Name)</b> 665828 / Acq Workforce-Global Reach		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Base Plans:</b> N/A  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A						
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	153.294	168.783	0.000	168.783
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A						
<b>Remarks</b>						
<b>D. Acquisition Strategy</b> N/A						

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>					<b>R-1 Program Element (Number/Name)</b> PE 0605829F / <i>Acq Workforce- Cyber, Network, &amp; Bus Sys</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	251.517	439.571	459.223	0.000	459.223	496.461	510.730	521.652	532.418	Continuing	Continuing
664127: <i>Acq Workforce - Direct</i>	-	251.517	0.000	7.257	0.000	7.257	14.895	15.213	15.533	15.533	Continuing	Continuing
665829: <i>acq workforce-cyber network &amp; bus sys</i>	-	0.000	258.732	259.263	0.000	259.263	279.312	281.578	287.602	293.780	0.000	1,660.267
665830: <i>Acq Workforce-Global Battle Mgmt</i>	-	0.000	180.839	192.703	0.000	192.703	202.254	213.939	218.517	223.105	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 2023 Air Force				Date: April 2022	
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			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	254.838	435.274	0.000	0.000	0.000
Current President's Budget	251.517	439.571	459.223	0.000	459.223
Total Adjustments	-3.321	4.297	459.223	0.000	459.223
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	4.297			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-3.321	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	459.223	0.000	459.223
Change Summary Explanation					
In FY 2021, the \$3.321M 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 \$0.00M and was necessary to correct funds alignment for proper execution.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605829F / Acq Workforce- Cyber, Netw ork, & Bus Sys				Project (Number/Name) 664127 / Acq Workforce - Direct			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
664127: Acq Workforce - Direct	-	251.517	0.000	7.257	0.000	7.257	14.895	15.213	15.533	15.533	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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Acquisition Workforce - Civilian Pay								219.661	0.000	7.257	0.000	7.257
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 2022 Plans: N/A												
FY 2023 Base Plans: N/A												
FY 2023 OCO Plans: N/A												
FY 2022 to FY 2023 Increase/Decrease Statement:												

## UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605829F / Acq Workforce- Cyber, Network, & Bus Sys	<b>Project (Number/Name)</b> 664127 / Acq Workforce - Direct			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
The FY23 PB erroneously aligned \$7.257M in PE 0605829F, Project 664127, Acq Workforce - Direct. A FY23 Technical Adjustment will be required to realign the funding to the correct Project, 665829, Acq Workforce - Cyber, Network, & Bus Sys, within PE 0605829F. The \$7.257M increase funds an additional 104 authorizations for the Chief of Staff of the Air Force Innovation program. As the new positions will not be fully encumbered the entire FY, the FY23 PB provides one half year of equivalent WYs (51) at an AWYC of \$142,294.					
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay <b>Description:</b> 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. <b>FY 2022 Plans:</b> N/A <b>FY 2023 Base Plans:</b> N/A <b>FY 2023 OCO Plans:</b> N/A <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A					
<b>Accomplishments/Planned Programs Subtotals</b>		251.517	0.000	7.257	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
N/A					
<b>D. Acquisition Strategy</b>					
N/A					

## UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605829F / Acq Workforce- Cyber, Netw ork, & Bus Sys				Project (Number/Name) 665829 / acq workforce-cyber network & bus sys			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
665829: acq workforce-cyber network & bus sys	-	0.000	258.732	259.263	0.000	259.263	279.312	281.578	287.602	293.780	0.000	1,660.267
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Acquisition Workforce - Civilian Pay								0.000	246.613	247.144	0.000	247.144
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 2022 Plans: N/A												
FY 2023 Base Plans: N/A												
FY 2023 OCO Plans: N/A												
FY 2022 to FY 2023 Increase/Decrease Statement: Both the FY22 PB and FY23 PB fund 1,712 Work Years (WY). The FY22 and FY23 budgeted Average Work Year Costs (AWYC) are \$141,540 and \$144,360, respectively. The FY22 (FY23 PB) to FY23 (FY23 PB) increase of \$4.828M is due to an AWYC increase of \$2,820 per WY. A \$1.266M technical adjustment was required in the FY22 Omnibus Appropriations Act to increase the FY22 funded AWYC \$739 per WY to \$142,279												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605829F / Acq Workforce- Cyber, Netw ork, & Bus Sys		<b>Project (Number/Name)</b> 665829 / acq workforce-cyber network & bus sys		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
due to the FY22 PB under funding the approved 1,712 authorizations. Another technical adjustment will be required in FY23 to increase the current FY23 budgeted AWYC.						
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Base Plans:</b> N/A  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A		0.000	12.119	12.119	0.000	12.119
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	258.732	259.263	0.000	259.263
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A						
<b>Remarks</b>						
<b>D. Acquisition Strategy</b> N/A						

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605829F / Acq Workforce- Cyber, Netw ork, & Bus Sys				Project (Number/Name) 665830 / Acq Workforce-Global Battle Mgmt			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
665830: Acq Workforce-Global Battle Mgmt	-	0.000	180.839	192.703	0.000	192.703	202.254	213.939	218.517	223.105	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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Acquisition Workforce - Civilian Pay	0.000	180.739	192.603	0.000	192.603
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b> N/A					
<b>FY 2023 Base Plans:</b> N/A					
<b>FY 2023 OCO Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The FY22 PB funded 1,290 WYs at a budgeted AWYC of \$140,108. The FY23 PB funds 1,305 WYs at a budgeted AWYC of \$147,589. The FY22 (FY23 PB) to FY23 (FY23 PB) increase of \$11.864M is due to 15					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605829F / Acq Workforce- Cyber, Netw ork, & Bus Sys		<b>Project (Number/Name)</b> 665830 / Acq Workforce-Global Battle Mgmt		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
additional WYs (\$2.102M) and an AWYC increase of \$7,481 per WY (\$9.762M). The additional 15 WYs are due to workload transitions within the Center.						
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Base Plans:</b> N/A  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A		0.000	0.100	0.100	0.000	0.100
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	180.839	192.703	0.000	192.703
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A						
<b>Remarks</b>						
<b>D. Acquisition Strategy</b> N/A						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					PE 0605830F I Acq Workforce- Global Battle Mgmt							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	173.987	0.000	3.696	0.000	3.696	7.440	7.599	7.759	7.759	Continuing	Continuing
664127: Acq Workforce - Direct	-	173.987	0.000	3.696	0.000	3.696	7.440	7.599	7.759	7.759	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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0605830F I Acq Workforce- Global Battle Mgmt			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	177.811	0.000	0.000	0.000	0.000
Current President's Budget	173.987	0.000	3.696	0.000	3.696
Total Adjustments	-3.824	0.000	3.696	0.000	3.696
• 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	-3.824	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	3.696	0.000	3.696
Change Summary Explanation In FY 2021, the \$3.824M 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 \$0.00M and was necessary to correct funds alignment for proper execution.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Acquisition Workforce - Civilian Pay	173.887	0.000	3.696	0.000	3.696
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 2022 Plans: N/A					
FY 2023 Base Plans: N/A					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: The FY23 PB erroneously aligned \$3.696M in PE 0605830F, Acq Workforce - Global Battle Mgmt, Project 664127, Acq Workforce - Direct. A FY23 Technical Adjustment will be required to realign the funding to the					

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>			<b>R-1 Program Element (Number/Name)</b> PE 0605830F / <i>Acq Workforce- Global Battle Mgmt</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>
correct PE 0605829F, Acq Workforce - Cyber, Network, & Bus Sys, Project 665830, Acq Workforce - Global Battle Mgmt. The \$3.696M increase funds an additional 51 authorizations for the Chief of Staff of the Air Force Innovation program. As the new positions will not be fully encumbered the entire FY, the FY23 PB provides one half year of equivalent WYs (26) at an AWYC of \$142,154.					
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A <b>FY 2023 Base Plans:</b> N/A <b>FY 2023 OCO Plans:</b> N/A <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A			0.100	0.000	0.000
<b>Accomplishments/Planned Programs Subtotals</b>			173.987	0.000	3.696
<b>D. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
N/A					
<b>E. Acquisition Strategy</b>					
N/A					

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>					<b>R-1 Program Element (Number/Name)</b> PE 0605831F / <i>Acq Workforce- Capability Integration</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	227.357	263.014	229.610	0.000	229.610	205.095	157.428	160.791	164.179	Continuing	Continuing
664127: <i>Acq Workforce - Direct</i>	-	227.357	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
665829: <i>acq workforce-cyber network &amp; bus sys</i>	-	0.000	2.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
665831: <i>Acq Workforce - Capability Integration</i>	-	0.000	260.106	229.610	0.000	229.610	205.095	157.428	160.791	164.179	0.000	1,177.209

## 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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		PE 0605831F I Acq Workforce- Capability Integration			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	219.467	243.806	0.000	0.000	0.000
Current President's Budget	227.357	263.014	229.610	0.000	229.610
Total Adjustments	7.890	19.208	229.610	0.000	229.610
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	19.208			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	7.890	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	229.610	0.000	229.610
Change Summary Explanation					
In FY 2021, the \$7.890M 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 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605831F / Acq Workforce- Capability In tegration				Project (Number/Name) 664127 / Acq Workforce - Direct			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
664127: Acq Workforce - Direct	-	227.357	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 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Title: Acquisition Workforce - Civilian Pay							209.544	0.000	0.000	0.000	0.000	
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 acquisition programs throughout their life cycle.												
FY 2022 Plans: N/A												
FY 2023 Base Plans: N/A												
FY 2023 OCO Plans:												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605831F / Acq Workforce- Capability In tegration		<b>Project (Number/Name)</b> 664127 / Acq Workforce - Direct	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A					
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A <b>FY 2023 Base Plans:</b> N/A <b>FY 2023 OCO Plans:</b> N/A <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A	17.813	0.000	0.000	0.000	0.000
<b>Accomplishments/Planned Programs Subtotals</b>	227.357	0.000	0.000	0.000	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b> N/A					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
665829: acq workforce-cyber network & bus sys	-	0.000	2.908	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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Acquisition Workforce - Civilian Pay  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A	0.000	0.000	-	-	-
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay  <b>Description:</b> The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical business capabilities	0.000	2.908	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605831F / Acq Workforce- Capability In tegration		<b>Project (Number/Name)</b> 665829 / acq workforce-cyber network & bus sys	
<b><u>B. Accomplishments/Planned Programs (\$ in Millions)</u></b>				<b>FY 2021</b>	<b>FY 2022</b>
needed to oversee Cyber, Network, and Business System acquisition programs throughout their life cycle. This requirement supports non-civilian pay efforts.					
<b><i>FY 2022 Plans:</i></b> \$2.908M was erroneously placed in PE 0605831F, Project 665829, Acq Workforce - Cyber, Network, & Bus Sys, rather than PE 0605829F, Acq Workforce - Cyber, Network, & Bus Sys, Project 665829, Acq Workforce - Cyber, Network, & Bus Sys.					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> N/A					
<b>Accomplishments/Planned Programs Subtotals</b>				0.000	2.908
				-	-
<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b> N/A					
<b><u>Remarks</u></b>					
<b><u>D. Acquisition Strategy</u></b> N/A					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
665831: Acq Workforce - Capability Integration	-	0.000	260.106	229.610	0.000	229.610	205.095	157.428	160.791	164.179	0.000	1,177.209
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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Acquisition Workforce - Civilian Pay	0.000	242.193	211.697	-	211.697
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b> N/A					
<b>FY 2023 Base Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605831F / Acq Workforce- Capability In tegration	<b>Project (Number/Name)</b> 665831 / Acq Workforce - Capability Integration				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	
Both the FY22 PB and FY23 PB fund 1,476 Work Years (WY). The FY22 and FY23 budgeted Average Work Year Costs (AWYC) are \$151,074 and \$143,426, respectively. The \$11.288M FY22 to FY23 decrease is due to an AWYC decrease of \$7,648 per WY. A \$29.998M technical adjustment was required in the FY22 Omnibus Appropriations Act to increase the FY22 funded AWYC \$20,324 per WY to \$171,398 due to the FY22 PB not fully funding the approved 1,476 WYs. Another technical adjustment will be required in FY23 to increase the FY23 budgeted AWYC.						
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay						
<b>Description:</b> 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.						
<b>FY 2022 Plans:</b> N/A						
<b>FY 2023 Base Plans:</b> N/A						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A						
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	17.913	17.913	-	17.913
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A						
<b>Remarks</b>						
<b>D. Acquisition Strategy</b> N/A						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>											
3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	PE 0605832F / <i>Acq Workforce- Advanced Prgm Technology</i>											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	53.577	62.755	92.648	0.000	92.648	95.464	98.439	100.550	102.668	Continuing	Continuing
664127: <i>Acq Workforce - Direct</i>	-	53.577	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
665832: <i>Acq Workforce- Advanced Prgm Technology</i>	-	0.000	62.755	92.648	0.000	92.648	95.464	98.439	100.550	102.668	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.

<b>B. Program Change Summary (\$ in Millions)</b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023 Base</u></b>	<b><u>FY 2023 OCO</u></b>	<b><u>FY 2023 Total</u></b>
Previous President's Budget	58.477	103.041	0.000	0.000	0.000
Current President's Budget	53.577	62.755	92.648	0.000	92.648
Total Adjustments	-4.900	-40.286	92.648	0.000	92.648
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-40.286			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	-4.900	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	92.648	0.000	92.648

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605832F / Acq Workforce- Advanced Prgm Technology				Project (Number/Name) 664127 / Acq Workforce - Direct			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
664127: Acq Workforce - Direct	-	53.577	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Acquisition Workforce - Civilian Pay  <b>Description:</b> 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 acquisition programs throughout their life cycle.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A	53.477	0.000	0.000
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b>	0.100	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605832F / Acq Workforce- Advanced Prgm Technology	<b>Project (Number/Name)</b> 664127 / Acq Workforce - Direct	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
N/A			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>		53.577	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> N/A			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605832F / Acq Workforce- Advanced Prgm Technology				Project (Number/Name) 665832 / Acq Workfoce-Advanced Prgm Technology			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
665832: Acq Workfoce-Advanced Prgm Technology	-	0.000	62.755	92.648	0.000	92.648	95.464	98.439	100.550	102.668	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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Acquisition Workforce - Civilian Pay	0.000	62.655	92.648
<b>Description:</b> 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.			
<b>FY 2022 Plans:</b> Fund the Advanced Program Technology acquisition and product support workforce.			
<b>FY 2023 Plans:</b> Continue to fund the Advanced Program Technology acquisition and product support workforce.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The FY22 PB funded 429 WYs at a budgeted AWYC of \$239,956. The FY23 PB funds 427 WYs at a budgeted AWYC of \$216,974. The FY22 (FY23 PB) to FY23 (FY23 PB) decrease \$10.293M is due to a decrease of 2 WYs (\$0.480M) and an AWYC decrease of \$22,981 per WY (\$9.813M). The 2 WYs were realigned to PE 0605829F, Project 665830, due to a workload transition within the Center. A \$40.286M technical adjustment was required in the FY22 Omnibus Appropriations Act to decrease the FY22 funded AWYC \$93,907 per WY to \$146,049 due to the FY22 PB over funding the approved 427 WYs. Another technical adjustment will be required in FY23 to decrease the FY23 budgeted AWYC.			
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay	0.000	0.100	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605832F / <i>Acq Workforce- Advanced Prgm Technology</i>	<b>Project (Number/Name)</b> 665832 / <i>Acq Workfoce-Advanced Prgm Technology</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<b>Description:</b> 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.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The \$0.100M decrease from FY22 to FY23 was an administrative adjustment as non-civilian pay funding is not executed in PE 06058032F.			
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	62.755
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>   <b>D. Acquisition Strategy</b> N/A			

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>					<b>R-1 Program Element (Number/Name)</b> PE 0605833F / <i>Acq Workforce- Nuclear Systems</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	174.318	227.425	241.226	0.000	241.226	288.534	348.094	355.594	363.054	Continuing	Continuing
664127: <i>ACQ Workforce - Direct</i>	-	174.318	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	174.318
665833: <i>Acq Workforce - Nuclear Systems</i>	-	0.000	227.425	241.226	0.000	241.226	288.534	348.094	355.594	363.054	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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605833F / <i>Acq Workforce- Nuclear Systems</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	179.318	226.055	0.000	0.000	0.000
Current President's Budget	174.318	227.425	241.226	0.000	241.226
Total Adjustments	-5.000	1.370	241.226	0.000	241.226
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	1.370			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-5.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	241.226	0.000	241.226

**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.

FY21 Changes: Reprogramming's amount \$5.000M reflects Below Threshold Reprogramming (BTR) for AFLCMC workforce.

The \$15.171M CY to BY increase is due to additional authorizations (\$17.992M) with an Average Work Year Cost (AWYC) increase of \$0.001M), and a non-civilian pay decrease (\$2.821M). The increase of 134 authorizations in this program element is due to workload transition within the Centers. The CY budgeted AWYC was (\$0.150M) and the FY23 (BY) AWYC is (\$0.151M). The AWYC increased by approximately (\$0.001M) per authorization primarily due to a shift in the demographics as more personnel are retiring and being replaced with lower grade trainees and new hires. The non-civilian pay decrease is due to a FY22 (CY) HQ Management Support project completing.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605833F / Acq Workforce- Nuclear Sys tems				Project (Number/Name) 664127 / ACQ Workforce - Direct			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
664127: ACQ Workforce - Direct	-	174.318	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	174.318
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Acquisition Workforce								168.318	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 and business capabilities needed to oversee Nuclear Systems acquisition programs throughout their life cycle.												
FY 2022 Plans: N/A												
FY 2023 Base Plans: There is no amount in FY23 due to the change from BPAC 664127 to 665833 in FY22. Please see BPAC 665833 for FY 23 submission.												
FY 2023 OCO Plans:												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605833F / Acq Workforce- Nuclear Sys tems		<b>Project (Number/Name)</b> 664127 / ACQ Workforce - Direct	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A					
<b>Title:</b> AFNWC Headquarters (HQ) Management Support  <b>Description:</b> 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 oversee Nuclear Weapons acquisition programs throughout their life cycle.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Base Plans:</b> There is no amount in FY23 due to the change from BPAC 664127 to 665833 in FY22. Please see BPAC 665833 for FY 23 submission.  <b>FY 2023 OCO Plans:</b> N/A	6.000	0.000	0.000	0.000	0.000
<b>Accomplishments/Planned Programs Subtotals</b>	174.318	0.000	0.000	0.000	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
FY21-25: AFNWC Management Headquarters Support funds transitioning from 3400 O&M to 3600 RDT&E beginning FY21.					
<b>D. Acquisition Strategy</b>					
N/A					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605833F / Acq Workforce- Nuclear Systems				Project (Number/Name) 665833 / Acq Workforce - Nuclear Systems			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
665833: Acq Workforce - Nuclear Systems	-	0.000	227.425	241.226	0.000	241.226	288.534	348.094	355.594	363.054	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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Acquisition Workforce	-	218.225	234.847	-	234.847
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b> 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.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022				
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				
B. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Fund the Nuclear Systems acquisition and product support workforce. <b>FY 2023 Base Plans:</b> Fund the Nuclear Systems acquisition and product support workforce. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The \$17.992M CY to BY increase is due to 134 additional authorizations and an Average Work Year Cost (AWYC) increase (\$0.001M). The increase of 134 authorizations in this program element is due to workload transition within the Centers. The CY budgeted AWYC was (\$0.150)and the FY23 budgeted AWYC is (\$0.151M). The AWYC increased by approximately (\$0.001M) per authorization primarily due to a shift in the demographics as more personnel are separating/departing/retiring and being replaced with lower grade trainees and new hires.								
<b>Title:</b> AFNWC Headquarters (HQ) Management Support <b>Description:</b> 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. <b>FY 2022 Plans:</b> 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.  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. <b>FY 2023 Base Plans:</b> 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. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The \$2.821M CY to BY decrease is due to a FY22 (CY) HQ Management support project completing.				-	9.200	6.379	-	6.379
Accomplishments/Planned Programs Subtotals				-	227.425	241.226	-	241.226

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
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
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>D. Acquisition Strategy</b> N/A		

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>											
3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	PE 0605898F I Management HQ - R&D											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	5.424	5.537	4.347	0.000	4.347	4.535	4.638	4.734	4.833	Continuing	Continuing
664127: <i>ACQ Workforce - Direct</i>	-	5.424	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
665898: <i>Management HQ-R&amp;D</i>	-	0.000	5.537	4.347	0.000	4.347	4.535	4.638	4.734	4.833	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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	5.724	4.079	0.000	0.000	0.000
Current President's Budget	5.424	5.537	4.347	0.000	4.347
Total Adjustments	-0.300	1.458	4.347	0.000	4.347
• Congressional General Reductions	-0.010	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	1.458			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-0.300	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.010	0.000	4.347	0.000	4.347

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0605898F / Management HQ - R&D				Project (Number/Name) 664127 / ACQ Workforce - Direct			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
664127: ACQ Workforce - Direct	-	5.424	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 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Acquisition Workforce - Civilian Pay	5.324	0.000	-
<b>Description:</b> Life Cycle Management Center management headquarters civilian pay.			
<b>FY 2022 Plans:</b> N/A			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A			
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay	0.100	0.000	-
<b>Description:</b> Life Cycle Management Center management headquarters non-civilian pay.			
<b>FY 2022 Plans:</b> N/A			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	5.424	0.000	-

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0605898F / Management HQ - R&D	Project (Number/Name) 664127 / ACQ Workforce - Direct
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>D. Acquisition Strategy</b> N/A		

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
665898: Management HQ-R&D	-	0.000	5.537	4.347	0.000	4.347	4.535	4.638	4.734	4.833	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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Acquisition Workforce - Civilian Pay	0.000	5.437	4.347
<b>Description:</b> Life Cycle Management Center management headquarters civilian pay.			
<b>FY 2022 Plans:</b> civilian pay			
<b>FY 2023 Plans:</b> civilian pay			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Both the FY22 PB and FY23 PB fund 38 Work Years (WY). The FY22 and FY23 budgeted Average Work Year Costs (AWYC) are \$104,711 and \$114,395, respectively. The \$0.368M FY22 to FY23 increase is due to an AWYC increase of \$9,684 per WY. A \$1.458M technical adjustment was required in the FY22 Omnibus Appropriations Act to increase the FY22 funded AWYC \$38,368 per WY to \$143,079 due to the FY22 PB not fully funding the approved 38 WYs. Another technical adjustment will be required in FY23 to increase the FY23 budgeted AWYC.			
<b>Title:</b> Acquisition Workforce - Non-Civilian Pay	0.000	0.100	0.000
<b>Description:</b> Life Cycle Management Center management headquarters non-civilian pay.			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0605898F / <i>Management HQ - R&amp;D</i>		<b>Project (Number/Name)</b> 665898 / <i>Management HQ-R&amp;D</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>				<b>FY 2021</b>	<b>FY 2022</b>
<b><i>FY 2022 Plans:</i></b> N/A  <b><i>FY 2023 Plans:</i></b> N/A  <b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> The \$0.100M decrease from FY22 to FY23 was an administrative adjustment as non-civilian pay funding is not executed in PE 06058098F.					
<b>Accomplishments/Planned Programs Subtotals</b>				0.000	5.537
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b>					
N/A					

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>											
3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	PE 0605976F I <i>Facilities Restoration and Modernization - Test and Evaluation Support</i>											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	60.856	70.788	77.820	0.000	77.820	93.723	94.656	216.958	202.442	Continuing	Continuing
6606MC: <i>Facility Restoration and Modernization - T&amp;E</i>	-	60.856	70.788	77.820	0.000	77.820	93.723	94.656	216.958	202.442	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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	70.856	70.788	0.000	0.000	0.000
Current President's Budget	60.856	70.788	77.820	0.000	77.820
Total Adjustments	-10.000	0.000	77.820	0.000	77.820
• 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	-10.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	77.820	0.000	77.820

**Change Summary Explanation**

FY 2021: Funding decrease of \$10 million to support other Air Force Test priorities.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0605976F <i>I Facilities Restoration and Modernization - Test and Evaluation Support</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Facility restoration and modernization at the 96 TW  <b>Description:</b> Facility restoration and modernization at the 96th TW.  <b>FY 2022 Plans:</b> 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.  <b>FY 2023 Plans:</b> 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.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A.		6.673	7.686	8.164
<b>Title:</b> Facility restoration and modernization at AEDC  <b>Description:</b> Facility restoration and modernization at AEDC.  <b>FY 2022 Plans:</b> With the completion of the FY17 SLEP projects, AEDC resumes a baseline posture of addressing facility restoration and modernization across the wing such as repair and replacement of aging electrical and plumbing systems critical to test execution and installation and improvement of safety features such as fire suppression and warning systems.  <b>FY 2023 Plans:</b> With the completion of the FY17 SLEP projects, AEDC resumes a baseline posture of addressing facility restoration and modernization across the wing such as repair and replacement of aging electrical and plumbing systems critical to test execution and installation and improvement of safety features such as fire suppression and warning systems.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY23 increase of \$3.4 million is a result of an FY22 hypersonic test investment through the FYDP as well as an inflation adjustment of \$2.6 million.		48.607	54.578	60.602
<b>Title:</b> Facility restoration and modernization at 412 TW  <b>Description:</b> Facility restoration and modernization at the 412 TW.		5.576	8.524	9.054

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>						<b>R-1 Program Element (Number/Name)</b> PE 0605976F <i>I Facilities Restoration and Modernization - Test and Evaluation Support</i>					

  

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>FY 2022 Plans:</b> 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.			
<b>FY 2023 Plans:</b> 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.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A.			
<b>Accomplishments/Planned Programs Subtotals</b>	60.856	70.788	77.820

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• RDTE 06 0605807F: <i>Test and Evaluation Support</i>	770.149	811.032	826.854	-	826.854	863.012	834.939	945.630	1,003.260	Continuing	Continuing
• RDTE 06 0605978F: <i>Facilities Sustainment - Test and Evaluation Support</i>	29.826	30.057	31.561	-	31.561	35.065	41.224	54.190	53.417	Continuing	Continuing
• RDTE 06 0604256F: <i>Threat Simulator Development</i>	56.987	41.909	21.067	-	21.067	16.771	20.272	42.567	48.711	Continuing	Continuing
• RDTE 06 0604759F: <i>Major T&amp;E Investment</i>	207.103	130.766	44.714	-	44.714	76.815	73.662	206.538	476.653	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b>											
N/A.											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0605978F I Facilities Sustainment - Test and Evaluation Support							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	29.826	30.057	31.561	0.000	31.561	35.065	41.224	54.190	53.417	Continuing	Continuing
6606MR: Facility Sustainment-T&E Support	-	29.826	30.057	31.561	0.000	31.561	35.065	41.224	54.190	53.417	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 Material 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity		R-1 Program Element (Number/Name)				
3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		PE 0605978F I Facilities Sustainment - Test and Evaluation Support				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	29.826	30.057	0.000	0.000	0.000	
Current President's Budget	29.826	30.057	31.561	0.000	31.561	
Total Adjustments	0.000	0.000	31.561	0.000	31.561	
• 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	31.561	0.000	31.561	
Change Summary Explanation						
Funding increase of \$1.1 million due to inflation assumptions for Non-Pay and Non-Fuel purchases.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Facility sustainment at the 96 TW.				1.005	1.011	1.026
Description: Facility sustainment at the 96 TW.						
FY 2022 Plans:						
Continue to work through Direct Scheduled Work Orders (DSWs) within the test infrastructure.						
FY 2023 Plans:						
Continue to work through Direct Scheduled Work Orders (DSWs) within the test infrastructure.						
FY 2022 to FY 2023 Increase/Decrease Statement:						
N/A						
Title: Facility sustainment at the AEDC.				26.119	26.328	27.778
Description: Facility sustainment at the AEDC.						
FY 2022 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						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force								Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support				R-1 Program Element (Number/Name) PE 0605978F I Facilities Sustainment - Test and Evaluation Support							
C. Accomplishments/Planned Programs (\$ in Millions)								FY 2021	FY 2022	FY 2023	
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.											
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.											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increase of 1.1 million due to inflation assumptions for Non-Pay and Non-Fuel purchases.											
Title: Facility sustainment at the 412 TW.								2.702	2.718	2.757	
Description: Facility sustainment at the 412 TW.											
FY 2022 Plans: Continue sustainment of test unique infrastructure in 412 TW Electronic Warfare, Range, and other T&E facilities located at Edwards AFB, CA.											
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.											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increase of 1.1 million due to inflation assumptions for Non-Pay and Non-Fuel purchases.											
Accomplishments/Planned Programs Subtotals								29.826	30.057	31.561	
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• RDTE 06 0605807F: Test and Evaluation Support	770.149	811.032	826.854	-	826.854	863.012	834.939	945.630	1,003.260	Continuing	Continuing
• RDTE 06 0605976F: Facilities Restoration and Modernization - Test and Evaluation Support	60.856	70.788	77.820	-	77.820	93.723	94.656	216.958	202.442	Continuing	Continuing

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>						<b>R-1 Program Element (Number/Name)</b> PE 0605978F <i>I Facilities Sustainment - Test and Evaluation Support</i>					
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
			<u>FY 2023</u>	<u>FY 2023</u>	<u>FY 2023</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Complete</u>	<u>Total Cost</u>
• RDTE 06 0604256F: <i>Threat Simulator Development</i>	56.987	41.909	21.067	-	21.067	16.771	20.272	42.567	48.711	Continuing	Continuing
• RDTE 06 0604759F: <i>Major T&amp;E Investment</i>	207.103	130.766	44.714	-	44.714	76.815	73.662	206.538	476.653	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b>											
N/A											

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>					<b>R-1 Program Element (Number/Name)</b> PE 0606017F <i>I Requirements Analysis and Maturation</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	66.233	90.799	101.844	0.000	101.844	106.577	53.509	43.929	44.905	Continuing	Continuing
666157: <i>Development Planning</i>	-	19.113	22.804	13.446	0.000	13.446	13.744	14.004	14.300	14.618	Continuing	Continuing
666158: <i>INTEGRATED SIMULATION AND ANALYSIS</i>	-	47.120	67.995	88.398	0.000	88.398	92.833	39.505	29.629	30.287	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) and 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.

The FY 2023 funding request was reduced by \$22.516 million to account for the availability of prior year execution balances.

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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	<b>R-1 Program Element (Number/Name)</b> PE 0606017F <i>I Requirements Analysis and Maturation</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	68.256	85.799	0.000	0.000	0.000
Current President's Budget	66.233	90.799	101.844	0.000	101.844
Total Adjustments	-2.023	5.000	101.844	0.000	101.844
• Congressional General Reductions	0.000	-5.000			
• Congressional Directed Reductions	0.000	0.000			
• 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	-2.023	0.000			
• Other Adjustments	0.000	0.000	101.844	0.000	101.844

**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

Congressional Add Totals for all Projects

<b>FY 2021</b>	<b>FY 2022</b>
4.853	10.000
4.853	10.000
4.853	10.000

**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 FY 2023 cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0606017F / Requirements Analysis and Maturation				Project (Number/Name) 666157 / Development Planning			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
666157: Development Planning	-	19.113	22.804	13.446	0.000	13.446	13.744	14.004	14.300	14.618	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 2021	FY 2022	FY 2023	
Title: Future Capability Analyses									4.590	5.144	6.262	
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 2022 Plans:												
Continue to assess capabilities derived from future Air Force constructs, collaborating within and across Service analysis organizations as subject-matter expertise requires. Develop analytically informed warfighter capability regimes and derive tailored technology contributions. Aggregate capability elements into coarsely defined capability concepts and concepts of employment consistent with projections of Air Force missions and force mixes.												
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 2022 to FY 2023 Increase/Decrease Statement:												
FY 2023 funding increased compared to FY 2022 by \$1.118 million due to greater emphasis on early concept analysis paired with maturing operational concepts.												
Title: Concept Development									4.469	4.780	4.639	

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 6		R-1 Program Element (Number/Name) PE 0606017F / Requirements Analysis and Maturation		Project (Number/Name) 666157 / Development Planning	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> 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. 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. 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><b>FY 2022 Plans:</b> Continue to develop advanced concepts informing solutions to emerging near-term and anticipated long-term warfighter capability needs. Partner within and across Services as required to inform and hone capability desires. Augment ongoing modeling, development, and/or test activities to acquire key evidence, validate key assumptions, and validate and refine models.</p> <p><b>FY 2023 Plans:</b> 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><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY 2023 funding decreased compared to FY 2022 by \$0.141 million due to maturing operational concepts.</p>					
<p><b>Title:</b> Capability Development Strategies</p> <p><b>Description:</b> 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 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</p>			5.201	2.880	2.545

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0606017F / <i>Requirements Analysis and Maturation</i>	<b>Project (Number/Name)</b> 666157 / <i>Development Planning</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
capability performance and effectiveness. Develop recommendations for time-phased and performance-gated capability delivery, including incremental system and sub-system capabilities where appropriate.  <b>FY 2022 Plans:</b> 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. Develop prioritized recommendations for science and technology investments in the critical path of key capability enablers.  <b>FY 2023 Plans:</b> 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.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY 2023 funding decreased compared to FY 2022 by \$0.335 million due to maturing operational concepts.			
<b>Accomplishments/Planned Programs Subtotals</b>		14.260	12.804
		<b>FY 2021</b>	<b>FY 2022</b>
<b>Congressional Add:</b> Program increase - nuclear modernization analytics		4.853	10.000
<b>FY 2021 Accomplishments:</b> Conduct Congressionally - Directed Efforts			
<b>FY 2022 Plans:</b> Conduct Congressionally - Directed Efforts			
<b>Congressional Adds Subtotals</b>		4.853	10.000
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
Not Applicable			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0606017F / Requirements Analysis and Maturation				Project (Number/Name) 666158 / INTEGRATED SIMULATION AND ANALYSIS			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
666158: INTEGRATED SIMULATION AND ANALYSIS	-	47.120	67.995	88.398	0.000	88.398	92.833	39.505	29.629	30.287	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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Modeling, Simulation, Analysis, and Experimentation Ecosystem	16.995	15.905	15.018
<b>Description:</b> Develop enterprise capable, cross-domain system-of-systems modeling, simulation, and analysis capabilities to support development planning, capabilities assessment, and acquisition decisions.			
<b>FY 2022 Plans:</b> 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.			
<b>FY 2023 Plans:</b> 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,			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0606017F / <i>Requirements Analysis and Maturation</i>		<b>Project (Number/Name)</b> 666158 / <i>INTEGRATED SIMULATION AND ANALYSIS</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
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 and identify Modeling and Simulation synergies between analytic, experimentation, test, training, and planning activities in support of enterprise infrastructure.					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY 2023 funding decreased compared to FY 2022 by \$0.887 million. Funding decreased because of prior year execution balances.					
<b>Title:</b> Common Synthetic Training Environment (CSTE)			0.000	24.609	62.350
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b> Initiate activities in FY 2022 include commencement of programmatic efforts for the overall Common Synthetic Training Environment sub-project; a Common Synthetic Training Environment consortium of relevant vendors; prototype/pathfinder efforts that lay the foundation for Multi-Level Security networks, solve latency issues, and build an enduring high fidelity environment; awarding contracts for the environment and Multi-Level Security network development.					
<b>FY 2023 Plans:</b> 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.					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0606017F / Requirements Analysis and Maturation	Project (Number/Name) 666158 / INTEGRATED SIMULATION AND ANALYSIS		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
FY 2023 funding increased compared to FY 2022 by \$37.741 million. Funding increased due to the addition of major activities such as but not limited to minimal development of the Multi-Level Security network, the government owned environment				
Title: Joint Simulation Environment (JSE)  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.  FY 2022 Plans: Continue prototyping and integration of critical JSE components into a robust software environment for test, advanced training, and experimentation. Continue to integrate additional modeling capabilities for electronic warfare, weapons, and space effects into the baseline.  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).  FY 2022 to FY 2023 Increase/Decrease Statement: FY 2023 funding decreased compared to FY 2022 by \$16.473 million. Funding decreased due to maturation of the Joint Simulation Environment and to account for prior year execution balances.		26.828	24.003	7.530
Title: Simulation and Analysis Facility Support  Description: Develops real-time, high-fidelity, live-virtual-constructive modeling, simulation, and analysis capability to evaluate network-enabled warfighting capabilities, strategies, concepts of operation, tactics, emerging technologies, and human system interfaces to support and enable acquisition, test, and training.  FY 2022 Plans: Continue to upgrade and develop integrated processes, tools, simulation environments, and capabilities to support live-virtual-constructive modeling, simulation, and analysis focusing on cross-domain and multi-level security infrastructures supporting analysis, assessment, experimentation, and operational test and training infrastructures.  FY 2023 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		3.297	3.478	3.500

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0606017F / <i>Requirements Analysis and Maturation</i>	<b>Project (Number/Name)</b> 666158 / <i>INTEGRATED SIMULATION AND ANALYSIS</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
coordination with Air Force leadership. Develop prioritized recommendations for science and technology investments in the critical path of key capability enablers.			
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> FY 2023 funding increased compared to FY 2022 by \$0.022 million due to increased need for prioritized recommendations for science and technology investments.			
<b>Accomplishments/Planned Programs Subtotals</b>		47.120	67.995
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> Not Applicable			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0606398F I Management HQ - T&E							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	6.929	6.163	6.285	0.000	6.285	6.449	6.589	6.729	6.871	Continuing	Continuing
6606TS: Test and Evaluation Support	-	6.929	6.163	6.285	0.000	6.285	6.449	6.589	6.729	6.871	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).

For FY2018 and 2019, funding for AFTC management personnel was included in program 0605898F.

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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	5.774	6.163	0.000	0.000	0.000
Current President's Budget	6.929	6.163	6.285	0.000	6.285
Total Adjustments	1.155	0.000	6.285	0.000	6.285
• 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	1.155	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	6.285	0.000	6.285

**Change Summary Explanation**

FY 2021: Reprogramming increase of \$1.155 million to address a funding shortfall required to support an an average work year cost (AWYC) of \$173.22 for 40 authorizations.

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Air Force Flight Test Center Civilian Pay	6.929	6.163	6.285

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022		
<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		<b>R-1 Program Element (Number/Name)</b> PE 0606398F I Management HQ - T&E		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Description:</b> Air Force Flight Test Center management headquarters civilian pay  <b>FY 2022 Plans:</b> Air Force Flight Test Center management headquarters civilian pay  <b>FY 2023 Plans:</b> Air Force Flight Test Center management headquarters civilian pay.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> NA				
<b>Accomplishments/Planned Programs Subtotals</b>		6.929	6.163	6.285
<b>D. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b>				
N/A				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					PE 0303166F I Support to Information Operations (IO) Capabilities							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.537	0.556	0.000	0.556	0.558	0.558	0.570	0.582	0.000	3.361
666158: INTEGRATED SIMULATION AND ANALYSIS	-	0.000	0.537	0.556	0.000	0.556	0.558	0.558	0.570	0.582	0.000	3.361
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2022, PE 0303166J, Support to Information Operations (IO) Capabilities, Project Joint Information Operations Range efforts were transferred to PE 0303166F, Joint Information Operations Range, 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 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. In FY 2022, PE 0303166J, Support to Information Operations (IO) Capabilities, Project Joint Information Operations Range efforts were transferred to PE 0303166F, Joint Information Operations Range, in order to transfer ownership to the Air Force as directed by Joint Chiefs of Staff.

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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0303166F I Support to Information Operations (IO) Capabilities				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	0.000	0.537	0.000	0.000	0.000	
Current President's Budget	0.000	0.537	0.556	0.000	0.556	
Total Adjustments	0.000	0.000	0.556	0.000	0.556	
• 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	0.556	0.000	0.556	
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Joint Information Operations Range				0.000	0.537	0.556
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 2022 Plans:						
- Continue testing and evaluating new, cutting edge technologies and refining networking configurations for optimization of the JIOR						
- Continue refining network automation strategy						
FY 2023 Plans:						
- Will continue testing and evaluating new, cutting edge technologies and refining networking configurations for optimization of the JIOR						
- Will continue refining network automation strategy						
FY 2022 to FY 2023 Increase/Decrease Statement:						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0303166F I Support to Information Operations (IO) Capabilities							
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2021	FY 2022	FY 2023
Funding increased due to inflationary adjustment.												
Accomplishments/Planned Programs Subtotals										0.000	0.537	0.556
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• OPAF 03 834320: C3 Countermeasures	0.000	1.226	1.160	-	1.160	1.117	1.249	1.283	1.308	Continuing	Continuing	
Remarks												
E. Acquisition Strategy												
N/A												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0303255F I Command, Control, Communication, and Computers (C4) - STRATCOM							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	21.525	35.340	15.559	0.000	15.559	20.869	19.566	19.873	20.211	Continuing	Continuing
664620: NC3 Enterprise Center	-	21.525	35.340	15.559	0.000	15.559	20.869	19.566	19.873	20.211	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding due to a database error. Therefore, an explanation of the change between the two budget positions for FY 2023 cannot be made in a relevant manner. Funding for FY 2023 through FY 2027 has always been programmed through the FYDP; this is NOT a New Start.

FY 2022 10.0M 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).

**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 2023 Air Force				Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0303255F I Command, Control, Communication, and Computers (C4) - STRATCOM					
B. Program Change Summary (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget		21.525	25.340	0.000	0.000	0.000	
Current President's Budget		21.525	35.340	15.559	0.000	15.559	
Total Adjustments		0.000	10.000	15.559	0.000	15.559	
• Congressional General Reductions		0.000	0.000				
• Congressional Directed Reductions		0.000	0.000				
• 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		0.000	0.000				
• Other Adjustments		0.000	0.000	15.559	0.000	15.559	
Congressional Add Details (\$ in Millions, and Includes General Reductions)							
Project: 664620: NC3 Enterprise Center						FY 2021	FY 2022
Congressional Add: NC3 Enterprise Center REACH						-	10.000
Congressional Add Subtotals for Project: 664620						-	10.000
Congressional Add Totals for all Projects						-	10.000
Change Summary Explanation							
FY 2022 10.0M 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), enable federated connectivity between REACH and mission partners, and to create a secure environment for technology evaluation, assessment, demonstration, experimentation, and development.							
C. Accomplishments/Planned Programs (\$ in Millions)					FY 2021	FY 2022	FY 2023
Title: NC3 Systems Engineering and Assessments					9.133	12.252	14.526
Description: Maintain NC3 Systems Engineering and Assessment Capability							
FY 2022 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0303255F <i>I Command, Control, Communication, and Computers (C4) - STRATCOM</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- Continue to recommend plans for future NLCC capabilities</li> <li>- Perform end-to-end testing of fielded capabilities</li> <li>- Perform operational assessments of current capabilities to provide quantitative measures of ongoing system performance and operational efficiency</li> <li>- Continue to develop the NLCC Reference Architecture, its associated NLCC Roadmap, and the technical architecture patterns that will guide future solution architecture development</li> <li>- 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</li> </ul> <b>FY 2023 Plans:</b> <ul style="list-style-type: none"> <li>- Continue oversight and configuration control of the NLCC functional baseline to include NC3</li> <li>- Continue to identify NLCC capability gaps</li> <li>- Develop engineering courses of action to close those gaps</li> <li>- Continue to recommend plans for future NLCC capabilities</li> <li>- Perform end-to-end testing of fielded capabilities</li> <li>- Perform operational assessments of current capabilities to provide quantitative measures of ongoing system performance and operational efficiency</li> <li>- Continue to develop the NLCC Reference Architecture, its associated NLCC Roadmap, and the technical architecture patterns that will guide future solution architecture development</li> <li>- 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</li> <li>- Interoperability development to support trade space analysis and mission engineering support for the NC3 Enterprise Center</li> <li>- 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</li> <li>- Continue to improve and enhance previous model development, with subsequent delivery to the cloud-based digital engineering environment.</li> </ul> <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY22 to FY23 increase is to implement enterprise engineering capabilities to expedite NC3 operational, programmatic, and engineering trade-space decisions.				
<b>Title:</b> Modeling and Simulation and Enterprise Data Environment Development  <b>Description:</b> Develop or modify modeling and simulation capability and field the NC3 Enterprise Data Environment  <b>FY 2022 Plans:</b>		12.392	12.098	0.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0303255F <i>I Command, Control, Communication, and Computers (C4) - STRATCOM</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- Continue to purchase hardware and software to establish the Enterprise Data Environment</li> <li>- Continue to work with the services to modify or develop models or simulations that allow the ability to evaluate NC3 elements' performance, especially with respect to threats</li> <li>- Continue to work with the services to configure and connect models and simulations to allow a seamless environment within which the data analysts will work to clean the data, manage it, and provide visualizations</li> <li>- Further demonstrate and refine the initial mission thread and force direction messages between the airborne command nodes and the submarines</li> <li>- Further expand Global Data Integration exposure to Missile Warning and Missile Defense Programs of Record providing an improved operational picture to address SECDEF taskings</li> <li>- Work with services to add models/simulations that demonstrate a sensor-to-shooter analytical capability</li> </ul> <p><b>FY 2023 Plans:</b> N/A; STRATCOM has no funding in FY23 for this requirement.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY22 is the last year STRATCOM received funding for this requirement.</p>				
<p><b>Title:</b> Mission Assurance Defense Critical Infrastructure Program (DCIP)</p> <p><b>Description:</b> 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><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- 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.</li> <li>- Develop link-node display of systems connecting tasked missions and operational plans to mission essential tasks and critical infrastructure assets.</li> <li>- Identify vulnerabilities, and participate in risk management process for remediation and mitigation.</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- 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.</li> </ul>		0.000	0.990	1.033

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					<b>R-1 Program Element (Number/Name)</b> PE 0303255F I Command, Control, Communication, and Computers (C4) - STRATCOM						
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	
- 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.											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY22 to FY23 increase due to inflation adjustments.											
<b>Accomplishments/Planned Programs Subtotals</b>								21.525	25.340	15.559	
								<b>FY 2021</b>	<b>FY 2022</b>		
<b>Congressional Add:</b> NC3 Enterprise Center REACH  <b>FY 2022 Plans:</b> - Establish and maintain a collaborative network capability in support of the NC3 Enterprise Center (NEC) Research Engineering and Architecture Collaboration Hub (REACH). - Enable federated connectivity between REACH and mission partners. - Create a secure environment for technology evaluation, assessment, demonstration, experimentation, and development.								-	10.000		
<b>Congressional Adds Subtotals</b>								-	10.000		
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 0303255F: NC3 Enterprise Center	4.337	4.226	4.282	-	4.282	4.442	4.783	4.914	5.010	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>					<b>R-1 Program Element (Number/Name)</b> PE 0308602F / <i>ENTEPRISE INFORMATION SERVICES (EIS)</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	9.561	26.720	83.231	0.000	83.231	86.530	89.938	93.004	95.977	0.000	484.961
66ACS1: <i>ACQ and Command Support Integration</i>	-	9.561	26.720	83.231	0.000	83.231	86.530	89.938	93.004	95.977	0.000	484.961
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**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.

**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 programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY21 \$0.0M was expended for civilian pay expenses in this program element. In FY22 \$0.0M is forecasted 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.

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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0308602F I ENTERPRISE INFORMATION SERVICES (EIS)				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	9.865	28.720	0.000	0.000	0.000	
Current President's Budget	9.561	26.720	83.231	0.000	83.231	
Total Adjustments	-0.304	-2.000	83.231	0.000	83.231	
• Congressional General Reductions	0.000	0.000				
• Congressional Directed Reductions	0.000	-2.000				
• 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	-0.304	0.000				
• Other Adjustments	0.000	0.000	83.231	0.000	83.231	
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.						
In FY 2022 the Program Element took a \$2M Congressional directed reduction citing "Reduce program growth."						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Enterprise Resource Planning Consolidation				9.561	8.720	9.413
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. 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.						
FY 2022 Plans:						
- Continue to build out architecture design for moving AF ERPs to a cloud environment.						
- Continue baseline and plan for refactoring ERPs to move to a 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.						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0308602F / <i>ENTEPRISE INFORMATION SERVICES (EIS)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>- Continue cloud studies and cloud development for the three ERP programs, DEAMS, AFIPPS and MROi.</p> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Will provide access to modernized, standard, secure, and resilient IT infrastructure and platforms to support application workload and data storage.</li> <li>- Will provide access to commercial cloud offerings, and IT service support maximizing use of shared services and industry best practices.</li> <li>- Will improve Systems Agility, deliver Shared Services, increase Speed of Delivery, and improve Security.</li> <li>- Will baseline and plan for refactoring ERPs to move to an IaaS and SaaS cloud environment.</li> <li>- Will continue plan with ERPs to promote standardization and chart a path to use out-of-the-box software solutions.</li> <li>- Will continue providing common tools and services for the ERPs.</li> <li>- Will continue cloud studies and cloud development for the three ERP programs: DEAMS, AFIPPS, and MROi.</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding will support additional capabilities and improvements in FY23.</p>				
<p><b>Title:</b> Platform One</p> <p><b>Description:</b> 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.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue DevSecOps enablement efforts supporting DoD CIO priorities</li> <li>- Continue development and delivery of DevSecOps tools and services supporting enterprise transform of software capabilities to match the speed of technology and threats</li> <li>- Continue integration and evolution of enterprise zero trust architecture to provide secure and resilient DevSecOps from development to edge employment</li> </ul> <p><b>FY 2023 Plans:</b> 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.</p>		0.000	18.000	73.818

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	<b>R-1 Program Element (Number/Name)</b> PE 0308602F / <i>ENTEPRISE INFORMATION SERVICES (EIS)</i>			
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- Will continue DevSecOps enablement efforts supporting DoD CIO priorities</li> <li>- Will continue development and delivery of DevSecOps tools and services supporting enterprise transform of software capabilities to match the speed of technology and threats</li> <li>- Will continue integration and evolution of enterprise zero trust architecture to provide secure and resilient DevSecOps from development to edge employment</li> <li>- Will expand container hardening capability to higher impact levels and enhance supply chain risk mitigation of commercial and open source products.</li> </ul> <p><b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b>            Increased funding due to AF-wide adoption of Platform One as the preferred DevSecOps capability. FY23 funding brings stability to P1's core development and core services, including necessary P1 operating and facility costs, accrediting and deploying new and updated features for software developers and end-users, user authentication, connection to cloud services, DoD-wide accreditation and reciprocity, and customer training to build and accredit their own software. Increased funding ensures Platform One can provide reliable, secure, and interoperable DevSecOps services and allows cost savings through enterprise purchases.</p>				
<b>Accomplishments/Planned Programs Subtotals</b>		9.561	26.720	83.231
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> N/A				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0702806F I Acquisition and Management Support							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	12.943	37.211	24.306	0.000	24.306	25.736	7.494	7.366	10.312	0.000	125.368
66ACSI: ACQ and Command Support Integration	-	12.943	37.211	24.306	0.000	24.306	25.736	7.494	7.366	10.312	0.000	125.368

## 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 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.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	<b>R-1 Program Element (Number/Name)</b> PE 0702806F <i>I Acquisition and Management Support</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	13.384	37.211	0.000	0.000	0.000
Current President's Budget	12.943	37.211	24.306	0.000	24.306
Total Adjustments	-0.441	0.000	24.306	0.000	24.306
• 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	-0.441	0.000	24.306	0.000	24.306

**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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0702806F / Acquisition and Management Support				Project (Number/Name) 66ACSI / ACQ and Command Support Integration			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
66ACSI: ACQ and Command Support Integration	-	12.943	37.211	24.306	0.000	24.306	25.736	7.494	7.366	10.312	0.000	125.368
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 SECDEF 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Acquisition Mandates	2.782	9.759	1.246
<b>Description:</b> Supporting Congressional, SECDEF, and SECDEF mandates. Program funding provides the framework for Air Force business and acquisition.			
<b>FY 2022 Plans:</b> Continue program management and resources management oversight.			
<b>FY 2023 Plans:</b> Continue program management and resources management oversight.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decreased to support other higher priority Air Force requirements.			
<b>Title:</b> Technical and Analytical Support	2.009	1.849	1.732

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 6		<b>R-1 Program Element (Number/Name)</b> PE 0702806F / Acquisition and Management Support		<b>Project (Number/Name)</b> 66ACSI / ACQ and Command Support Integration	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> 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><b>FY 2022 Plans:</b> Continue supporting the automation of key Life Cycle Management Center (LCMC) and Space &amp; 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><b>FY 2023 Plans:</b> Continue supporting the automation of key Life Cycle Management Center (LCMC) and Space &amp; 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><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decreased to support other higher priority Air Force requirements.</p>					
<p><b>Title:</b> Associated Tool Development</p> <p><b>Description:</b> 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><b>FY 2022 Plans:</b></p>			0.746	0.788	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 6		R-1 Program Element (Number/Name) PE 0702806F / Acquisition and Management Support	Project (Number/Name) 66ACSI / ACQ and Command Support Integration		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023
Continue expansion of the integrated IT operational environment (Acquisition Application Store) to include additional Acquisition Program Office automation and additional application development. Continue assessment of appropriate tools.  <b>FY 2023 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decreased to support other higher priorities.					
<b>Title:</b> Project Management Resource Tools (PMRT)  <b>Description:</b> Upgrade enterprise PMRT tools that provide program/project resource management support to the Acquisition community.  <b>FY 2022 Plans:</b> 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.  <b>FY 2023 Plans:</b> 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.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decreased to support other higher priority Air Force requirements.			5.205	8.677	4.980
<b>Title:</b> Capabilities Integration Environment (CIE)  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> Continue support for secure, scalable environment for R&D, DT/OT, integration, exercises, experimentation, acquisition development and direct Warfighter support.  <b>FY 2023 Plans:</b>			2.001	0.938	1.148

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0702806F / <i>Acquisition and Management Support</i>	<b>Project (Number/Name)</b> 66ACSI / <i>ACQ and Command Support Integration</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
Continue support for secure, scalable environment for R&D, DT/OT, integration, exercises, experimentation, acquisition development and direct Warfighter support.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increased to support Capabilities Integration Environment requirements.			
<b>Title:</b> USAF Artificial Intelligence Accelerator at MIT		-	15.000
<b>Description:</b> 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.			
<b>FY 2022 Plans:</b> 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 and AI Education Research: Know, Apply and Lead.			
<b>FY 2023 Plans:</b> 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.			
<b>Title:</b> Development and Retention		0.200	0.200
<b>Description:</b> Supports activities to develop, manage and retain the acquisition workforce.			
<b>FY 2022 Plans:</b>			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600 / 6		R-1 Program Element (Number/Name) PE 0702806F / Acquisition and Management Support		Project (Number/Name) 66ACSI / ACQ and Command Support Integration
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Continue to perform activities to develop, manage, and retain the acquisition workforce by providing training on enhanced business and engineering processes.				
<b>FY 2023 Plans:</b> Continue to perform activities to develop, manage, and retain the acquisition workforce by providing training on enhanced business and engineering processes.				
<b>Accomplishments/Planned Programs Subtotals</b>		12.943	37.211	24.306
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
N/A				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0804731F I General Skill Training							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	1.260	1.506	0.871	0.000	0.871	1.620	1.649	1.683	1.720	Continuing	Continuing
665297: Technical Training Information Systems	-	1.260	1.506	0.871	0.000	0.871	1.620	1.649	1.683	1.720	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)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total				
Previous President's Budget				1.260	1.506	0.000	0.000	0.000				
Current President's Budget				1.260	1.506	0.871	0.000	0.871				
Total Adjustments				0.000	0.000	0.871	0.000	0.871				
• 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	0.871	0.000	0.871				
C. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
Title: Technical Training Management System (TTMS)									1.260	1.506	0.871	
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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0804731F <i>I General Skill Training</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b><i>FY 2022 Plans:</i></b> Continue TTMS development  <b><i>FY 2023 Plans:</i></b> Continue TTMS development  <b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Continue TTMS development				
<b>Accomplishments/Planned Programs Subtotals</b>		1.260	1.506	0.871
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>  <b>E. Acquisition Strategy</b> Not applicable				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>											
3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	PE 0804772F I <i>Training Developments</i>											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	0.000	2.957	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.957
665898: <i>Management HQ-R&amp;D</i>	-	0.000	2.957	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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	0.000	2.957	0.000	0.000	0.000
Current President's Budget	0.000	2.957	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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I</i> BA 6: <i>RDT&amp;E Management Support</i>		<b>R-1 Program Element (Number/Name)</b> PE 0804772F <i>I Training Developments</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Training Development <b>Description:</b> Develop training technologies, procedures, and processes to increase training effectiveness. <b>FY 2022 Plans:</b> Develop training technologies and procedures. <b>FY 2023 Plans:</b> No funding requested. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> No funding requested.		0.000	2.957	0.000
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	2.957	0.000
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A <b>Remarks</b>  <b>E. Acquisition Strategy</b> 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					<b>R-1 Program Element (Number/Name)</b> PE 0909999F I Financing for Cancelled Account Adjustments							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	1.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
664277: Financing for Canceled Account Adj	-	1.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

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><u>B. Program Change Summary (\$ in Millions)</u></b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023 Base</u></b>	<b><u>FY 2023 OCO</u></b>	<b><u>FY 2023 Total</u></b>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	1.005	0.000	0.000	0.000	0.000
Total Adjustments	1.005	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	1.005	0.000	0.000	0.000	0.000

**Change Summary Explanation**

Funds were required for payment of cancelled year validated invoices

<b><u>C. Accomplishments/Planned Programs (\$ in Millions)</u></b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023</u></b>
<b>Title:</b> Financing for Cancelled Account Adjustment	1.005	-	-
<b>Description:</b> Funds were required for payment of cancelled year validated invoices.			
<b>Accomplishments/Planned Programs Subtotals</b>	1.005	-	-

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		<b>R-1 Program Element (Number/Name)</b> PE 0909999F I Financing for Cancelled Account Adjustments
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>E. Acquisition Strategy</b> N/A		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 1001004F I International Activities							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	3.592	2.420	2.593	0.000	2.593	4.472	4.555	4.652	4.755	Continuing	Continuing
664645: International Cooperative Research & Development	-	3.592	2.420	2.593	0.000	2.593	4.472	4.555	4.652	4.755	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 500 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; bilateral and multilateral staff talks; 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 2023 Air Force				Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 1001004F I International Activities						
B. Program Change Summary (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total		
Previous President's Budget		3.592	2.420	0.000	0.000	0.000		
Current President's Budget		3.592	2.420	2.593	0.000	2.593		
Total Adjustments		0.000	0.000	2.593	0.000	2.593		
• 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	2.593	0.000	2.593		
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.								
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: International Partnership Activities				1.271	0.621	0.694	0.000	0.694
Description: Advocate, manage, and support IAC activities, goals, and objectives to build global partnerships in support of national security objectives and the National Defense Strategy (NDS). 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 2022 Plans:								
Provide management, support, and oversight 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								

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 1001004F I International Activities				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
global strategic challenges through optimization of interoperability, integration, and interdependence between coalition forces.  <b>FY 2023 Base Plans:</b> Continue to provide management, support, and oversight 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.  <b>FY 2023 OCO Plans:</b> \$0 planned for FY 2023 OCO Plans  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to increased requirements						
<b>Title:</b> International Armaments Cooperation (IAC) Agreement Activities  <b>Description:</b> Identify, develop, process, negotiate, conclude, implement, and manage an increasing number of research, development, test, and evaluation (RDT&E) bilateral and multilateral IAC Agreements that meet the goals, objectives, and mission of the DAF and DoD. IAC activities provide the SAF 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; nanotechnology; missile warning; satellite communications; 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; 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.  <b>FY 2022 Plans:</b>		1.871	1.349	1.449	0.000	1.449

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 1001004F I International Activities				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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 previous FY. New air, space, and cyber IAs will be pursued IAW the NDS.  <b>FY 2023 Base Plans:</b> Continue 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 2022. New air, space and cyber IAs will be pursued IAW the NDS.  <b>FY 2023 OCO Plans:</b> \$0 planned for FY 2023 OCO Plans  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to increased requirements						
<b>Title:</b> Engineer and Scientist Exchange Program/Administrative and Professional Exchange Program (ESEP/APEP)  <b>Description:</b> Management oversight and program execution of ESEP and APEP programs and personnel. Selects 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. All placements require IAs to be in place with partner governments.  <b>FY 2022 Plans:</b> Manage and support DAF execution of the ESEP and APEP personnel placed in foreign partner or DAF facilities.  <b>FY 2023 Base Plans:</b> Continue to manage and support DAF execution of the ESEP and APEP personnel placed in foreign partner or DAF facilities.  <b>FY 2023 OCO Plans:</b> \$0 planned for FY 2023 OCO Plans  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>		0.300	0.300	0.300	0.000	0.300

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>			<b>R-1 Program Element (Number/Name)</b> PE 1001004F <i>I International Activities</i>		

  

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A					
<b>Title:</b> Air Force Materiel Command (AFMC) <b>Description:</b> Support AFMC's IAC RDT&E activities which directly promotes international collaboration. Funds field level technical assessments and discussions that support technology identification and initial IAC development activities in increases interoperability.  <b>FY 2022 Plans:</b> Support of AFMC's ability to identify, assess, continue RDT&E activities and pursue new areas of cooperation which support interoperability and relationship building efforts with our international partners.  <b>FY 2023 Base Plans:</b> Continue support of AFMC's ability to identify, assess, continue RDT&E activities and pursue new areas of cooperation which support interoperability and relationship building efforts with our international partners.  <b>FY 2023 OCO Plans:</b> \$0 planned for FY 2023 OCO Plans  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A	0.150	0.150	0.150	0.000	0.150
<b>Accomplishments/Planned Programs Subtotals</b>	3.592	2.420	2.593	0.000	2.593

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• RDTE 06 1001004F: <i>International Activities</i>	-	0.000	0.000	-	0.000	-	-	-	-	0.000	0.000
<b>Remarks</b> There is no other program funding for the activities pursued under 1001004F International Activities.											
<b>E. Acquisition Strategy</b> 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											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support	<b>R-1 Program Element (Number/Name)</b> PE 1001004F I International Activities	
<p>these benefits only after IAC opportunities are identified, explored, assessed, developed and IAs are 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.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 1206864F I Space Test Program (STP)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
662617: Free-Flyer Spacecraft Missions	-	0.000	0.003	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 2023 Air Force				Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 1206864F I Space Test Program (STP)					
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget		0.000	0.003	0.000	0.000	0.000	
Current President's Budget		0.000	0.003	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							
Database error							
C. Accomplishments/Planned Programs (\$ in Millions)					FY 2021	FY 2022	FY 2023
Title: Payload Integration					0.000	0.003	-
Description: Integrate payloads onto spaceflight missions, including free-flyer payloads, hosted payloads, sounding rockets, experiments on the International Space Station (ISS), and commercial missions. Includes acquisition of associated spacecraft and integration hardware.							
FY 2022 Plans: N/A							
FY 2022 to FY 2023 Increase/Decrease Statement: Note: The 0.003M entry in FY 2022 is a database error.							
Title: Launch Vehicle and Launch Services					0.000	0.000	-

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 6: RDT&amp;E Management Support</i>	<b>R-1 Program Element (Number/Name)</b> PE 1206864F / <i>Space Test Program (STP)</i>			
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Description:</b> Purchase launch services, launch vehicles and launch vehicle support for free-flyer payloads, hosted payloads, sounding rockets, experiments on the ISS, and commercial spaceflight missions, and support the spaceflight worthiness and "Do No Harm" certification for Space and Missile Systems Center (SMC) and US Space Force (USSF) HQ.  <b>FY 2022 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY 2022 is a database error.				
<b>Title:</b> On Orbit Satellite Operations  <b>Description:</b> Execute first-year operations and operations support for STP-sponsored missions.  <b>FY 2022 Plans:</b> N/A - Database Error  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY 2022 is a database error.		0.000	0.000	-
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	0.003	-
<b>D. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b> 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.				
<b>E. Acquisition Strategy</b>				
N/A				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0604233F / <i>Specialized Undergraduate Flight Training</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	13.438	8.589	18.037	0.000	18.037	42.223	36.964	7.286	7.446	Continuing	Continuing
674101: <i>Undergraduate Remotely Piloted Aircraft Training</i>	-	3.514	3.894	0.857	0.000	0.857	0.875	0.891	0.909	0.930	Continuing	Continuing
676035: <i>T-6 Operational System Development</i>	-	1.560	0.223	7.585	0.000	7.585	39.085	35.929	6.231	6.369	Continuing	Continuing
676037: <i>T-38 Operational System Development</i>	-	8.364	4.472	9.595	0.000	9.595	2.263	0.144	0.146	0.147	Continuing	Continuing

**Note**

This program, BA 7, PE 0604233F, project 676035, T-6 Avionics Modernization [Avionics Replacement Program (ARP)], is a new start.

**A. Mission Description and Budget Item Justification**

Supports Air Education and Training Command's 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 & Materiel 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 Air Education and Training Command (AETC) as an advanced trainer in Specialized Undergraduate Pilot Training and Introduction to Fighter Fundamentals, and by Air Force Materiel Command (AFMC) as a test bed for fighter-type aircraft capability. T-38A/B aircraft are used by Air Combat Command (ACC) 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 (AFGSC) as a companion trainer for B-2 operational units. There are currently 497 active T-38s in the Air Force inventory (53 T-38A, six (6) AT-38B and 438 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0604233F I Specialized Undergraduate Flight Training				
The total cost of the T-6 E OBOGS Middle Tier of Acquisition effort is \$64.72 million, including RDT&E and procurement of prototype units. The T-6 E OBOGS is fully funded across the Future Years Defense Program.						
The total cost of the T-38 Canopy Middle Tier of Acquisition effort is \$6.3 million, including RDT&E and procurement of prototype units. The T-38 Canopy is fully funded across the Future Years Defense Program.						
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, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2021 0.000 million was expended for civilian pay expenses in this program element, and in FY 2022 0.000 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		11.556	5.509	0.000	0.000	0.000
Current President's Budget		13.438	8.589	18.037	0.000	18.037
Total Adjustments		1.882	3.080	18.037	0.000	18.037
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	3.080			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		2.240	0.000			
• SBIR/STTR Transfer		-0.358	0.000			
• Other Adjustments		0.000	0.000	18.037	0.000	18.037
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						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0604233F I Specialized Undergraduate Flight Training	
<p><b><u>Change Summary Explanation</u></b></p> <p>FY 2021 funding was increased by a total of \$1.882 million which included a \$2.240 million Below Threshold Reprogramming increase for T-38 system development and a decrease of \$0.358 million for Small Business Innovation Research.</p> <p>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 FY 2023 cannot be made in a relevant manner.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training				Project (Number/Name) 674101 / Undergraduate Remotely Piloted Aircraft Training			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674101: Undergraduate Remotely Piloted Aircraft Training	-	3.514	3.894	0.857	0.000	0.857	0.875	0.891	0.909	0.930	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. Funding will go to organic sustainment at Oklahoma City Air Logistics Complex, Tinker AFB, OK. 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 2021 \$00.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$00.000 million is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Undergraduate RPA Training Support	0.714	0.814	0.857	0.000	0.857
<b>Description:</b> Continue to develop capabilities.					
<b>FY 2022 Plans:</b>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force								Date: April 2022					
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training				Project (Number/Name) 674101 / Undergraduate Remotely Piloted Aircraft Training					
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Transition to organic sustainment. Set up small scale deployment the next URT training system to test the software before full scale implementation and to continue software development. 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.													
FY 2023 Base Plans: 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.													
FY 2023 OCO Plans: N/A													
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to full scale implementation and economic adjustments.													
Accomplishments/Planned Programs Subtotals								0.714	0.814	0.857	0.000	0.857	
								FY 2021	FY 2022				
Congressional Add: Undergraduate RPA Training Support (Congressional Add)								2.800	3.080				
FY 2021 Accomplishments: Upgrade current computer systems to Windows 10 to comply with DoD cybersecurity mandates.													
FY 2022 Plans: Continue computer system upgrades to comply with DoD cyber security mandates.													
Congressional Adds Subtotals								2.800	3.080				
C. Other Program Funding Summary (\$ in Millions)													
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost		
• RDTE 07 0604233F: Specialized Undergraduate Flight Training	3.514	3.894	0.857	0.000	0.857	0.875	0.891	0.909	0.930	0.000	11.870		

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				<b>Project (Number/Name)</b> 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>			
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
			<u>FY 2023</u>	<u>FY 2023</u>	<u>FY 2023</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Complete</u>	<u>Total Cost</u>
<b><u>Remarks</u></b>											
FY21 Increase: Transition support of Predator Reaper Integrated Mission Environment (PRIME) from contractor support to organic sustainment at Oklahoma City Air Logistics Complex, Tinker AFB, OK. Only other item from (C) above would have to be paid directly from AETC using 3400 funding, if needed.											
PRIME Desktop Training System (DTS) Support Accomplishments: Transition support of PRIME from contractor support to organic sustainment at Oklahoma City Air Logistics Complex, Tinker AFB, OK. Upgrade current computer systems to Windows 10 to comply with DoD cybersecurity mandates.											
<b><u>D. Acquisition Strategy</u></b>											
Transition support of PRIME from contractor support to organic sustainment at Oklahoma City Air Logistics Complex, Tinker AFB, OK.											

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0604233F / <i>Specialized Undergraduate Flight Training</i>						<b>Project (Number/Name)</b> 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Undergraduate Remotely Piloted Aircraft Training Phased planning, design, and development of software updates	SS/FFP	555th SWES, Tinker ALC : Tinker AFB, OK	-	3.438	Mar 2021	3.799	Mar 2022	0.753		0.000		0.753	Continuing	Continuing	-
<b>Subtotal</b>			-	3.438		3.799		0.753		0.000		0.753	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Undergraduate Remotely Piloted Aircraft Training PSC Other Government Cost and Contract Services	SS/CPFF	Program Office : WPAFB, OH	-	0.076	Oct 2020	0.095	Oct 2021	0.104		0.000		0.104	Continuing	Continuing	-
<b>Subtotal</b>			-	0.076		0.095		0.104		0.000		0.104	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	3.514		3.894		0.857		0.000		0.857	Continuing	Continuing	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022	
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training					Project (Number/Name) 674101 / Undergraduate Remotely Piloted Aircraft Training	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Undergraduate RPA Training Support</i></b>																												
URT Training System Design/Development																												
URT Training System Test Implementation																												
URT Training System Continued Design/Development																												
URT Training System Full Scale Implementation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training	Project (Number/Name) 674101 / Undergraduate Remotely Piloted Aircraft Training	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Undergraduate RPA Training Support</b>				
URT Training System Design/Development	1	2021	2	2022
URT Training System Test Implementation	2	2022	1	2023
URT Training System Continued Design/Development	1	2023	1	2024
URT Training System Full Scale Implementation	4	2023	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training				Project (Number/Name) 676035 / T-6 Operational System Development			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
676035: T-6 Operational System Development	-	1.560	0.223	7.585	0.000	7.585	39.085	35.929	6.231	6.369	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program, BA 7, PE 0604233F, project 676035, T-6 Avionics Modernization [Avionics Replacement Program (ARP)], is a new start.

**A. Mission Description and Budget Item Justification**

T-6 Operational System Development continues follow on development activities to 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 (CSR), Avionics Replacement Program (ARP), Heads Up Display (HUD), Enhanced Mission Cockpit (EMC) and associated upgrades. There are currently 443 aircraft [442 AETC & 1 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 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 2021 \$00.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$00.000 million is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> T-6A (JPATS) Studies and Analysis	0.000	0.223	0.000	0.000	0.000
<b>Description:</b> 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 Heads Up Display (HUD)/ Enhanced Mission Cockpit (EMC) Study/Analysis. Includes engineering and contractor support/services and Program Support Costs (PSC).					
<b>FY 2022 Plans:</b>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training		Project (Number/Name) 676035 / T-6 Operational System Development		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continue T-6A aircraft studies and development activities including but not limited to: engine preservation development, cockpit environmental monitoring/analysis, Heads Up Display (HUD)/Enhanced Mission Cockpit (EMC), diminishing manufacturing source issues, and upgrades to on-aircraft software packages.  FY 2023 Base Plans: N/A  FY 2023 OCO Plans: N/A  FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to completion of T-6A development activities.						
Title: T-6 Avionics Modernization [Avionics Replacement Program (ARP)]  Description: This is a New Start. 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 Avionics Replacement Program (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 442 AETC aircraft and 80 Ground Based Trainers.  FY 2022 Plans: N/A  FY 2023 Base Plans: Address DMSMS issues, current T-6A FAA compliance issues and fulfill outstanding safety recommendations. Development contract to be awarded in FY 2023.  FY 2023 OCO Plans: N/A  FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to initial award of Developmental Contract for ARP DMSMS.		0.000	0.000	7.585	0.000	7.585
Title: Crash Survivable Recorder (CSR)		1.560	0.000	0.000	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0604233F / <i>Specialized Undergraduate Flight Training</i>			<b>Project (Number/Name)</b> 676035 / <i>T-6 Operational System Development</i>					
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	
<p><b>Description:</b> Crash Survivable Recorder (CSR) will provide the aircraft with a system that will meet the minimum crash survivable data collection capability as outlined in Air Force Instruction 63-133 Aircraft Information Program (Change 1, 4 November 2010) and SECDEF Memo of 22 June 06, Reducing Preventable Accidents. Includes engineering and contractor support/services and PMA costs.</p> <p><b>FY 2022 Plans:</b> N/A</p> <p><b>FY 2023 Base Plans:</b> N/A</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>											
<b>Accomplishments/Planned Programs Subtotals</b>						1.560	0.223	7.585	0.000	7.585	
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 06 Line Item 000999: <i>Initial Spares/Repair Parts</i>	-	-	-	-	-	-	-	-	-		
• APAF 05 Line Item JPAT00: T-6	1.560	0.223	7.585	-	7.585	39.085	35.929	6.231	6.369	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
<p>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. Development resulting from Diminishing Manufacturing Sources and Material Shortages requirement will be evaluated and implemented incrementally to efficiently deliver required capabilities to AETC.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
T-6 Operational System Development Crash Survivable Recorder	C/FFP	Scientific Research Corp : Atlanta, GA	-	1.560	Jan 2021	-		-		-		-	0.000	1.560	-
T-6 Avionics Modernization [Avionics Replacement Program (ARP)]	TBD	Not specified. : TBD	-	-		-		5.985	Apr 2023	-		5.985	Continuing	Continuing	-
Subtotal			-	1.560		-		5.985		-		5.985	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	C/CPAF	Not specified. : Tinker, OK	-	-		0.223	May 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	-		0.223		-		-		-	Continuing	Continuing	N/A
Remarks Continue Unknown Physiological Event's studies.															
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Civ Pay	C/TBD	Not specified. : TBD	-	-		-		1.600		-		1.600	Continuing	Continuing	-
Program Support Cost (PSC) Contract Services	C/FFP	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
PSC Other Government Costs	Various	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	-		-		1.600		-		1.600	Continuing	Continuing	N/A
Remarks The ARP Program will utilize Direct Cite Authority for 11 positions estimated at approximately \$1.6M.															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022						
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training					Project (Number/Name) 676035 / T-6 Operational System Development							
					Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals					-	1.560		0.223		7.585		-		7.585	Continuing	Continuing	N/A

**Remarks**

The Avionics Replacement Program (ARP) will utilize Direct Cite Authority for 11 positions at approximately \$1.6M.

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0604233F / <i>Specialized Undergraduate Flight Training</i>		<b>Project (Number/Name)</b> 676035 / <i>T-6 Operational System Development</i>	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Joint Primary Aircraft Training System</i></b>																												
T-6 (JPATS) Studies																												
<b><i>Avionics Systems Development</i></b>																												
T-6 Crash Survivable Recorder																												
<b><i>Crew Systems Development</i></b>																												
T-6 Enhanced On-Board Oxygen Generation System																												
<b><i>Avionics Modernization</i></b>																												
T-6 Avionics Replacement Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training	Project (Number/Name) 676035 / T-6 Operational System Development	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Joint Primary Aircraft Training System</b>				
T-6 (JPATS) Studies	1	2021	4	2027
<b>Avionics Systems Development</b>				
T-6 Crash Survivable Recorder	1	2021	4	2022
<b>Crew Systems Development</b>				
T-6 Enhanced On-Board Oxygen Generation System	1	2021	4	2021
<b>Avionics Modernization</b>				
T-6 Avionics Replacement Development	3	2023	3	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
676037: <i>T-38 Operational System Development</i>	-	8.364	4.472	9.595	0.000	9.595	2.263	0.144	0.146	0.147	Continuing	Continuing
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 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 Heads-Up Display Camera (HUDC). Failure to fund this effort 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 Modification 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 outlined below captures ongoing and emerging RDT&E requirements, to include budget for flight test, OFP updates, and emerging obsolescence or safety issues. Failure to fund this effort will prevent the T-38 program from rapidly responding to emerging RDT&E requirements.

This requirement for T-38 programs supports 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 2021 \$00.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$00.000 million is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> T-38C Terminal Avionics Replacement Program (TARP)	5.798	2.710	6.532	0.000	6.532

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training		Project (Number/Name) 676037 / T-38 Operational System Development		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Description:</b> Beginning in FY 2023, TARP is a subset and continuation of work started under Project 676037, T-38 Avionics Component Integration (AvCI). TARP is not a New Start.</p> <p>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): Without a replacement, T-38C aircraft will be grounded once the repair contract for EED and MFD expires in Mar 2026.</p> <p>3. Video Data Transfer Unit (VDTU): 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.</p> <p>4. Heads-Up Display Camera (HUDC): 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><b>FY 2022 Plans:</b> Continue development activities for EED and MFD replacement; start development for VDTU replacement (4th quarter).</p> <p><b>FY 2023 Base Plans:</b> Continue development of EED, MFD, and VDTU; begin test for EED and MFD; begin development of HUDC.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to full year of VDTU and HUDC development, and start of EED and MFD flight test.</p>						
<p><b>Title:</b> T-38A/B Low-Cost Avionics Modification Program (LAMP)</p> <p><b>Description:</b> Beginning in FY 2023, LAMP is a subset and continuation of work started under Project 676037, T-38 Avionics Component Integration (AvCI). LAMP is not a New Start.</p>		0.000	0.050	1.598	0.000	1.598

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0604233F / Specialized Undergraduate Flight Training		Project (Number/Name) 676037 / T-38 Operational System Development		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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.						
FY 2022 Plans: N/A						
FY 2023 Base Plans: Integrate and test new primary flight references for the T-38A/B fleet.						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased to address emerging primary flight reference safety risk.						
Title: T-38 Studies and Development		2.566	1.712	1.465	0.000	1.465
Description: Studies and development (including flight test) to support:						
1. Engineering Change Proposals 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 2022 Plans: Complete Block 11 OFP development and test.						
FY 2023 Base Plans: Execute emergent engineering change proposals, to include investigation into a speed brake warning indicator for T-38A/B aircraft.						
FY 2023 OCO Plans:						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				<b>Project (Number/Name)</b> 676037 / <i>T-38 Operational System Development</i>				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A												
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to the completion of Block 11 OFP development and test.												
<b>Accomplishments/Planned Programs Subtotals</b>								8.364	4.472	9.595	0.000	9.595
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• APAF 05 Line Item T03800: T-38	40.806	45.039	111.668	-	111.668	114.508	82.661	51.862	87.447	147.361	681.352	
<b>Remarks</b>												
<b>D. Acquisition Strategy</b>												
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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0604233F / <i>Specialized Undergraduate Flight Training</i>						<b>Project (Number/Name)</b> 676037 / <i>T-38 Operational System Development</i>			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
T-38 Avionics AvCI	C/CPFF	The Boeing Company : St. Louis, MO	-	5.994	Jul 2021	2.706	Nov 2021	9.549	Nov 2022	-		9.549	0.000	18.249	-
T-38C Hardware and Software Upgrade Development	C/FFP	The Boeing Company : TBD	-	2.356	Sep 2021	1.668	Nov 2021	-		-		-	0.000	4.024	-
<b>Subtotal</b>			-	8.350		4.374		9.549		-		9.549	0.000	22.273	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PSC Contract Services	C/FFP	Not specified. : NV	-	0.014	Dec 2020	0.038	Dec 2021	0.046	Dec 2022	-		0.046	Continuing	Continuing	-
PSC Other Government Costs	Various	Not specified. : NV	-	-		0.060	Dec 2021	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.014		0.098		0.046		-		0.046	Continuing	Continuing	N/A
<b>Project Cost Totals</b>			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
			-	8.364		4.472		9.595		-		9.595	Continuing	Continuing	N/A
<b>Remarks</b>															

## UNCLASSIFIED

Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0604233F / Specialized Undergraduate  
Flight Training

## Project (Number/Name)

676037 / T-38 Operational System  
Development

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>T-38C EED/MFD Development</i></b>																												
Development																												
Test																												
<b><i>T-38C VDTU/HUDC Development</i></b>																												
Development																												
Test																												
<b><i>T-38C Block 11 Upgrade</i></b>																												
Development																												
Test																												
<b><i>T-38 A/B LAMP</i></b>																												
Development																												
Test																												
<b><i>T-38 Studies &amp; Analysis</i></b>																												
Development/Test																												

## UNCLASSIFIED

Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0604233F / Specialized Undergraduate  
Flight Training

Project (Number/Name)

676037 / T-38 Operational System  
Development

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>T-38C EED/MFD Development</i></b>				
Development	4	2021	1	2024
Test	2	2023	3	2024
<b><i>T-38C VDTU/HUDC Development</i></b>				
Development	4	2022	2	2024
Test	1	2024	3	2024
<b><i>T-38C Block 11 Upgrade</i></b>				
Development	4	2021	1	2023
Test	3	2022	4	2023
<b><i>T-38 A/B LAMP</i></b>				
Development	3	2022	4	2022
Test	4	2022	1	2023
<b><i>T-38 Studies &amp; Analysis</i></b>				
Development/Test	1	2024	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0604445F I Wide Area Surveillance							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	19.268	0.000	2.760	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.028
675899: Wide Area Surveillance	19.268	0.000	2.760	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.028
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 program element may include necessary civilian pay expenses required to manage, execute, and deliver WAS system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY21 0.000M was expended for civilian pay expenses in this program element, and in FY22 0.000M is forecasted 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.

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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0604445F I Wide Area Surveillance			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	2.760	0.000	0.000	0.000
Current President's Budget	0.000	2.760	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

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604445F / Wide Area Surveillance				Project (Number/Name) 675899 / Wide Area Surveillance			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675899: Wide Area Surveillance	19.268	0.000	2.760	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.028
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.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Wide Area Surveillance weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY21 \$0.000M was expended for civilian pay expenses in this program element, and in FY22 \$0.000M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Development, Test & Fielding	0.000	2.760	0.000
<b>Description:</b> Development, Test & Fielding			
<b>FY 2022 Plans:</b> Support STARS (S1) Block 2 Configuration Upgrade			
<b>FY 2023 Plans:</b> N/A			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> No FY23 funds are currently approved			
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	2.760	0.000

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 834240: <i>Wide Area Surveillance</i>	47.538	38.794	8.190	-	8.190	0.000	0.000	-	-	243.071	337.593

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0604445F / <i>Wide Area Surveillance</i>			<b>Project (Number/Name)</b> 675899 / <i>Wide Area Surveillance</i>	

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 05 861900: <i>Spares and repair parts</i>	1.904	0.013	4.997	-	4.997	5.346	5.405	5.518	-	0.000	23.183

**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 sub-systems. 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. This strategy includes a single delivery approach with 8 STARS and 67 Scorpion systems for a total of 75 sub-systems delivered to achieve FOC. The pre-operational contract for the Scorpion system transitioned to Interim Contract Support (ICS) in Dec 2018, STARS system transitioned to ICS in June 2019. RDT&E funds supported a Block 2 version of the 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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604445F / Wide Area Surveillance				Project (Number/Name) 675899 / Wide Area Surveillance					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Wide Area Surveillance (WAS) S1 Block 2 NRE	Various	Raytheon : El Segundo, CA	9.013	-		-		-		-		-	0.000	9.013	0.000
Wide Area Surveillance (WAS) S1 Block 2 Development	Various	Raytheon : El Segundo, CA	9.505	-		0.949	Sep 2022	-		-		-	0.000	10.454	-
Subtotal			18.518	-		0.949		-		-		-	0.000	19.467	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test Support	Various	46 Test Squadron : Eglin AFB, FL	0.050	-		0.330	Mar 2022	-		-		-	0.000	0.380	-
Subtotal			0.050	-		0.330		-		-		-	0.000	0.380	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	AFLCMC/HBDB : Hanscom AFB, MA	0.700	-		1.481	Jul 2022	-		-		-	0.000	2.181	-
Subtotal			0.700	-		1.481		-		-		-	0.000	2.181	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			19.268	-		2.760		-		-		-	0.000	22.028	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0604445F / <i>Wide Area Surveillance</i>	<b>Project (Number/Name)</b> 675899 / <i>Wide Area Surveillance</i>
--------------------------------------------------	-----------------------------------------------------------------------------------------	------------------------------------------------------------------------

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Wide Area Surveillance</b>																												
Scorpion Contractor Logistics Support (CLS)																												
STARS Contractor Logistics Support (CLS)																												
STARS and Scorpion combined CLS																												
Scorpion Sole Source LRIP																												
Initial Operational Test and Evaluation (IOT&E)																												
STARS Block 2 Contract Award																												
STARS Block 2 Development Effort																												
Scorpion Milestone C Full Rate Production (FRP)																												
Scorpion Limited Source Competition FRP Base																												
Scorpion Limited Source Competition FRP Option																												
STARS Block 1 Site 5 Production																												
STARS FRP Decision																												
STARS Block 2 Production																												
Full Operating Capability (FOC)																												

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0604445F / Wide Area Surveillance

Project (Number/Name)

675899 / Wide Area Surveillance

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Wide Area Surveillance</b>				
Scorpion Contractor Logistics Support (CLS)	4	2021	1	2024
STARS Contractor Logistics Support (CLS)	4	2021	1	2024
STARS and Scorpion combined CLS	1	2023	4	2027
Scorpion Sole Source LRIP	1	2021	4	2022
Initial Operational Test and Evaluation (IOT&E)	1	2021	4	2021
STARS Block 2 Contract Award	3	2021	3	2021
STARS Block 2 Development Effort	3	2021	2	2023
Scorpion Milestone C Full Rate Production (FRP)	4	2021	4	2021
Scorpion Limited Source Competition FRP Base	4	2021	4	2023
Scorpion Limited Source Competition FRP Option	4	2022	4	2024
STARS Block 1 Site 5 Production	1	2021	2	2022
STARS FRP Decision	2	2023	2	2023
STARS Block 2 Production	2	2023	4	2025
Full Operating Capability (FOC)	4	2025	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0604617F I Agile Combat Support							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	8.199	0.000	8.199	5.632	0.000	0.000	0.000	0.000	13.831
675218: Applications Development	-	0.000	0.000	8.199	0.000	8.199	5.632	0.000	0.000	0.000	0.000	13.831
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2023, PE 0207522F, Airbase Air Defense Systems (ABADS), Project 675218, Applications Development efforts are transferred to PE 0604617F, Agile Combat Support, Project 675218, Applications Development.

**A. Mission Description and Budget Item Justification**

Command and Control, Incident Management, Emergency Response Application (C2IMERA) is a C2 system that addresses installation commanders' and staff's ability to support Airfield, Flight and Emergency Operations. C2IMERA funds provide enhanced installation command and control to improve decision speed, quality, and lethality by incorporating direct user feedback, connecting people, automating daily operations, and integrating data from myriad systems. C2IMERA receives input from users and system interfaces and displays data on the real-time, interactive Common Operating Picture (COP) and consolidated dashboards. C2IMERA also provides a theater level Higher Headquarters module to aggregate theater-wide installation to provide real-time awareness of critical data. C2IMERA provides automated communications via the COP, automated emails, notifications, and alerts, alleviating the need for briefings, meetings, and radio communication(s).

The C2IMERA operational concept has three capability areas:

- C2 collaboration across the Wing - operate/fight the base
- Wing Situational Awareness
- Wing Collaboration/reporting to HHQ (i.e., AOC, AFFOR, Command Center etc.)

As part of C2IMERA, Disaster Response Force Common Operating Picture (DRF COP) funds identify and/or develop, implement, and maintain an interoperable, standardized, singular, and near real-time situational awareness COP for Air Force disaster response forces to prevent, protect, mitigate, respond to, and recover from threat/hazard effects that pose the greatest risk to lives, resources, infrastructure, and missions. DRF COP 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. As the program evolves, the DRF COP nomenclature will be replaced by the Department of Air Force (DAF) Emergency Management Information System (EMIS).

Requirements include supporting Base Operations, Mission Management and Monitoring, Higher Headquarters Information Exchange Requirements (IERS), Emergency Action Messaging, Situation Reports (SITREP) automation, and other key enablers supporting the operational concept.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0604617F I Agile Combat Support				
C2IMERA FY23 funds will support the Agile Dev Ops development of enhanced architecture to make C2IMERA more scalable, add additional integrations and enhance data automation. This includes architecting the application to operate in Degraded, Disconnected, Intermittent and Low-Bandwidth (D-DIL) environments to support key operational concepts such as Agile Combat Employment.						
This program is part of the overarching Kessel Run portfolio. No Budget Year FY22 funding requested; FY22 project efforts are detailed in PE 0207522F, Airbase Air Defense Systems. In FY 2023, PE 0207522F, Airbase Air Defense Systems (ABADS), Project 675218, Applications Development efforts are transferred to PE 0604617F, Agile Combat Support, Project 675218, Applications Development.						
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 0.00M was expended for civilian pay expenses in this program element, and in FY22 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		0.000	0.000	0.000	0.000	0.000
Current President's Budget		0.000	0.000	8.199	0.000	8.199
Total Adjustments		0.000	0.000	8.199	0.000	8.199
• 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	8.199	0.000	8.199
Change Summary Explanation						
The FY2022 President's Budget submittal did not reflect FY2023 through FY2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.						
In FY 2023, PE 0207522F, Airbase Air Defense Systems (ABADS), Project 675218, Applications Development efforts are transferred to PE 0604617F, Agile Combat Support, Project 675218, Applications Development.						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0604617F I Agile Combat Support				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Disaster Response Force Common Operating Picture (DRF COP)		0.000	0.000	8.199	0.000	8.199
Description: DRF COP 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.						
FY 2022 Plans: N/A						
FY 2023 Base Plans: -Continue refinement of Disaster Response Force Common Operating Picture (DRF COP) capabilities to include enhanced automated integration with local, state, and federal safety agencies solutions. - Excavate, consolidate, correlate, and propagate information needed to mitigate/build resiliency, prevent, protect against, respond to, and recover from threats/hazards that pose the greatest risk to lives, resources, infrastructure, and missions world-wide. - Integrate kinetic and non-kinetic systems (radars, drones, sensors) to compress decision-making cycles; propagate DAF strategic, operational, and tactical command and control common operating pictures; and facilitate convergence of effects through sensing, making sense, and taking action. -Continue with the extension of Cross-Domain capabilities to support full data synchronization between the low side (NIPR) and high side (SIPR) C2IMERA instances to facilitate Joint All- Domain Command and Control (JADC2). -Continue with architectural improvements to transition from incrementally delivered micro services to a single-tenancy implementation with support for Software as a Service (SAAS). -Continue with the automated workflow and improved system integration with continued interface development focusing on the fusion of installation/base C2 node data with MAJCOM and HHQ level systems at the strategic levels. -Migrate to All Domain Common Platform (ADCP)						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>			<b>R-1 Program Element (Number/Name)</b> PE 0604617F <i>I Agile Combat Support</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>
In FY 2023, PE 0207522F, Airbase Air Defense Systems (ABADS), Project 675218, Applications Development efforts are transferred to PE 0604617F, Agile Combat Support, Project 675218, Applications Development. This is not a new start in FY23.					
<b>Accomplishments/Planned Programs Subtotals</b>			0.000	0.000	8.199
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A					
<b>Remarks</b>					
<b>E. Acquisition Strategy</b> The acquisition strategy builds on agile software engineering methodologies and modernization of existing capabilities utilizing evolutionary acquisition. Using Section 804, timelines are reduced by modularizing both software engineering solutions and the associated contracting and funding strategies. This enables dynamic resource allocation based on current warfighter needs. The desired end state is continuous delivery of Software. In Summer of FY20, the decision was made to transition from MTA, Sec 804 Rapid Prototyping/Fielding to the new NDAA FY20 - Software Acquisition Pathway, which is the preferred path for acquisition and development of software-intensive systems. 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.					

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support				Project (Number/Name) 675218 / Applications Development					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DRF COP Development	TBD	Not specified. : TBD	-	-		-		7.704		-		7.704	Continuing	Continuing	-
Subtotal			-	-		-		7.704		-		7.704	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DRF COP Program Management Administration	TBD	Not specified. : TBD	-	-		-		0.495		-		0.495	Continuing	Continuing	-
Subtotal			-	-		-		0.495		-		0.495	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		-		8.199		-		8.199	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0604617F / Agile Combat Support					675218 / Applications Development			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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																												
DRF COP Software development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support	Project (Number/Name) 675218 / Applications Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Software development				
DRF COP Software development	1	2023	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 0604776F I Deployment & Distribution Enterprise R&D							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.479	0.000	0.156	0.000	0.156	0.000	0.000	0.000	0.000	0.000	0.635
674211: GLOBAL ACCESS	-	0.479	0.000	0.156	0.000	0.156	0.000	0.000	0.000	0.000	0.000	0.635
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note												
The \$0.200 of FY22 currently in BPAC 640215 needs to be moved into this BPAC and FY23 should have \$0.150M per approved BA7 ZBT. Additionally, \$0.019 SBIR taxes and \$0.001 mark were not deducted in FY21. \$0.479M was what was actually received in FY21. Also, 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												
A. Mission Description and Budget Item Justification												
Funding supports the transition of End-to-End Distribution Model (ETEM) initiatives. ETEM 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total						
Previous President's Budget		0.499	0.000	0.000	0.000	0.000						
Current President's Budget		0.479	0.000	0.156	0.000	0.156						
Total Adjustments		-0.020	0.000	0.156	0.000	0.156						
• 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		-0.020	0.000									
• Other Adjustments		0.000	0.000	0.156				0.000			0.156	
Change Summary Explanation												
FY2020 funding added for development of additional deployment and distribution supporting technology.												
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2021	FY 2022	FY 2023
Title: Deployment & Distribution Enterprise										0.479	0.000	0.156

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604776F <i>I Deployment &amp; Distribution Enterprise R&amp;D</i>			
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Description:</b> Develop deployment and distribution technology  <b>FY 2022 Plans:</b> Transition for end-to-end modeling development  <b>FY 2023 Plans:</b> Transition for end-to-end modeling development  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Development schedule				
<b>Accomplishments/Planned Programs Subtotals</b>		0.479	0.000	0.156
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b> 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				
<b>E. Acquisition Strategy</b> Transition funding for ETEM capabilities				

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0604776F / <i>Deployment &amp; Distribution Enterprise R&amp;D</i>						<b>Project (Number/Name)</b> 674211 / <i>GLOBAL ACCESS</i>			

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Develop deployment and distribution technology	Various	Not specified. : TBD	-	0.479		-		0.156		-		0.156	0.000	0.635	-
<b>Subtotal</b>			-	0.479		-		0.156		-		0.156	0.000	0.635	N/A

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	0.479	-	0.156	-	0.156	0.000	0.635	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0604776F / Deployment & Distribution Enterprise R&D								Project (Number/Name) 674211 / GLOBAL ACCESS			

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604776F / Deployment & Distribution Enterprise R&D	Project (Number/Name) 674211 / GLOBAL ACCESS

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Global Access				
Develop deployment and distribution technology	2	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0604840F I F-35 C2D2							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	684.931	1,105.404	1,014.708	0.000	1,014.708	808.922	687.032	667.090	684.853	Continuing	Continuing
673501: Air Vehicle - Tech Refresh 3	-	0.000	86.327	67.210	0.000	67.210	0.000	0.000	0.000	8.534	Continuing	Continuing
673502: Air Vehicle Block 4 Planning & Sys Eng	-	0.000	324.233	390.091	0.000	390.091	337.544	286.611	210.250	247.711	Continuing	Continuing
673503: Test and Evaluation (T&E)	-	0.000	262.733	270.841	0.000	270.841	220.685	173.884	216.008	196.950	Continuing	Continuing
673504: Propulsion (PP)	-	0.000	153.091	14.891	0.000	14.891	11.737	10.384	10.343	10.615	Continuing	Continuing
673505: Maintenance Systems (MxS)	-	0.000	50.409	49.836	0.000	49.836	41.949	33.483	30.201	29.608	Continuing	Continuing
673506: Combat Data Systems (CDS)	-	0.000	60.039	53.248	0.000	53.248	39.407	29.726	35.993	39.130	Continuing	Continuing
673507: Training Systems & Simulation	-	0.000	72.712	74.619	0.000	74.619	61.333	54.568	61.850	67.697	Continuing	Continuing
673508: Infrastructure & Support Costs	-	0.000	67.860	74.101	0.000	74.101	73.433	75.014	78.088	80.237	Continuing	Continuing
673509: DevSecOps	-	0.000	28.000	19.871	0.000	19.871	22.834	23.362	24.357	4.371	Continuing	Continuing
675346: F-35	-	684.931	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

## A. Mission Description and Budget Item Justification

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the United States Navy, United States Air Force, United States Marine Corps and International Partners countries. There are three variants the F-35A Conventional Takeoff and Landing variant; F-35B Short Take Off and Vertical Landing; and the F-35C Aircraft Carrier suitable variant. Maximum commonality among the variants, consistent with National Disclosure Policy, will minimize total air system life cycle costs. Planning, systems engineering, development, and testing for Block 4 continues across the F-35 Air System to include the air vehicle, propulsion system, combat data systems, maintenance systems, and training systems as Initial Operational Capability (IOC) has been met for each variant.

The JSF Continuous Capability Development & Delivery (C2D2) efforts provide incremental warfighting capability improvements to maintain joint air dominance against evolving threats. Block 4 capability requirements were initiated through ongoing Service-led operational analysis of warfighting gaps identified in the Fifth Generation Fighter Modernization Initial Capabilities Document (ICD), and through F-35 JSF Block 4 Mission Decomposition analysis completed in FY2014. These analyses

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0604840F I F-35 C2D2				
served as the basis for the Block 4 Capability Development Document (CDD), staffed through the Air Force Requirements Oversight Council (AFROC) and signed by the USAF Chief of Staff in January 2015. Joint Requirements Oversight Council (JROC) approved the CDD 21 March 2017. Modernization activities in FY2022 and FY2023 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.						
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.						
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 \$47.9M was expended for civilian pay expenses in this program element, and in FY22 \$46.9M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		695.869	985.404	0.000	0.000	0.000
Current President's Budget		684.931	1,105.404	1,014.708	0.000	1,014.708
Total Adjustments		-10.938	120.000	1,014.708	0.000	1,014.708
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	120.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		9.999	0.000			
• SBIR/STTR Transfer		-20.937	0.000			
• Other Adjustments		0.000	0.000	1,014.708	0.000	1,014.708
Congressional Add Details (\$ in Millions, and Includes General Reductions)						
Project: 675346: F-35						
Congressional Add: JASSM						
Congressional Add Subtotals for Project: 675346						
Congressional Add Totals for all Projects						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0604840F I F-35 C2D2	
<p><b><u>Change Summary Explanation</u></b></p> <p>The FY2023 budget submission accomplishments/planned programs (R-2A) has been updated to mirror the Joint Strike Fighters Program Management Office organizational structure in order to provide more transparency and visibility to development efforts across the F-35 enterprise. Also, the Project Cost Analysis (R-3) exhibit has been updated to include additional cost categories to better display executing efforts.</p> <p>Technical: Not applicable. Schedule: Not applicable. ---</p> <p>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 FY 2023 cannot be made in a relevant manner.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
673501: Air Vehicle - Tech Refresh 3	-	0.000	86.327	67.210	0.000	67.210	0.000	0.000	0.000	8.534	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Beginning in FY 2022, Air Vehicle - Technology Refresh 3 (TR-3) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from 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.

**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.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Technology Refresh 3 (TR-3)	0.000	86.327	67.210	0.000	67.210
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b> The TR-3 program will continue laboratory system integration and test, modify Developmental and Operational test aircraft with TR-3 and Next Gen Distributed Aperture System (DAS) hardware, perform ground test activities, and perform flight test through FY2022. This will include the necessary labor and Non-recurring engineering to support Developmental and Operational test aircraft modifications, as well as the necessary mission planning					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2		<b>Project (Number/Name)</b> 673501 / Air Vehicle - Tech Refresh 3				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>  systems to support flight test operations. Finally, this will include multiple software releases to both lab and flight test, and will also result in the final software updates for Core Process Software (CPSW), Pilot Systems Software (PSSW), and TR-3 hardware.  <b>FY 2023 Base Plans:</b> The TR-3 program will complete laboratory system integration and test, flight test, and system certification requirements. The program will also deliver necessary hardware and complete modifications of Operational Test aircraft to support fleet fielding recommendations.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The decrease from FY2022 to FY2023 is due to the program nearing completion. This is driven by the ramp down and completion of sub tier supplier scope, and completion of system integration at the Prime.				<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Accomplishments/Planned Programs Subtotals</b>				0.000	86.327	67.210	0.000	67.210
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>   <b>D. Acquisition Strategy</b> N/A								

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
TR-3 Prime LM Development	C/CPIF	LM/FORT WORTH TX : TBD	-	-		75.878	Oct 2021	67.210	Oct 2022	-		67.210	Continuing	Continuing	-
TR-3 Prime LM Next GenDAS Shipsets Proc	C/CPIF	LM/FORT WORTH TX : TBD	-	-		6.146	Feb 2022	-		-		-	Continuing	Continuing	-
TR-3 Prime LM OT NRE	C/CPIF	LM/FORT WORTH TX : TBD	-	-		2.049	Nov 2021	-		-		-	Continuing	Continuing	-
TR-3 Prime LM OT NextGen DAS NRE	C/CPIF	LM/FORT WORTH TX : TBD	-	-		2.049	Nov 2021	-		-		-	Continuing	Continuing	-
Subtotal			-	-		86.122		67.210		-		67.210	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
TR-3 Project Support	MIPR	Various : TBD	-	-		0.205	Nov 2021	-		-		-	Continuing	Continuing	-
Subtotal			-	-		0.205		-		-		-	Continuing	Continuing	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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		86.327		67.210		-		67.210	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2	<b>Project (Number/Name)</b> 673501 / Air Vehicle - Tech Refresh 3
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>673501</b>																												
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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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2	<b>Project (Number/Name)</b> 673501 / Air Vehicle - Tech Refresh 3	

**Schedule Details**

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

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
673502: Air Vehicle Block 4 Planning & Sys Eng	-	0.000	324.233	390.091	0.000	390.091	337.544	286.611	210.250	247.711	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

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 fiscal years FY2021. This project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY 2023 request.

## A. Mission Description and Budget Item Justification

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

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 Advanced Anti-Radiation Guided Missile Extended Range (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.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022				
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Air Vehicle Block 4 Planning & Sys Eng				0.000	324.233	390.091	0.000	390.091
Description: The F-35 Air Vehicle Program Management Office (AV PMO) development portfolio includes efforts to improve the F-35 air vehicle lethality, survivability, and interoperability in response to emerging threats outlined in the National Security Strategy and Operational Plans. As designed, Block 4 consists of three principle lines of effort: development of software-based capabilities, development and integration of new and modernized aircraft hardware which enable the development of new capabilities, and new weapons integration. Included in the Air Vehicle (AV)/Block 4 Planning and Systems Engineering effort is both Prime and Government Systems Engineering Support needed for Avionics/ Electronic Warfare and Weapons Integration efforts to include studies, analysis and risk reduction efforts.								
FY 2022 Plans: Continue with Agile development of capabilities through Flight Test. Continue requirements decomposition and preliminary design activities for advanced Block 4 capabilities. Continue Post-Preliminary Design Review (PDR) risk reduction activities to include Air-Ship Integration and planning. Continue development and maturity of key long lead capabilities and service unique weapons. Complete development of software drops to be available for fielding to meet warfighter need. Support efforts for airframe, air vehicle systems, air-ship integration, mission systems, future capabilities studies and weapons integration efforts. Continue support for Block 4 Capabilities and support preliminary systems engineering efforts associated with obsolescence NRE, AARGM-ER, and increased air-to-air missile carriage. Continued engineering support for avionics, weapons, studies & analyses, and risk reduction efforts.								
FY 2023 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 A2/AD 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. Continuing development and timely delivery of software to meet warfighter need. Continue supporting efforts for airframe, air vehicle systems, Air-Ship integration, including Electromagnetic Aircraft Launch System and Advanced Arresting Gear (EMALS/AAG) launch bulletins and related work, mission systems, future capabilities studies and weapons integration efforts. Continue support for Block 4 Capabilities and support preliminary systems engineering efforts								

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022
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>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>associated with obsolescence NRE, AARGM-ER, AGM-158 Joint Air to Surface Standoff Missile (JASSM) family of weapons, and increased air-to-air missile carriage. Continue systems engineering, integration, and test (SEIT) development for avionics, weapons, studies &amp; analyses, and risk reduction efforts.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The increase from FY2022 to FY2023 is due to award of additional Block 4 scope to include the design, development, and integration of several advanced Electronic Warfare hardware elements enabling F-35 wide-band spectrum dominance. Also, the addition of the scope to support Advanced F-35 Datalink enables increased lethality in support of integrated fires and beyond line-of-sight Anti-access/Area denial (A2/AD) arenas expected in a near peer conflict. Additionally, the increase reflects integration of advanced weapons functions including AARGM-ER, AGM-158, Increased Air-to-Air Missile Carriage, and Net Enabled Weapon functionality.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	324.233	390.091	0.000	390.091

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

N/A

**Remarks**

**D. Acquisition Strategy**

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

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2						<b>Project (Number/Name)</b> 673502 / Air Vehicle Block 4 Planning & Sys Eng			

<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
AV Prime LM Phase II Cape/Development	C/CPIF	LM /Fort Worth TX : TBD	-	-		289.078	Oct 2021	328.008	Oct 2022	-		328.008	Continuing	Continuing	-
AV Prime LM Phase II Fee	C/CPIF	LM /Fort Worth TX : TBD	-	-		10.244	Oct 2021	10.244	Oct 2022	-		10.244	Continuing	Continuing	-
AV Prime LM Air Vehicle Integration	C/CPFF	LM /Fort Worth TX : TBD	-	-		2.500	Oct 2021	2.500	Oct 2022	-		2.500	Continuing	Continuing	-
AV Systems Engineering	Various	Various : TBD	-	-		6.381	Dec 2021	8.624	Dec 2022	-		8.624	Continuing	Continuing	-
AV Cyber Survivability	Various	Various : TBD	-	-		-		9.834	Oct 2022	-		9.834	Continuing	Continuing	-
<b>Subtotal</b>			-	-		308.203		359.210		-		359.210	Continuing	Continuing	N/A

**Remarks**

1. Breaking out Cyber survivability as separate line item in FY23

<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
AV Mission Systems Support	Various	Various : TBD	-	-		10.530	Nov 2021	7.881	Nov 2022	-		7.881	Continuing	Continuing	-
AV Vehicle Systems Support	Various	Various : TBD	-	-		0.500	Nov 2021	17.000	Nov 2022	-		17.000	Continuing	Continuing	-
AV CSO Development Support	Various	Various : TBD	-	-		5.000	Nov 2021	6.000	Nov 2022	-		6.000	Continuing	Continuing	-
<b>Subtotal</b>			-	-		16.030		30.881		-		30.881	Continuing	Continuing	N/A

**Remarks**

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

			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	-		324.233		390.091		-		390.091	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force																<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7								<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2								<b>Project (Number/Name)</b> 673502 / Air Vehicle Block 4 Planning & Sys Eng			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>673502</b>																												
Systems Engineering & Agile Capability Development - Planning Events																												
Systems Engineering & Agile Capability Development - ASIRs																												
Systems Engineering & Agile Capability Development - IPRs																												
Hardware Enablers - A/C Cooling																												
Hardware Enablers - FS425 Bulkhead																												
Production LOT 14																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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	2027
Systems Engineering & Agile Capability Development - ASIRs	1	2022	4	2027
Systems Engineering & Agile Capability Development - IPRs	1	2022	4	2027
Hardware Enablers - A/C Cooling	1	2022	4	2025
Hardware Enablers - FS425 Bulkhead	1	2022	1	2023
Production LOT 14	2	2022	1	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
673503: Test and Evaluation (T&E)	-	0.000	262.733	270.841	0.000	270.841	220.685	173.884	216.008	196.950	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Beginning in FY 2022, Test and Evaluation (T&E) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from 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.

**A. Mission Description and Budget Item Justification**

Integrated Test activities in support of C2D2, to include Lockheed Martin support at all test sites. Non-recurring engineering required to plan for the service life extension of existing DT aircraft and modifications necessary to bring DT aircraft fleet to a more production-representative and sustainable configuration, and to develop flight test instrumentation and release test software to meet Block 4 requirements. Additional upgrades required to support development and evaluation of improvements driven by changes in the threat environment and as identified in the Electronic Warfare 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. 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 and Program R2A section have been broken out into the following R-2A categories: Development Foundation Contract, Development Test, Operational Test, Future Flight Test Capabilities/Investments, Ground Test and Simulation Infrastructure. All of the development efforts presented in the budget submission existed in prior years and were rolled up under previously submitted Accomplishments/Planned and Program costs in Test and Evaluation category.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Development Foundation Contract (DFC) Flight Test and Tech Refresh	0.000	90.257	90.605	0.000	90.605
<b>Description:</b> Flight test infrastructure at Edwards Air Force Base (AFB) and Pax River Naval Air Station (NAS) and F-35 tech refresh for laboratory development at Fort Worth, TX for Lockheed Martin Aeronautics and its subcontractors (LM Aero). This includes investment planning and other test planning activities required for Block 4 development, integration, developmental test and evaluation. Funding is required for the Lockheed Martin Integrated Test Force contractor labor, suppliers, and material. Other support efforts are provided for airframe, air vehicle systems, air-ship integration, mission systems, weapons integration, offboard mission support, autonomic logistics development, joint reprogramming enterprise and modeling and joint simulation					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
environment activities, including Nimble Lightning efforts. Other costs in support of ranges, chase planes and DT site operations.  <b>FY 2022 Plans:</b> Continue support to F-35 capability enhancements identified in approved requirements documents. This includes flight testing new software development builds and hardware capabilities. Developmental Foundation Contract (DFC) will support C2D2 flight test, and implement technology refresh and modernization to upgrade and modify hardware and software at the module level.  <b>FY 2023 Base Plans:</b> Support F-35 capability enhancements identified in approved requirements documents. DFC will provide flight test for C2D2 Block 4 capabilities including weapons testing, as well as continue annualized technology refresh and specific lab modernization efforts. These efforts will upgrade and modify hardware and software at the module level and facilitate test integration with the development process.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increases due to inflation cost factors.						
<b>Title:</b> Developmental Test (DT)  <b>Description:</b> 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, Diminishing Manufacturing Sources (DMS)/fleet sustainment, service-life extension, hardware refresh, and regression efforts to ensure total system integration meets program requirements. Test site capabilities to meet program requirements include infrastructure, ranges, engineering, administration, logistics, maintenance, controls, information technologies, classified facilities, and service unique supporting capabilities. The sites to be funded include but are not limited to Naval Air Warfare Center Aircraft Division (NAWCAD) Pax River, NAWCAD China Lake, and Edwards AFB.  <b>FY 2022 Plans:</b> Continue to 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		0.000	33.600	43.916	0.000	43.916

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
releases with new capability and bug fixes, integrated system evaluations, multi-ship operations, and mission effectiveness evaluations.  <b>FY 2023 Base Plans:</b> Continue to 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 Block 4 weapons integration, incremental software releases with new capability and bug fixes, integrated system evaluations, multi-ship operations, and mission effectiveness evaluations. Continued funding for Development Test Aircraft Modification broken out from the rest of the Development activities. This is continued support from FY22 for Developmental Test (DT) aircraft modifications in order to be test-ready and operationally-representative.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to ramp up development activities and addition of funding line for Development Test Aircraft Modification from Operational Test category.						
<b>Title:</b> Operational Test (OT)  <b>Description:</b> 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 facilitates, and service unique supporting capabilities. The sites to be funded include but are not limited to Nellis AFB and Yuma Air Station.  <b>FY 2022 Plans:</b> 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		0.000	23.975	19.762	0.000	19.762

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
releases with new capability and deficiency report fixes, integrated system evaluations, multi-ship operations and mission effectiveness evaluations in an operationally representative environment.						
<b>FY 2023 Base Plans:</b> 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. Funding will also be required for any Operational Test (OT) aircraft modifications in order to be test-ready and operationally-representative. Funding also includes the execution of the remaining 64 OT virtual mission trials and IOT&E close out tasks.						
<b>FY 2023 OCO Plans:</b> N/A						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease due to reducing overall flight test execution at Nellis AFB and Edwards AFB.						
<b>Title:</b> Future Flight Test Capabilities/Investments		0.000	100.242	103.420	0.000	103.420
<b>Description:</b> Test fleet modifications, test mission equipment/assets, instrumentation capability, and data center investments are required to continue to support Block 4 capability development and integrated test requirements. TR-3 related capability requires current test aircraft and replacement test aircraft configurations to be modified to new hardware, software, and instrumentation systems. Program priorities, flight test demand, data quantity/ bandwidth upgrades, and capability delivery schedules require a steady update to test fleet configurations. Modifications and instrumentation design/ procurement/install are long-lead efforts requiring stable funding and contract vehicles to meet program needs.						
<b>FY 2022 Plans:</b> Continue incremental funding of Lot 14 Undefined Contract Award for FTI design, procurement and installation (CF-84 & BF-154). 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						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
required Block 4 test mission assets, includes but not limited to weapons test vehicles, unique test mission equipment, and other test execution support equipment.  <b>FY 2023 Base Plans:</b> Continue incremental funding of Lot 14 Contract for FTI design, procurement and installation. Continues FTI design/ fabrication/installation (long-lead NRE, parts procurement, kit fabrication) for replacement test aircraft (16x unique designs). Continues NRE/procurement/installation to retrofit or maintain test aircraft viability. Additionally, development, procurement, and installation of flight test data center system upgrades to support Integrated Testing across multiple F-35 stakeholder sites. FTI development, procurement, fabrication, and installation for current/future service loaner aircraft in order to continue Integrated Testing with Service Operational Test organizations. Further, continue integration and procurement efforts for required Block 4 test mission assets, includes but not limited to weapons test vehicles, unique test mission equipment, and other test execution support equipment.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase in funding due to ramp up of activities across the board, to include Lot 17 Flight Science, Flight Science Lite, Operational Test TR-3 Flight Test Investments, etc.						
<b>Title:</b> Ground Test and Simulation Infrastructure (GTSI)  <b>Description:</b> Ground Test & Simulation Infrastructure capabilities from Block 4 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 Developments will focus on the pure development of Block 4 capabilities through a Capability Verification Infrastructure that meets required fidelities that would advance the high quality development of the Air System capabilities. Ground Test & Simulation Infrastructure will also include capabilities for cyber testing for TR-3 assessments within three main areas: air vehicle, information systems, and supply chain.  <b>FY 2022 Plans:</b> Continue Ground Test & Simulation Infrastructure improvements and modernization capabilities needed for Block 4 air system developments. Test infrastructure improvements include vendor lab needed capabilities to develop scheduled Block 4 software drop aircraft deliverables, and tech refresh efforts for aging equipment and		0.000	14.659	13.138	0.000	13.138

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2		<b>Project (Number/Name)</b> 673503 / Test and Evaluation (T&E)		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>Operating System (OS) migration to meet Authority to Operate (ATO) needs. Develop F-35 mission threads for continued digital verification automated capabilities for early-on software development, and continue aircraft cyber improvements and testing efforts.</p> <p><b>FY 2023 Base Plans:</b> Continue Ground Test &amp; Simulation Infrastructure improvements and modernization capabilities needed for Block 4 air system developments to include but are not limited to Advanced Anti-Air Threat Simulation (AATS), Automatic Test &amp; Re-Test (ATRT), Big Data Platform (BDP), Friendly and Threat Signal Development and Delivery, Multi-Spectral Environment improvements, etc. Efforts required to enable efficiencies in the Capability Verification process and decrease reliance on Flight Test Operations as the overwhelmingly sole means of Verification. Test Infrastructure improvements include Vendor lab capabilities as well as USG Organic Infrastructure. Develop F-35 mission threads for continued digital verification automated capabilities for early-on software development, and continue aircraft cyber improvements and testing efforts. Major Investments include improvements to Digital Capabilities and Analysis and Ground Integrated Battlespace Verification.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease in funding for FY2023 in the GT&amp;S portfolio due to some Developments being fielded for the Ground Test Infrastructure and maturing and stabilization of other Developments.</p>						
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	262.733	270.841	0.000	270.841
<b>C. Other Program Funding Summary (\$ in Millions)</b>						
N/A						
<b>Remarks</b>						
<b>D. Acquisition Strategy</b>						
<p>The new Test &amp; Evaluation Project Unit will maximize use of existing F-35 contracts, where possible, for the various T&amp;E-related capabilities and investments outlined in Sections A-C above. For example, provisions for new instrumentation on new flight test aircraft are being implemented when applicable via existing Production contracts in order to allow installation of the required hardware while those airframes are still on the assembly line. This will save significant costs and effort that would be required if instrumentation installation occurred after aircraft delivery. Other modifications and/or non-recurring engineering (NRE) may be implemented via existing contracts being managed by the Air Vehicle Program Management Office as part of the Block 4 engineering and development efforts. In addition, a separate Cost-Plus-Incentive-Fee-type contract is planned to provide a long-term approach to upgrading and maintaining laboratories and also for maintaining the older existing SDD test aircraft.</p>						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0604840F / <i>F-35 C2D2</i>	<b>Project (Number/Name)</b> 673503 / <i>Test and Evaluation (T&amp;E)</i>
<p>Viability modifications to the SDD test aircraft are being contracted via a combination of Streamlined Delivery Orders for NRE and hardware as well as a Cost Plus-type contract, using both to expedite the right modifications as needed at the right time in order to avoid test aircraft grounding and to maximize their availability. In addition, separate Basic Ordering Agreements or Indefinite Quantity/Indefinite Delivery contracts may be used to implement a long-term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future capabilities. Several new cost reduction initiatives are being studied to determine possible migration away from Lockheed-Martin support to less-expensive organic support (via either government solutions, local test-base support contracts, or a combination of both) in areas such as test aircraft maintenance, test operations support, and networks/knowledge management. Other initiatives are being pursued to move more test data collection requirements from the open-air ranges to ground test chambers, computer-based models and simulations, or other laboratory venues where possible.</p>		

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2	<b>Project (Number/Name)</b> 673503 / Test and Evaluation (T&E)
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DFC - Prime LM Developmental Foundation Contract	C/CPIF	LM; Fort Worth TX : TBD	-	-		90.258	Nov 2021	90.605	Nov 2022	-		90.605	Continuing	Continuing	-
OT - Prime LM Operation Test Aircraft Modification	C/CPIF	LM; Fort Worth TX : TBD	-	-		4.540	Jun 2022	3.600	Aug 2023	-		3.600	Continuing	Continuing	-
FI - Prime LM DT AC Viability	C/CPIF	LM; Fort Worth TX : TBD	-	-		24.584	Dec 2021	25.876	Dec 2022	-		25.876	Continuing	Continuing	-
FI - Flight Test Asset	C/CPIF	LM; Fort Worth TX : TBD	-	-		56.072	Dec 2021	56.930	Dec 2022	-		56.930	Continuing	Continuing	-
DT - Prime LM Development Test Aircraft Modification	C/CPIF	LM; Fort Worth TX : TBD	-	-		-		8.550	Aug 2023	-		8.550	Continuing	Continuing	-
<b>Subtotal</b>			-	-		175.454		185.561		-		185.561	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

GTS - Ground Test Simulation and Infrastructure

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

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DT - Developmental Test & Evaluation PAX	WR	NAWCAD: Pax River MD : TBD	-	-		17.210	Dec 2021	18.114	Dec 2022	-		18.114	Continuing	Continuing	-
DT - Developmental Test & Evaluation CLK	WR	NAWCAD: China Lake, CA : TBD	-	-		0.819	Dec 2021	0.862	Dec 2022	-		0.862	Continuing	Continuing	-
DT - Developmental Test & Evaluation EDW	MIPR	Edwards AFB, CA : TBD	-	-		15.570	Dec 2021	16.390	Dec 2022	-		16.390	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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)					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
OT - Operational Test & Evaluation - UOTT	MIPR	Nellis AFB, NV : TBD	-	-		10.379	Dec 2021	10.662	Dec 2022	-		10.662	Continuing	Continuing	-
FI - Operational Test & Evaluation	MIPR	Nellis AFB, NV : TBD	-	-		19.586	Dec 2021	20.614	Dec 2022	-		20.614	Continuing	Continuing	-
OT - IOT&E Completion	MIPR	Edwards AFB, CA : TBD	-	-		9.056	Nov 2021	5.500	Nov 2022	-		5.500	Continuing	Continuing	-
GTS - Ground Test & Simulation (T&E) Capabilities	Various	Various : TBD	-	-		12.065	Jul 2022	10.408	Jun 2023	-		10.408	Continuing	Continuing	-
GTS - Cyber Test & Evaluation	Various	Various : TBD	-	-		2.594	Dec 2021	2.730	Dec 2022	-		2.730	Continuing	Continuing	-
Subtotal			-	-		87.279		85.280		-		85.280	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		262.733		270.841		-		270.841	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity								R-1 Program Element (Number/Name)						Project (Number/Name)			
3600 / 7								PE 0604840F / F-35 C2D2						673503 / Test and Evaluation (T&E)			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 II																												
Development Foundation Contract Part III																												
DT Aircraft Viability																												
Flight Test Instrumentation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
673503				
Development Foundation Contract Part II	1	2022	1	2022
Development Foundation Contract Part III	1	2022	1	2024
DT Aircraft Viability	1	2022	4	2027
Flight Test Instrumentation	1	2022	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
673504: Propulsion (PP)	-	0.000	153.091	14.891	0.000	14.891	11.737	10.384	10.343	10.615	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Beginning in FY2022, 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.

**A. Mission Description and Budget Item Justification**

Propulsion F135 projects within the Continuous Capability Development and 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 engine modernization and improvement to support the F135 engine. 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 predicted to begin in FY2024.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Propulsion (PP)	0.000	153.091	14.891	0.000	14.891
<b>Description:</b> Propulsion F135 Block 4 Integrated Flight Test Support includes efforts such as Engine Flight Test Mechanics, Flight Test Engineers, Replacement Engine Hardware, 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. A consistent number of flights and flight hours are planned over the last year of the support contract, which requires a similar level of propulsion support. There are additional requirements to support the Air Vehicle modernization efforts in increasing the capability of the engine to handle bleed air/weight/thrust/performance increases. Additionally, as the current contract for Propulsion Flight Test Support comes to an end, there is a desire to move toward Organic support in the future. To enable this, conversion to engine tracking in the ALIS/ODIN system is required. To update the tracking system and convert parts away from development/SK parts, a considerable amount of funding is required over the FY23 and FY24					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
calendar years. Finally, FY23 will be the beginning of the program's Engine Signature Predictor (ESP) task, which will enable improved assessment of LO capabilities and increased limits.						
<b>FY 2022 Plans:</b> Continued Propulsion F135 Block 4 Integrated Flight Test Support to include efforts such as Engine Flight Test Mechanics, Flight Test Engineers, Replacement Engine Hardware, Test Engine Procurements, and other associated government costs. The Flight Test Fleet is planning to maintain elevated aircraft inventory at twelve aircraft in FY2022 (from 11 in FY2020). This again includes seven at Edwards Air Force Base and five at Patuxent River Naval Air Base. Flights and Engine Flight Hours (EFH) are expected to maintain their FY2021 levels at 960 flights and 1920 flight hours. As the FFR engines have aged past their design life, it is necessary to purchase three Initial Service Release (ISR) engines (two STOVL and one CTOL) to enable continued propulsion support of flight test. Continued incremental funding for two ISR engines, which has been funded with FY2020 and FY2021 dollars. An additional spare engine will be purchased in FY2022.						
<b>FY 2023 Base Plans:</b> Continued Propulsion F135 Block 4 Integrated Flight Test Support to include Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for engine modernization and improvement to support the F-35 Air Vehicle. The Flight Test Fleet will maintain elevated aircraft inventory at twelve aircraft in FY2023. This includes seven at Edwards Air Force Base and five at Patuxent River Naval Air Base. Flights and Engine Flight Hours (EFH) are expected to maintain their FY2021 and FY2022 levels at 240 flights and 480 flight hours per quarter. Flight Test Support efforts will transition to Organic support by 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. 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.						
<b>FY 2023 OCO Plans:</b> N/A						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2		<b>Project (Number/Name)</b> 673504 / Propulsion (PP)	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>				<b>FY 2021</b>	<b>FY 2022</b>
				<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>
				<b>FY 2023 Total</b>	
Decrease from FY2022 to FY2023 is due to a reduction of hardware procurements required to support flights and flight hours required in FY2023 to meet Block 4 test events					
<b>Accomplishments/Planned Programs Subtotals</b>				0.000	153.091
				14.891	0.000
				14.891	
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b>					
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-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673504 / Propulsion (PP)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PP Prime PW C2D2 Propulsion DT Aircraft Procurement Engine	C/FPIF	PW; East Hartford, CT : East Hartford, CT	-	-		11.739	Nov 2021	1.000	Nov 2022	-		1.000	Continuing	Continuing	-
PP Prime PW C2D2 Propulsion Flight Test	C/CPIF	PW; East Hartford, CT : East Hartford, CT	-	-		16.533	Oct 2021	11.829	Oct 2022	-		11.829	Continuing	Continuing	-
PP DevSecOps Emulation Lab	C/CPIF	PW; East Hartford, CT : East Hartford, CT	-	-		2.458	Oct 2021	0.000	Oct 2022	-		0.000	Continuing	Continuing	-
PP F135 Engine Growth Development	Various	PW; East Hartford, CT : East Hartford, CT	-	-		122.049	Oct 2021	1.472	Oct 2022	-		1.472	Continuing	Continuing	-
Subtotal			-	-		152.779		14.301		-		14.301	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PP Program Management Support	Various	Various : TBD	-	-		0.312	Nov 2021	0.590		-		0.590	Continuing	Continuing	-
Subtotal			-	-		0.312		0.590		-		0.590	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		153.091		14.891		-		14.891	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)			
3600 / 7								PE 0604840F / F-35 C2D2								673504 / Propulsion (PP)			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 2023 Air Force			Date: April 2022	
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2		Project (Number/Name) 673504 / Propulsion (PP)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
673504				
P&W Flight Test	1	2022	1	2026
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	2022
F135 Engine Modernization	1	2022	4	2024
Engine Signature Predictor (ESP)	1	2023	1	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673505 / Maintenance Systems (MxS)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
673505: Maintenance Systems (MxS)	-	0.000	50.409	49.836	0.000	49.836	41.949	33.483	30.201	29.608	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

Beginning in FY 2022, 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.

## 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.

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.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2		Project (Number/Name) 673505 / Maintenance Systems (MxS)		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<b>Title:</b> Operational Data Integrated Network (ODIN)  <b>Description:</b> ODIN efforts will focus on building a modern architecture and the data platform/environment(s), conducting cybersecurity and user-focused testing, and developing user training.  <b>FY 2022 Plans:</b> Program will 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. Program will continue maturing the ODIN infrastructure (hardware/cloud based development and production infrastructure). ODIN efforts will focus on building a modern architecture and the data platform/environment(s), conducting cybersecurity and user-focused testing, and developing user training. Program will execute initiatives that support enabling the ODIN requirements by modernizing ALIS applications where applicable; leveraging commercial and government off the shelf; and maximizing re-use from existing US Services logistics modernization efforts.  <b>FY 2023 Base Plans:</b> 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.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase from FY2022 to FY2023 due to inflation.		0.000	47.131	48.836	0.000	48.836
<b>Title:</b> Prognostics and Health Management (PHM)  <b>Description:</b> Develop PHM failure resolution improvements by analyzing Anomaly and Failure Resolution System (AFRS) technical data and increasing Assess Material Condition algorithm development and implementation.		0.000	3.278	1.000	0.000	1.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2		<b>Project (Number/Name)</b> 673505 / Maintenance Systems (MxS)		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b><i>FY 2022 Plans:</i></b> Develop PHM failure resolution improvements by analyzing Anomaly and Failure Resolution System (AFRS) technical data, as identified by the associated affordability war room initiatives and Performance-to-Plan metrics, and increasing Assess Material Condition algorithm development and implementation. Develop government-hosted PHM data storage and analytics infrastructure. Begin Systems Engineering and architecture development of PHM Downlink capability.						
<b><i>FY 2023 Base Plans:</i></b> Continue development of PHM failure resolution improvements by analyzing Anomaly and Failure Resolution System (AFRS) technical data, as identified by the associated affordability war room initiatives and Performance-to-Plan metrics, and Assess Material Condition algorithm development and implementation. Continue development of government-hosted PHM data storage and analytics infrastructure. Continue Systems Engineering and architecture development of PHM Downlink capability.						
<b><i>FY 2023 OCO Plans:</i></b> N/A						
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Decrease from FY2022 to FY2023 as program began development and implementation of 12 of the 15 priority AMC algorithms on non-Annualized FY22-23 Site Activation and Hardware (SAHW) Mod 89 contract vehicle in FY2022. Remaining 3 algorithms will begin development in 2022 and be completed in FY2023.						
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	50.409	49.836	0.000	49.836
<b>C. Other Program Funding Summary (\$ in Millions)</b>						
N/A						
<b>Remarks</b>						
<b>D. Acquisition Strategy</b>						
N/A						

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673505 / Maintenance Systems (MxS)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MxS Prime LM ODIN	C/CPFF	LM; Ft Worth Tx : TBD	-	-		22.997	Nov 2021	24.218	Nov 2022	-		24.218	Continuing	Continuing	-
MxS Prime PW ODIN	C/CPFF	PW; E Hartford, CT : TBD	-	-		4.835	Nov 2021	4.932	Nov 2022	-		4.932	Continuing	Continuing	-
MxS Prime LM PHM	C/CPFF	LM; Ft Worth Tx : TBD	-	-		3.278	Nov 2021	1.000	Nov 2022	-		1.000	Continuing	Continuing	-
Subtotal			-	-		31.110		30.150		-		30.150	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MxS ODIN Development Support	Various	Various : TBD	-	-		19.299	Nov 2021	19.686	Nov 2022	-		19.686	Continuing	Continuing	-
Subtotal			-	-		19.299		19.686		-		19.686	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		50.409		49.836		-		49.836	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2	<b>Project (Number/Name)</b> 673505 / Maintenance Systems (MxS)
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>673505</b>																												
Operational Data Integrated Network (ODIN): Hardware Development																												
Operational Data Integrated Network (ODIN): Hardware Improvement Studies																												
Operational Data Integrated Network (ODIN): Architecture Development																												
Operational Data Integrated Network (ODIN): Business Process Reengineering																												
Operational Data Integrated Network (ODIN): Platform Development																												
Operational Data Integrated Network (ODIN): Integrated Data Environment Development																												
Operational Data Integrated Network (ODIN): Data Transformation																												
Operational Data Integrated Network (ODIN): Software Prototyping																												
Operational Data Integrated Network (ODIN): Legacy Modernization and Migration																												
Operational Data Integrated Network (ODIN): COTS/GOTS Application Configuration, Software Development, and Integration																												
Prognostics and Health Management (PHM): PHM Algorithm Development																												

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

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
<b>673505</b>				
Operational Data Integrated Network (ODIN): Hardware Development	1	2022	4	2023
Operational Data Integrated Network (ODIN): Hardware Improvement Studies	1	2022	4	2026
Operational Data Integrated Network (ODIN): Architecture Development	1	2022	3	2023
Operational Data Integrated Network (ODIN): Business Process Reengineering	1	2022	3	2022
Operational Data Integrated Network (ODIN): Platform Development	1	2022	3	2024
Operational Data Integrated Network (ODIN): Integrated Data Environment Development	1	2022	4	2024
Operational Data Integrated Network (ODIN): Data Transformation	1	2022	1	2025
Operational Data Integrated Network (ODIN): Software Prototyping	1	2022	3	2022
Operational Data Integrated Network (ODIN): Legacy Modernization and Migration	1	2022	1	2023
Operational Data Integrated Network (ODIN): COTS/GOTS Application Configuration, Software Development, and Integration	4	2022	4	2026
Prognostics and Health Management (PHM): PHM Algorithm Development	2	2022	4	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673506 / Combat Data Systems (CDS)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
673506: Combat Data Systems (CDS)	-	0.000	60.039	53.248	0.000	53.248	39.407	29.726	35.993	39.130	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Beginning in FY 2022, Combat Data Systems (CDS) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from 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.

**A. Mission Description and Budget Item Justification**

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

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Joint Reprogramming Environment (JRE)	0.000	39.550	39.992	0.000	39.992
<b>Description:</b> 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 joint reprogramming enterprise. Other costs support Technology Investment for key Modernization/Innovation activities and Cloud based DevSecOps infrastructure.					
<b>FY 2022 Plans:</b> 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 in decomposition of requirements and begin software coding to support development of the software tool. Continue effort to upgrade Reprogramming Verification & Validation Systems (RVVS) to meet the Block 4 capability requirements and meet next generation threats. RVVS plans to conduct critical System Engineering Technical Review events to move forward in the design and delivery including acquiring equipment. Continue activities on the Capability Upgrade/ Refresh Contract (CURC) to accomplish three main objectives including upgrading the Radar Stimulator Interface (RSI), provide Win10 compliance, and redesign the IT infrastructure. In addition, the refresh effort					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
upgrades multiple United States Reprogramming Laboratory (USRL) computer systems for security compliance, and removes obsolete parts and deficient technology to form the new backbone of the USRL IT infrastructure for all future mission data production, test, and fielding. Continue ongoing efforts to support aircraft in relation to Technology Refresh-3 (TR-3), Continuous Capability Development and Delivery (C2D2), Capability Upgrade and Refresh, 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.  <b>FY 2023 Base Plans:</b> Continue efforts for the AGILE development of Common Reprogramming Tools (CRT) to provide Electronic Warfare Squadrons with essential software tools that reduce Mission Data File (MDF) development time and human error and increase combat effectiveness. The CRT effort will continue software coding and testing to support development / deployment of the software tool. Continue ongoing design and delivery efforts to upgrade Reprogramming Verification & Validation Systems (RVVS) to meet the Block 4 capability requirements and meet next generation threats. Continue ongoing efforts to support aircraft in relation to Technology Refresh-3 (TR-3), Continuous Capability Development and Delivery (C2D2), and Network Boundary Consolidation. Continue development support for defining, managing and acquiring the F-35 Reprogramming capability enhancements identified in approved requirements documents for Block 4 and modernization efforts and support efforts for joint reprogramming enterprise activities, including CRT and Software In The Loop (SITL). Begin efforts on the Systems, Engineering, Integration & Test (SEIT) contract to integrate Block 4 software data loads at reprogramming laboratories. Begin efforts to perform laboratory integration to complete of the F-35 Reprogramming Laboratory (FRL).  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase from FY22 to FY23 due to inflation.						
Title: Mission Planning Support Environment (MPSE)  Description: Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment. Other costs support Technology Investment for key Modernization/Innovation activities and Cloud based DevSecOps infrastructure.		0.000	20.489	13.256	0.000	13.256

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022					
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>FY 2022 Plans:</b></p> <p>Continue development support for defining, managing and acquiring the F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and software boundary. Continue development support of the Mission Planning System Environment (MPSE) software suite that is customized for each and every air vehicle Operational Flight Program (OFP) / Software Data Load (SDL) release to support the features and enhancements of that release. Continue development of the F-35 Next Generation Mission Planning (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 National Security Agency (NSA) to have high cyber security risks and not able to meet NSA Raise-the-Bar requirements without a complete redesign. 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.</p> <p><b>FY 2023 Base Plans:</b></p> <p>Continue development support for defining, managing and acquiring the F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and software boundary. Continue development support of the Mission Planning System Environment (MPSE) software suite that is customized for each and every air vehicle Operational Flight Program (OFP) / Software Data Load (SDL) release to support the features and enhancements of that release. Continue development of the F-35 Next Generation Mission Planning in order to a) replace the Joint Mission Planning Software (JMPS) framework that is facing end-of-life, increasing cost, decreasing performance, and limited capability growth, and b) Replace the Ground Data Receptacle (GDR) cross-domain solution and encryption/decryption device that has been has been assessed by the NSA to have high cyber security risks and not able to meet NSA Raise-the-Bar requirements without a complete re-design. Continue ongoing efforts to transition F-35 mission planning software development to AGILE and DevSecOps methodologies to reduce costs and increase speed of delivering capabilities to the warfighter. Continue ongoing efforts to transition F-35 mission planning software development workload from contractor to the Government, securing organic software development capability and reducing costs.</p> <p><b>FY 2023 OCO Plans:</b></p>								

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2		<b>Project (Number/Name)</b> 673506 / Combat Data Systems (CDS)	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Decrease from FY2022 to FY2023 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.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	60.039	53.248	0.000	53.248
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b> N/A					

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673506 / Combat Data Systems (CDS)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	-	-		6.900	Oct 2021	13.360	Oct 2022	-		13.360	Continuing	Continuing	-
CDS Prime JRE Development - RVVS	C/CPIF	LM; Ft Worth Tx : TBD	-	-		5.700	Jul 2022	14.282	Jul 2023	-		14.282	Continuing	Continuing	-
CDS Prime JRE Development - CURC	C/CPFF	LM; Ft Worth Tx : TBD	-	-		12.750	Oct 2021	0.000	Oct 2022	-		0.000	Continuing	Continuing	-
CDS Prime JRE Development - TR-3	C/CPAF	LM; Ft Worth Tx : TBD	-	-		2.987	Apr 2022	0.742	Apr 2023	-		0.742	Continuing	Continuing	-
CDS Prime JRE Development - SEIT	C/CPAF	LM; Ft Worth Tx : TBD	-	-		0.000		2.888	Oct 2022	-		2.888	Continuing	Continuing	-
CDS Prime JRE Development - FRL	Various	Various : TBD	-	-		0.000		0.938	Oct 2022	-		0.938	Continuing	Continuing	-
CDS Prime JRE Development - Capability Development	Various	Various : TBD	-	-		2.100	Dec 2021	6.840	Dec 2022	-		6.840	Continuing	Continuing	-
CDS Prime MPSE Development F-35 Next Generation Mission Planning	C/CPIF	LM; Ft Worth Tx : TBD	-	-		15.750	Jul 2022	3.922	Jul 2023	-		3.922	Continuing	Continuing	-
CDS Prime MPSE Development - CapabilityDevelopment	Various	Various : TBD	-	-		0.000		5.908	Oct 2022	-		5.908	Continuing	Continuing	-
Subtotal			-	-		46.187		48.880		-		48.880	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	-	-		9.113	Dec 2021	0.942	Dec 2022	-		0.942	Continuing	Continuing	-
CDS MPSE Development Support	Various	Various : TBD	-	-		4.739	Dec 2021	3.426	Dec 2022	-		3.426	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673506 / Combat Data Systems (CDS)					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Subtotal			-	-		13.852		4.368		-		4.368	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		60.039		53.248		-		53.248	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0604840F / F-35 C2D2

## Project (Number/Name)

673506 / Combat Data Systems (CDS)

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
1	2	3	4	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>673506</b>																												
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 2023 Air Force															Date: April 2022													
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2								Project (Number/Name) 673506 / Combat Data Systems (CDS)										
	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 2023 Air Force			Date: April 2022
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
<b>673506</b>				
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	2027
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	2027
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR3Configuration	1	2023	4	2027
Mission Planning Support Environment (MPSE): MPSE Re-architecture - Contract	3	2023	4	2027
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - PrototypeSLDO	1	2022	1	2022

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2	<b>Project (Number/Name)</b> 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	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673507 / Training Systems & Simulation			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
673507: Training Systems & Simulation	-	0.000	72.712	74.619	0.000	74.619	61.333	54.568	61.850	67.697	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note 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.												
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 BPAC.  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: Efforts will continue with a focus on implementation of the modernization activities outlined in the TSS PMO roadmaps that will target the requirement for higher fidelity training to the warfighter. Specific efforts will include software architecture modernization, hardware architecture modernization and Synthetic Threat Enhancement.  Joint Simulation Environment (JSE): 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 enabling successful IOT&E Run-for-Score events. Efforts will include FIAB development, threat/sensor model fidelity upgrades, new threat/sensor model development, and JSE 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.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Training Systems Capability Development (TSCD)								0.000	35.810	40.430	0.000	40.430

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Description:</b> Efforts will continue with a primary focus on alignment of Training System capabilities with other elements of the Air System. Specific efforts will include development of capabilities (Capability Increments (CI) 1-3) to equivalent maturity of those in the Air Vehicle enabling release of one capability upgrade per year to the fleet, continued development of the Production Runtime Server (PRTS) - Pilot Training Device TR-3 equivalent - to enable CI1-3 capabilities, continued development of Live-Virtual-Constructive (LVC) capabilities including Distributed Mission Training (DMT), and appropriate lab infrastructure to enable Training System development.</p> <p><b>FY 2022 Plans:</b> Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing a relevant capability upgrade (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2022. Additionally, PRTS will continue critical development, integration and test activities required to enable Block 4 training capabilities. The DMT program will continue with development activities to ensure DMT capability remains fully integrated with CI1-3 capabilities and in-line with overall Air System capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the LVC portfolio, requirements derivation and planning activities for Enhanced Embedded Training and Tactical Combat Training System (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><b>FY 2023 Base Plans:</b> Efforts will continue to support development, integration and test of Capability Increment (CI) 1-3 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 FY2023. Additionally, PRTS will continue critical development, integration and test activities required to enable TR-3 training capabilities. The DMT program will continue with development activities to ensure DMT capability remains fully integrated with CI1-3 capabilities and in-line with overall Air System capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the LVC portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve. Training System lab infrastructure assets will be configured to enable current and future Training System development activities across the portfolio.</p> <p>Effects Based Simulation (EBS) will continue design, development and integration activities to support requirements analysis and pilot training tasks. EBS was formerly carried as an effort in the Joint Simulation</p>						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Environment (JSE) R-2A category, but will align to the Training System Capability Development (TSCD) R-2A category beginning in FY23.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to EBS realigning from the JSE R-2A category to the TSCD R-2A category.						
<b>Title:</b> Training Systems Investments (TSI) Roadmap  <b>Description:</b> Efforts will continue with a focus on implementation of the modernization activities outlined in the TSS PMO roadmaps that will target the requirement for higher fidelity training to the warfighter. Specific efforts will include software architecture modernization, hardware architecture modernization and Synthetic Threat Enhancement.  <b>FY 2022 Plans:</b> Efforts will continue to refine and implement TSS PMO investment roadmaps with the objective to enable operationally relevant and higher fidelity training to the warfighter with focus on training to support the high-end fight. Software architecture modernization efforts (F-35 Lightning Integrated Training Environment (FLITE)) will continue with an intent to integrate FLITE into the Pilot Training Device (PTD) software baseline in FY2022 (objective) or FY2023 (threshold). Hardware architecture modernization efforts will continue with an intent to conduct tradeoff analyses of smaller footprint PTD rapid prototype activities to support eventual Program of Record production cut-in. Synthetic Threat Enhancement efforts will continue to improve the quantity, density and fidelity of relevant synthetic threat integration in the family of PTDs with intent to incrementally integrate synthetic threat improvement in each annual PTD capability upgrade to the fleet. Opportunities to leverage JSE synthetic threat investment toward a common threat environment across Training Systems and JSE architectures will continue to mature with an intent to minimize duplicative investment in multiple synthetic threat environments across the F-35 Enterprise.  <b>FY 2023 Base Plans:</b> Efforts will continue to refine and implement TSS PMO investment roadmaps with the objective to enable operationally relevant and higher fidelity training to the warfighter with focus on training to support the high-end fight. Software architecture modernization efforts (FLITE) will complete with an intent to integrate FLITE into the PTD software baseline in FY2023 (threshold). Hardware architecture modernization efforts will continue with an intent to finalize smaller footprint Pilot Training Device (PTD) rapid prototype activities to support eventual Program of Record production cut-in in 2023. Synthetic Threat Enhancement efforts will continue to		0.000	15.717	13.930	0.000	13.930

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022				
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
improve the quantity, density and fidelity of relevant synthetic threat integration in the family of PTDs with intent to incrementally integrate synthetic threat improvement in each annual PTD capability upgrade to the fleet. Activities to leverage JSE synthetic threat investment toward a common threat environment across Training Systems and JSE architectures will increase with an intent to minimize duplicative investment in multiple synthetic threat environments across the F-35 Enterprise.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Although the budget allocation for Training Systems Investments decreases slightly in FY2023, efforts to improve the F-35 Training systems to enable operationally relevant and higher fidelity training to the warfighter will increase. Efforts to integrate the JSE synthetic threat environment will increase in FY2023, with a threshold integration date of 2025. Additionally, efforts will ramp up to prototype and develop a small footprint training device that meets evolving warfighter need.							
<b>Title:</b> Joint Simulation Environment (JSE) Development  <b>Description:</b> Efforts will continue with a focus on completion of F-35 IOT&E events at the NAS Patuxent River facility while upgrading JSE capabilities at NAS Patuxent River to enable effective verification of C11-3 capabilities. Additionally, efforts will continue toward development of Effects Based Simulation (EBS) capabilities as well as Virtual Warfare Center (VWC) capabilities.  <b>FY 2022 Plans:</b> Efforts will continue with a focus on completion of Verification, Validation and Accreditation (VV&A) activities enabling successful IOT&E Run-for-Score events. Concurrently, upgrading JSE capability will enable effective verification of Block 4 capabilities (sensor model fidelity, complex threat models and F-35 In-a-Box (FIAB) upgrades) (objective). Efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB and Nellis AFB in FY2023 (objective). Effects Based Simulation (EBS) will continue design, development and integration activities to support requirements analysis and pilot training tasks. Efforts will continue to support F-35 participation in events at the Virtual Warfare Center (VWC), including Nimble Lightning.  <b>FY 2023 Base Plans:</b> 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 FIAB software development and integration, threat/sensor model fidelity upgrades, new threat/sensor model development, and JSE upgrades to enable effective verification of Block 4 capabilities. Efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB and			0.000	21.185	20.259	0.000	20.259

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2		<b>Project (Number/Name)</b> 673507 / Training Systems & Simulation	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>				<b>FY 2021</b>	<b>FY 2022</b>
<p>Nellis AFB. F-35 participation in events at the Virtual Warfare Center (VWC), including Nimble Lightning, will be continued and included in BPAC 673502 - Air Vehicle Block 4 Planning &amp; Sys Eng.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased as a result of expected efficiencies in the development of Block 4 F-35 IAB and a shift of cost from development to sustainment. Block 4 F-35 IAB will leverage development from a common software baseline, reducing duplication of work in software development.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>				0.000	72.712
				74.619	0.000
				74.619	
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b>					
<p>For FY2021 and FY2022, 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.</p> <p>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.</p>					

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673507 / Training Systems & Simulation					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
TSS Prime LM Training System Alignment (TSCD)	C/CPAF	Lockheed Martin : Ft. Worth, TX	-	-		14.330	Nov 2021	15.580	Nov 2022	-		15.580	Continuing	Continuing	157.972
TSS Prime LM PTD TR-3 Development (TSCD)	C/CPAF	Lockheed Martin : Ft. Worth, TX	-	-		11.448	Nov 2021	12.450	Nov 2022	-		12.450	Continuing	Continuing	84.564
TSS Prime LM Training Lab Infrastructure (TSCD)	C/CPFF	Lockheed Martin : Ft. Worth, TX	-	-		8.780	Nov 2021	9.550	Nov 2022	-		9.550	Continuing	Continuing	76.127
TSS Live-Virtual-Constructive (LVC) - DMT (TSCD)	C/CPFF	Lockheed Martin : Ft. Worth, TX	-	-		1.252	Nov 2021	1.250	Nov 2022	-		1.250	Continuing	Continuing	35.717
TSS Effects Based Simulation Development (TSCD)	C/CPAF	Not specified. : TBD	-	-		-		1.600	Nov 2022	-		1.600	Continuing	Continuing	-
TSS Hardware Re-architecture (TSI)	Various	Not specified. : TBD	-	-		7.261	Nov 2021	6.430	Nov 2022	-		6.430	Continuing	Continuing	15.166
TSS Software Re-architecture (TSI)	C/CPAF	Lockheed Martin : Ft. Worth, TX	-	-		5.955	Nov 2021	5.280	Nov 2022	-		5.280	Continuing	Continuing	45.545
TSS Synthetic Threat Enhancement (TSI)	C/CPFF	Lockheed Martin : Ft. Worth, TX	-	-		2.501	Nov 2021	2.220	Nov 2022	-		2.220	Continuing	Continuing	15.227
TSS JSE Prime LM FIAB Development	C/CPIF	Lockheed Martin : Ft. Worth, TX	-	-		9.105	Nov 2021	9.714	Nov 2022	-		9.714	Continuing	Continuing	54.073
TSS JSE VWC Development	Various	Various : TBD	-	-		0.995	Nov 2021	-		-		-	Continuing	Continuing	7.696
Subtotal			-	-		61.627		64.074		-		64.074	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
TSS JSE Pax Development Support	Various	NAWCAD : NAS Patuxent River, MD	-	-		8.725	Nov 2021	8.665	Nov 2022	-		8.665	Continuing	Continuing	51.671
TSS JSE Other Development Support	Various	Various : TBD	-	-		0.821	Nov 2021	1.880	Nov 2022	-		1.880	Continuing	Continuing	16.383

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673507 / Training Systems & Simulation					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
TSS JSE EBS Development Support	Various	Various : TBD	-	-		1.539	Nov 2021	-		-		-	Continuing	Continuing	5.826
Subtotal			-	-		11.085		10.545		-		10.545	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		72.712		74.619		-		74.619	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2	<b>Project (Number/Name)</b> 673507 / Training Systems & Simulation
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>673507</b>																												
Capability Development & Air System Alignment																												
Ownship Software Modernization (FLITE)																												
Environment Software Re-architecture & Integration of JSE Components																												
Hardware Re-architecture (Small Footprint Sim OTA)																												
Pilot Training Devices (PTD) TR-3 Development																												
Training System Lab Infrastructure																												
Distributed Mission Training (DMT)																												
Development/Integration of models in JSE																												
Development/Integration of F-35 In-a-Box																												
Development of Effects Based Simulation (EBS)																												
Execution of Virtual Warfare Center (VWC) Development Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
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
<b>673507</b>				
Capability Development & Air System Alignment	1	2022	4	2027
Ownship Software Modernization (FLITE)	1	2022	3	2023
Environment Software Re-architecture & Integration of JSE Components	2	2022	3	2026
Hardware Re-architecture (Small Footprint Sim OTA)	1	2022	1	2024
Pilot Training Devices (PTD) TR-3 Development	1	2022	4	2026
Training System Lab Infrastructure	1	2022	4	2027
Distributed Mission Training (DMT)	1	2022	4	2027
Development/Integration of models in JSE	1	2022	4	2023
Development/Integration of F-35 In-a-Box	1	2022	4	2023
Development of Effects Based Simulation (EBS)	1	2021	4	2027
Execution of Virtual Warfare Center (VWC) Development Support	1	2022	4	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673508 / Infrastructure & Support Costs			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
673508: Infrastructure & Support Costs	-	0.000	67.860	74.101	0.000	74.101	73.433	75.014	78.088	80.237	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note												
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 project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY 2022 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 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. 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 Block 4 and TR3 developmental 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 element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 \$47.9M was expended for civilian pay expenses in this program element, and in FY22 \$46.9M is forecasted for civilian pay expenses in this program element.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: F-35 JPO AFLCMC Civilian Pay								-	0.000	50.862	0.000	50.862
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 it's life cycle. This effort is a continuation of FY22 and not a new start. Correcting in FY23 to provide transparency.												
FY 2022 Plans:												

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2		Project (Number/Name) 673508 / Infrastructure & Support Costs		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Fund the F-35 Joint Program Office acquisition and product support workforce. <b>FY 2023 Base Plans:</b> Fund the F-35 Joint Program Office acquisition and product support workforce. <b>FY 2023 OCO Plans:</b> N/A <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The Average Work Year Cost (AWYC) has been updated based on FY22 actual costs. Increase from FY 2022 to FY 2023 is due to "F-35 JPO AFLCMC Civilian Pay" was included in Core Program Support/CSS Support, and in FY23, AFLCMC Civilian Pay is captured on its own line.						
<b>Title:</b> Core Program Support/CSS Support <b>Description:</b> 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. <b>FY 2022 Plans:</b> Support program office efforts, including Arlington, VA program unique off-base lease costs, Contract Support Services (CSS) support, travel, supplies, Navy working capital technical subject matter expert (SME) labor, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies. <b>FY 2023 Base Plans:</b> Continue to support program office efforts, including Arlington, VA program unique off-base lease costs, CSS support, travel, supplies, Navy working capital technical SME labor, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies, directly related to Block 4 and TR3 developmental efforts. <b>FY 2023 OCO Plans:</b> N/A <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease from FY2022 to FY2023 is due to "Core Program Support/CSS Support" including F-35 JPO AFLCMC Civilian Pay, and in FY23, AFLCMC Civilian Pay is captured on its own line.		0.000	67.860	23.239	0.000	23.239
Accomplishments/Planned Programs Subtotals		0.000	67.860	74.101	0.000	74.101

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673508 / Infrastructure & Support Costs
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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673508 / Infrastructure & Support Costs					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Core Program Support Cyber Risk Reduction	Various	Various : TBD	-	-		1.000	Dec 2021	1.200	Dec 2022	-		1.200	Continuing	Continuing	-
Core Program Support Model-Based Systems Engineering	Various	Various : TBD	-	-		0.200	Dec 2021	0.500	Dec 2022	-		0.500	Continuing	Continuing	-
Subtotal			-	-		1.200		1.700		-		1.700	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
F-35 JPO AFLCMC Civilian Pay	MIPR	Wright Patterson AFB, OH : TBD	-	-		46.862	Oct 2021	50.862	Oct 2022	-		50.862	Continuing	Continuing	-
CSS Support/Civ Support	Various	Various : TBD	-	-		7.070	Dec 2021	7.570	Dec 2022	-		7.570	Continuing	Continuing	-
Core Program Support Off-Base Leases	MIPR	WHS : NCR	-	-		12.228	Oct 2021	12.569	Oct 2022	-		12.569	Continuing	Continuing	-
Core Program Support Travel	Various	Various : TBD	-	-		0.500	Oct 2021	0.900	Oct 2022	-		0.900	Continuing	Continuing	-
Core Program Support GPC	Various	Various : TBD	-	-		-		0.500	Dec 2022	-		0.500	Continuing	Continuing	-
Subtotal			-	-		66.660		72.401		-		72.401	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		67.860		74.101		-		74.101	Continuing	Continuing	N/A
Remarks FY23 travel increase over FY22 assumes travel at the pre-Covid levels. GPC is not a new start, providing additional transparency into the JPO's Infrastructure & Support Cost requirements															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)			
3600 / 7								PE 0604840F / F-35 C2D2								673508 / Infrastructure & Support Costs			
								FY 2021				FY 2022				FY 2023			
								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 2023 Air Force		Date: April 2022
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	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
673509: DevSecOps	-	0.000	28.000	19.871	0.000	19.871	22.834	23.362	24.357	4.371	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

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 execution and the FY 2022 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). This includes providing support to the Combat Data Systems (CDS), Air Vehicle (AV), Maintenance Systems (MxS), Propulsion (PP), and Training Systems and Simulation (TSS) PMOs. The mission of DevSecOps is to provide a centralized and consolidated F-35 software development environment, allowing for rapid release cycles to keep the F-35 ahead of its adversaries. Investment and modernization of DevSecOps include efforts to support F-35 Software Modernization efforts, develop organic government software and testing capabilities, enhance the security posture of the development pipeline, and support goals of reducing long-term on-premise infrastructure environments cost ultimately resulting in reducing fleet delivery timelines.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> DevSecOps Support	0.000	28.000	19.871	-	19.871
<b>Description:</b> Reference Mission Description and Budget Item Justification.					
<b>FY 2022 Plans:</b> Continue development and support for DevSecOps infrastructure, platform, software development pipeline, and joint F-35 organizational connections. 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. 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 and Multi-Factor Authentication and Compiler 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					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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).						
FY 2023 Base Plans: Continue development and support for DevSecOps infrastructure, platform, software development pipeline, and joint F-35 organizational connections. Continue to develop a transition plan to stand-up a team consisting of Industry and Government software development in support of software modernization and DevSecOps Cloud transition. Establish initial capabilities and expand existing software development efforts with the goal of transitioning dispersed and separated software development environments into model based systems engineering and a fully collaborative requirement to development environment. Capabilities include software development environment for Maintenance Systems Operational Data Integrated Network (ODIN), Autonomic Logistics Information System (ALIS) to ODIN migration, Combat Data System's Mission Planning, Propulsion's Offboard Management System, and Air Vehicle Mission System domains. Additional goals of delivering flight-worthy rapid prototyping of capability, virtual test capability, and transitioning workloads to lower cost software sustainment efforts. New requirements from PMOs are expected. Prepare environment for on-boarding, as well as transitioning the PMOs from separate pillars to a centralized JPO-managed cloud environment. Includes software licensing for PMO tool sets and associated applications. Major cost drivers include requirements tool, and collaboration tools, authentication tools - supporting Single Sign On, Multi-Factor Authentication and development tools. For software tooling efforts, working towards an eventual consolidation of tools across the PMOs (i.e. application rationalization) with an end goal of a standardized compiler tool sets and Cybersecurity compliance. Accordingly, talent/consumption (hardware and software to run the environment) contracts must be renewed and expanded. Cybersecurity requirements must also be met, meaning additional resources for security processes, monitoring, scanning, vulnerability identification plus mitigation, and meeting all requirements for DoD compliance to obtain ongoing/continuous Authority to Operate (ATO) and continuous Authority to Operate (cATO).						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to the removal of Platform One scope and an update to the Cloud estimate based on component and service data actuals.						
Accomplishments/Planned Programs Subtotals		0.000	28.000	19.871	-	19.871
C. Other Program Funding Summary (\$ in Millions)						
N/A						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2	Project (Number/Name) 673509 / DevSecOps
C. Other Program Funding Summary (\$ in Millions)		
Remarks		
D. Acquisition Strategy		
<p>The DevSecOps Acquisition Strategy is based on the CSAF 180-day delivery sprint. Phase 1 demonstrates prototype designs, integration of Defense Industry Base partners and PMOs, appropriate set of technology stacks to be integrated, identifying return on investment (ROI) and buying down technical risk. Technology maturation; putting in place the necessary contracts for talent, licenses and Cloud consumption to support software pipeline delivery for F-35. Production and 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.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 673509 / DevSecOps					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Dev Ops Development Support - Talent	Various	Various : TBD	-	-		16.000	Dec 2021	10.021	Dec 2022	-		10.021	Continuing	Continuing	-
Dev Ops Development Support - Licenses	C/FFP	Various : TBD	-	-		7.000	Oct 2021	5.250	Oct 2022	-		5.250	Continuing	Continuing	-
Dev Ops Development Support - Cloud Support	C/FFP	Various : TBD	-	-		5.000	Oct 2021	2.850	Oct 2022	-		2.850	Continuing	Continuing	-
Dev Ops Development Support - Industry Stand-up	C/FFP	Various : TBD	-	-		-		1.750	Mar 2023	-		1.750	Continuing	Continuing	-
Subtotal			-	-		28.000		19.871		-		19.871	Continuing	Continuing	N/A
Remarks DevSecOps Ecosystem Standup used for centralized software development in JPO-managed cloud.															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		28.000		19.871		-		19.871	Continuing	Continuing	N/A
Remarks Industry Stand-up is not a new start, providing additional transparency into the JPO's DevSecOps requirements. DevSecOps Ecosystem Standup used for centralized software development in JPO-managed cloud.															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0604840F / F-35 C2D2

Project (Number/Name)

673509 / DevSecOps

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>673509</b>																												
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																												
AzureStack Impact Level 6+ (SAP) Research, Development and Test																												

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0604840F / F-35 C2D2

Project (Number/Name)

673509 / DevSecOps

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>673509</b>				
AWS Impact Level 5 Buildout	1	2021	1	2022
AWS Impact Level 5 Research, Development and Test	4	2021	4	2025
AWS Impact Level 6 Buildout	1	2022	4	2022
AWS Impact Level 6 Research, Development and Test	4	2022	4	2025
AWS Impact Level 6+ (SAP) Buildout	1	2022	4	2022
AWS Impact Level 6+ (SAP) Research, Development and Test	4	2022	4	2022
Data Transfer as a Service	1	2022	1	2022
Cloud Gateway (Collateral) LM Connection	2	2022	4	2022
Cloud Gateway (Collateral) Research, Development and Test	1	2023	1	2023
Cloud Gateway (SAP) LM Connection	1	2022	1	2022
Cloud Gateway (SAP) Research, Development and Test	2	2022	2	2022
AzureStack Impact Level 6+ (SAP) Buildout	1	2022	3	2022
AzureStack Impact Level 6+ (SAP) Research, Development and Test	3	2022	3	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675346: F-35	-	684.931	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

64840F BPAC 675346 was reduced to zero in FY22 due to breakout of new BPACs per Congressional mandate

**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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Product Development - Air Vehicle (AV) / Block 4 Planning and Systems Engineering	193.182	0.000	0.000	0.000	0.000
<b>Description:</b> 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 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 (AARGM-ER), 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.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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.						
FY 2022 Plans: Efforts continued in BPAC 673502.						
FY 2023 Base Plans: N/A						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: N/A						
Title: AV Product Development - Technology Refresh 3 (TR-3)		161.290	0.000	0.000	0.000	0.000
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 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.						
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.						
FY 2022 Plans:						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Efforts continued in BPAC 673501.  <b>FY 2023 Base Plans:</b> N/A  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A						
<b>Title:</b> Infrastructure and Support Costs  <b>Description:</b> 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.  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 Project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2022 request.  <b>FY 2022 Plans:</b> Efforts continued in BPAC 673508.  <b>FY 2023 Base Plans:</b> N/A  <b>FY 2023 OCO Plans:</b>		42.690	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: N/A						
Title: Test and Evaluation (TE)  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.  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.  FY 2022 Plans: Efforts continued in BPAC 673503.  FY 2023 Base Plans: N/A  FY 2023 OCO Plans: N/A  FY 2022 to FY 2023 Increase/Decrease Statement: N/A		141.760	0.000	0.000	0.000	0.000
Title: Maintenance Systems (MxS) Operational Data Integrated Network (ODIN) / Autonomic Logistics Information System (ALIS) Development		20.772	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022					
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Description:</b> 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><b>FY 2022 Plans:</b> Efforts continued in BPAC 673505.</p> <p><b>FY 2023 Base Plans:</b> N/A</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>								

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A						
<p><b>Title:</b> Combat Data Systems (CDS)</p> <p><b>Description:</b> Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification &amp; 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.</p> <p>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.</p> <p><b>FY 2022 Plans:</b> Efforts continued in BPAC 673506.</p> <p><b>FY 2023 Base Plans:</b> N/A</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>		36.612	0.000	0.000	0.000	0.000
<p><b>Title:</b> Propulsion (PP)</p> <p><b>Description:</b> 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 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>		18.975	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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.						
FY 2022 Plans: Efforts continued in BPAC 673504.						
FY 2023 Base Plans: N/A						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: N/A						
Title: Training Systems (TSS)		45.230	0.000	0.000	0.000	0.000
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 Air System viability against evolving threats, reduce life cycle cost, and improve operational suitability. Funding						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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.						
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).						
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.						
FY 2022 Plans: Efforts continued in BPAC 673507.						
FY 2023 Base Plans: N/A						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: N/A						
Title: DevSecOps		14.420	0.000	0.000	0.000	0.000
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						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force								Date: April 2022					
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Project has also been updated to reflect the directed project categories to provide traceability between current execution and the FY 2022 request.													
FY 2022 Plans: Efforts continued in BPAC 673509.													
FY 2023 Base Plans: N/A													
FY 2023 OCO Plans: N/A													
FY 2022 to FY 2023 Increase/Decrease Statement: N/A													
Accomplishments/Planned Programs Subtotals								674.931	0.000	0.000	0.000	0.000	
								FY 2021	FY 2022				
Congressional Add: JASSM								10.000	-				
FY 2021 Accomplishments: F-35 Air System Integration Assessment (ASIA) study completed to determine feasibility of full integration of Joint Air to Surface Standoff Missile Extended Range (JASSM-ER) on the F-35A. JASSM integration conducts preliminary integration analysis, risk reduction activities, and long lead test asset procurement for the JASSM family of weapons on F-35A/B/C variants. JASSM integration provides F-35 with a highly survivable long range precision strike capability against high value, well defended, fixed, and relocatable targets.													
Congressional Adds Subtotals								10.000	-				
C. Other Program Funding Summary (\$ in Millions)													
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost		
• RDTE 07 0604840N: BLI 2936: F-35C C2D2	377.005	481.962	-	-	-	-	-	-	-	Continuing	Continuing		
• RDTE 07 0604840M: BLI 3410: F-35B C2D2	370.431	515.746	-	-	-	-	-	-	-	Continuing	Continuing		

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2				<b>Project (Number/Name)</b> 675346 / F-35			

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 07 International: <i>International Continuous Capability Development and Delivery</i>	264.799	358.159	346.820	-	346.820	306.563	265.900	215.209	193.862	Continuing	Continuing

**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-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 675346 / F-35					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 LM Phase II Development	C/CPIF	Lockheed Martin : Ft Worth, TX	-	176.206	Nov 2020	-		0.000	Nov 2022	-		0.000	Continuing	Continuing	-
AV Prime LM TR-3 Development	C/CPIF	Lockheed Martin : Ft Worth, TX	-	166.843	Nov 2020	-		-		-		-	Continuing	Continuing	-
TSS VWC Nimble Lightening	C/CPFF	Various : Various	-	0.410	Jan 2021	-		-		-		-	Continuing	Continuing	-
TE Flight Test Assets	Various	Lockheed Martin : Ft Worth, TX	-	9.760	Dec 2020	-		-		-		-	Continuing	Continuing	-
TE Prime LM TBD DT AC Viability	C/CPFF	Lockheed Martin : Ft Worth, TX	-	6.000	Dec 2020	-		-		-		-	Continuing	Continuing	-
PP Prime PW Propulsion	SS/CPFF	Pratt Whitney : East Hartford, CT	-	18.970	Nov 2020	-		-		-		-	Continuing	Continuing	-
TE Prime LM Developmental Foundation Contract	C/CPIF	Lockheed Martin : Ft Worth, TX	-	79.250	Nov 2020	-		-		-		-	Continuing	Continuing	-
CDS Prime LM JRE Dev.	C/CPFF	Lockheed Martin : Ft Worth, TX	-	25.010	Nov 2020	-		-		-		-	Continuing	Continuing	-
MxS Prime LM ALIS	C/CPFF	Lockheed Martin : Ft Worth, TX	-	0.000	Dec 2020	-		-		-		-	Continuing	Continuing	-
MxS Prime LM ODIN	C/CPIF	Lockheed Martin : Ft Worth, TX	-	6.710	Nov 2020	-		-		-		-	0.000	6.710	-
AV Prime LM Air Vehicle Integration	C/CPIF	Lockheed Martin : Ft Worth, TX	-	0.000	Nov 2020	-		-		-		-	Continuing	Continuing	-
TE Prime LM F-35B Fatigue Test Article	C/CPIF	Lockheed Martin : Ft Worth, TX	-	0.000	Dec 2020	-		-		-		-	0.000	0.000	-
TSS Prime LM Training Investments	C/CPIF	Lockheed Martin : Ft Worth, TX	-	8.000	Dec 2020	-		-		-		-	0.000	8.000	-
AV Systems Engineering	Various	Various : Various	-	7.120	Jan 2021	-		-		-		-	Continuing	Continuing	-
TSS Prime LM - JSE	C/CPIF	Lockheed Martin : Ft Worth, TX	-	6.920	Dec 2020	-		-		-		-	Continuing	Continuing	-
CDS Prime LM Mission Planning Software Environment (MPSE)	C/CPIF	Lockheed Martin : Ft Worth, TX	-	3.250	Dec 2020	-		-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 675346 / F-35					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
JASSM LM Integration	TBD	TBD : TBD	-	10.000	Jun 2021	-		-		-		-	Continuing	Continuing	-
Subtotal			-	524.449		-		0.000		-		0.000	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
TSS Development Support - JSE	WR	Various : Various	-	8.300	Dec 2020	-		-		-		-	Continuing	Continuing	-
AV Mission Systems Support	Various	Various : Various	-	4.140	Dec 2020	-		-		-		-	Continuing	Continuing	-
AV Vehilce Systems Support	Various	Various : Various	-	0.000	Dec 2020	-		-		-		-	Continuing	Continuing	-
TSS Development Support - Training Systems	Various	Various : Various	-	4.090	Dec 2020	-		-		-		-	Continuing	Continuing	-
AV CSO Development support	Various	Various : Various	-	1.270	Dec 2020	-		-		-		-	Continuing	Continuing	-
CDS JRE IPT Development Support	Various	Various : Various	-	25.010	Dec 2020	-		-		-		-	Continuing	Continuing	-
MxS Dev Ops Development Support	Various	Various : Various	-	2.500	Dec 2020	-		-		-		-	Continuing	Continuing	-
MxS ALIS / ODIN Development Support	Various	Various : Various	-	1.730	Dec 2020	-		-		-		-	Continuing	Continuing	-
CDS MPSE Re-Arch Development Support	Various	Various : Various	-	3.580	Dec 2020	-		-		-		-	Continuing	Continuing	-
PP Propulsion Development Support	Various	Various : Various	-	0.000	Dec 2020	-		-		-		-	Continuing	Continuing	-
Subtotal			-	50.620		-		-		-		-	Continuing	Continuing	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0604840F / F-35 C2D2	<b>Project (Number/Name)</b> 675346 / F-35
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Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
TE Developmental Test & Evaluation - PAX	WR	NAWCAD : Patuxent River, MD	-	6.523	Dec 2020	-		-		-		-	Continuing	Continuing	-
TE Developmental Test & Evaluation - CL	WR	NAWCWD : China Lake, CA	-	6.523	Dec 2020	-		-		-		-	Continuing	Continuing	-
TE Developmental Test & Evaluation - Edwards AFB	MIPR	Edwards AFB : Edwards AFB, CA	-	6.523	Dec 2020	-		-		-		-	Continuing	Continuing	-
TE Developmental Test & Evaluation - Various	Various	Various : Various	-	6.523	Dec 2020	-		-		-		-	Continuing	Continuing	-
TE Operational Test & Evaluation - UOTT	MIPR	Nellis AFB : Nellis AFB, NV	-	20.670	Dec 2020	-		-		-		-	Continuing	Continuing	-
TE USMC Operational Test & Evaluation - VMX-1	WR	Yuma Air Station : Yuma Air Station, NV	-	0.000	Dec 2020	-		-		-		-	Continuing	Continuing	-
TE USN Operational Test & Evaluation - VX-9	WR	Various : Various	-	0.000	Nov 2020	-		-		-		-	Continuing	Continuing	-
TE Ground Test	Various	Various : Various	-	0.000		-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	46.762		-		-		-		-	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AFLCMC Civilian Pay	C/CPAF	AFLCMC Civ Pay : Wright Patterson AFB, OH	-	34.730	Oct 2020	-		-		-		-	Continuing	Continuing	-
Financial Mgmt Database Support IDS	C/CPAF	Various : Various	-	0.250	Dec 2020	-		-		-		-	Continuing	Continuing	-
Earned Value/Finance/ Cost ACT-I	C/CPAF	Various : Various	-	0.500	Dec 2020	-		-		-		-	Continuing	Continuing	-
Operating Core Support	C/FP	Various : Various	-	1.910	Dec 2020	-		-		-		-	Continuing	Continuing	-
Other Core Contractor Support	C/CPAF	NAWCAD/WD : Vatiuous	-	0.000		-		-		-		-	Continuing	Continuing	-
Travel	Various	Not specified. : TBD	-	0.020	Dec 2020	-		-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0604840F / F-35 C2D2				Project (Number/Name) 675346 / F-35					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DevSecOps	Various	Not specified. : TBD	-	25.690	Oct 2020	-		-		-		-	Continuing	Continuing	-
Subtotal			-	63.100		-		-		-		-	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	684.931		-		0.000		-		0.000	Continuing	Continuing	N/A
Remarks															

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### Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force

**Date:** April 2022

### Appropriation/Budget Activity

3600 / 7

### R-1 Program Element (Number/Name)

PE 0604840F / F-35 C2D2

Project (Number/Name)

675346 / F-35

[illegible]

**675346**

Funds allocated to this BPAC in error  
Placeholder event.

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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	2023	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0605018F I AF Integrated Personnel and Pay System (AF-IPPS)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	29.526	22.010	37.901	0.000	37.901	1.126	0.000	0.000	0.000	0.000	90.563
676003: HRM Structural Development	0.000	29.526	22.010	37.901	0.000	37.901	1.126	0.000	0.000	0.000	0.000	90.563
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: N86												
A. Mission Description and Budget Item Justification												
<p>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 Air Force 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.</p>												
<p>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.</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 FY21 \$0.000M was expended for civilian pay expenses in this program element, and in FY22 \$0.000M is forecasted for civilian pay expenses in this program element.</p>												
<p>This requirement supports performance of a full financial audit as required by title 10 U.S.C Chapter 9A, Sec 240-D.</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 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0605018F I AF Integrated Personnel and Pay System (AF-IPPS)			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	26.986	22.010	0.000	0.000	0.000
Current President's Budget	29.526	22.010	37.901	0.000	37.901
Total Adjustments	2.540	0.000	37.901	0.000	37.901
• 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	3.375	0.000			
• SBIR/STTR Transfer	-0.835	0.000			
• Other Adjustments	0.000	0.000	37.901	0.000	37.901
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.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: AFIPPS - System Integrator Development & Test	28.042	20.052	36.296	0.000	36.296
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 2 objectives: Transactional System development and Reporting System development. The Transactional System references AFIPPS' ability 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 will discuss some recently experienced DT&E obstacles. Subsequent resolution and risk mitigation initiatives reprioritized a few post-deployment Transactional System development activities for incorporation in 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).					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0605018F I AF Integrated Personnel and Pay System (AF-IPPS)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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 performed primarily by numerous Government stakeholders. The test activities accomplished within this thrust align within the CV&I test series.						
Recent CV&I initiatives uncovered integration issues with pay data retrieval from legacy systems. The DAF resolved with numerous software update and data conversion solutions. 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 2022 Plans: Conduct activities to develop, test, and deliver system. Activities include but are not limited to the following: (Note: All test activities fall within the CV&I test series of DT&E)						
- Continue Reporting System development - Conduct additional Transactional System development activities based on recent statutory mandates - Continue requirements operability testing to validate system meets functional and technical requirements - Continue data management evaluation testing to validate legacy system data accurately converts to AFIPPS - Continue DoDAF architectures in support of interoperability certification - Perform change management activities in support of limited deployment release - Update contract and acquisition documentation to support AFIPPS strategy and Limited Deployment Authority to Proceed (ATP) approval - Continue AF information technology efforts and studies (e.g. Common Computing Environment, FIAR/FISCAM audit support, etc.) to ensure AFIPPS is fully integrated into AF and DoD enterprise networks, databases, and information systems upon deployment - Continue to maintain the required AFIPPS computing environments (e.g. development, test and production) with DISA						
FY 2023 Base Plans: (Note: Unless otherwise noted, all test activities fall within the CV&I test series of DT&E)						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0605018F I AF Integrated Personnel and Pay System (AF-IPPS)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<div>- Will complete Reporting System development</div> <div>- Will complete Requirements Operability Testing (validates system meets functional and technical requirements)</div> <div>- Will continue Data Management Evaluation Testing to validate legacy system data accurately converts to AFIPPS</div> <div>- Will conduct Payroll Integrated Baseline Regression Testing to validate payroll system functionality when integrated with completed additional development initiatives</div> <div>- Will conduct Payroll Reconciliation Testing to validate that AFIPPS correctly calculates payroll (originally planned for accomplishment late-FY21; reprioritized to resolve urgent data conversion issues)</div> <div>- Will conduct Performance Evaluation Testing to validate system can handle required bandwidth, load and stress.</div> <div>- Will conduct cybersecurity vulnerability scans on code; will update code as required (aligned within the Cybersecurity Evaluation (CSE))</div> <div>- Will complete DoDAF architectures in support of interoperability certification</div> <div>- Will continue change management activities in support of limited deployment release</div> <div>- Will update contract and acquisition documentation to support the Limited Deployment Authority to Proceed (ATP) approval</div> <div>- Will continue AF information technology efforts and studies (e.g. Common Computing Environment, FIAR/ FISCAM audit support, etc.) to ensure AFIPPS is fully integrated into AF &amp; DoD enterprise networks, databases, and information systems upon deployment</div> <div>- Will continue to maintain the required AFIPPS computing environments (e.g. development, test and production) with DISA</div> <div>FY 2023 OCO Plans:</div> <div>N/A</div> <div>FY 2022 to FY 2023 Increase/Decrease Statement:</div> <div>Funding increased to complete Reporting System Development as well as to support extended and reprioritized developmental test activities to prevent additional integration issues and reduce risk.</div>						
Title: AFIPPS - Government-Performed Test and Evaluation		1.484	1.958	1.605	0.000	1.605
Description: The AFIPPS Test and Evaluation Strategy encompasses Developmental Test & Evaluation (DT&E), Operational Test and Evaluation (OT&E), and a Cybersecurity Evaluation (CSE).						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0605018F I AF Integrated Personnel and Pay System (AF-IPPS)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>DT&amp;E comprises two test series: Component Verification and Integration (CV&amp;I) and Qualification Test and Evaluation (QT&amp;E). CV&amp;I is performed primarily by the system integrator and observed by Government stakeholders. QT&amp;E activities, on the other hand, are performed primarily by numerous Government stakeholders. CV&amp;I activities within this thrust focus on pre-test planning and post-test analysis. This thrust includes all QT&amp;E activities.</p> <p>The DAF recently restructured the OT&amp;E Strategy as well as the deployment schedule based on OSD(DOT&amp;E) recommendations to better address system performance risks. Instead of a single Initial Operational Test &amp; Evaluation (IOT&amp;E) event following Go-Live, the DAF will conduct an Operational Assessment ahead of a January 2025 Go-Live Limited Deployment. IOT&amp;E will take place thereafter once all interfaces have deployed. This thrust includes all OT&amp;E activities.</p> <p>The CSE activities accomplished within this thrust are performed primarily by Government Stakeholders.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>- Conduct planning for reconciliation testing to validate AFIPPS produces the same payroll result as the legacy system (DJMS).</li><li>- Conduct planning for both the Payroll and Human Resources Integrated Baseline Regression Tests (IBRT) to validate functional capability after implementing new development initiatives to the system.</li><li>- Analyze Requirements Operability Test (ROT) results to validate the system meets functional and technical requirements.</li></ul> <p><b>FY 2023 Base Plans:</b></p> <p>(Note: Unless otherwise depicted, all test events aligned within CV&amp;I)</p> <ul style="list-style-type: none"><li>- Will continue analyzing Requirements Operability Test (ROT) results to validate system meets functional and technical requirements.</li><li>- Will analyze Payroll Integrated Baseline Regression Test (IBRT) results to validate functional capability given recent development.</li><li>- Will conduct Human Resources IBRT to validate human resources functional capability when combined with pay/leave capability.</li><li>- Will analyze Reconciliation Test results to validate AFIPPS produced the same payroll result as the legacy system (DJMS).</li></ul>						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022							
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0605018F I AF Integrated Personnel and Pay System (AF-IPPS)									
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total					
<div>- Will analyze Performance Evaluation Test results to validate system performance maintained during periods of high load and stress.</div> <div>- Will conduct a Test Readiness Review in preparation for transition to the QT&amp;E test series.</div> <div>- Will conduct a System Operability Evaluation (SOE) to validate system meets critical technical parameters and key performance parameters (QT&amp;E)</div> <div>- Will conduct Cooperative Vulnerability Identification testing in which a team of cybersecurity specialists will assess AFIPPS' design (aligned with the Cybersecurity Evaluation)</div> <div>FY 2023 OCO Plans: N/A</div> <div>FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased to due to a decrease in government-performed test activities.</div>											
Accomplishments/Planned Programs Subtotals		29.526	22.010	37.901	0.000	37.901					
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 834410: INTEGRATED PERSONNEL AND PAY SYSTEM	0.000	15.240	0.000	-	0.000	-	-	-	-	0.000	15.240
Remarks											
E. Acquisition Strategy											
<p>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.</p> <p>AFIPPS is implementing agile principles to the maximum extent practical during the software development effort. The AFIPPS program includes two major releases:</p> <p>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.</p>											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0605018F I AF Integrated Personnel and Pay System (AF-IPPS)	
<p>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.</p> <p>After completing initial development, the DAF will execute an extensive Test and Evaluation Strategy encompassing Development Test &amp; Evaluation (DT&amp;E), Operational Test &amp; Evaluation (OT&amp;E), and a Cybersecurity Evaluation (CSE).</p> <p>DT&amp;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 &amp; Integration and Qualification Test &amp; Evaluation (QT&amp;E). Both the system integrator and Government stakeholders accomplish DT&amp;E activities.</p> <p>The DAF will then conduct OT&amp;E. The OT&amp;E strategy recently changed from a single Initial Operational Test &amp; Evaluation (IOT&amp;E) event following Go-Live to a two-phased approach. The revision was based on OSD(DOT&amp;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&amp;E event to further validate system efficacy.</p> <p>The CSE comprises five test events which take place in parallel with DT&amp;E and OT&amp;E. The evaluation culminates in an Assessment &amp; Authorization (A&amp;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 2023 Air Force												Date: April 2022			
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					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AFIPPS Prime Software Developmental Efforts	C/CPAF	ACCENTURE FEDERAL SVCS : ARLINGTON, VA	0.000	11.788	Feb 2021	8.411	Jan 2022	18.716	Oct 2022	-		18.716	0.000	38.915	75.900
AFIPPS Application Hosting Environment	MIPR	DISA EIS : Pensacola, FL	0.000	4.668	Nov 2020	5.288	Nov 2021	5.667	Oct 2022	-		5.667	0.000	15.623	15.623
AFIPPS COTs Licenses	Various	Various : Various	0.000	4.701	Apr 2021	0.495	Apr 2022	1.009	Apr 2023	-		1.009	0.000	6.205	7.263
AFIPPS Oracle EBS Subject Matter Experts	C/T&M	DLT SOLUTIONS, LLC : HERNDON, VA	0.000	0.167	Apr 2021	-		-		-		-	0.000	0.167	0.797
AFIPPS Financial Improvement and Audit Readiness (FIAR)	C/FP	Various : Various	0.000	0.250	Aug 2021	0.000	Aug 2022	0.255	Aug 2023	-		0.255	0.000	0.505	0.505
AFIPPS Direct Mission Support (Other)	Various	Various : Various	0.000	2.630	Mar 2021	3.900	Jan 2022	4.115	Mar 2023	-		4.115	0.000	10.645	10.645
Subtotal			0.000	24.204		18.094		29.762		-		29.762	0.000	72.060	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AFIPPS Government-Performed Test & Evaluation Activities (Conduct Testing - LDTO/ JTIC)	MIPR	Various : Various	0.000	0.432	Feb 2021	0.278	Nov 2021	0.300	Nov 2022	-		0.300	0.000	1.010	1.066
AFIPPS Government-Performed Test & Evaluation Activities (Test Contract Support)	C/CPIF	DTSI : San Antonio, TX	0.000	1.052	May 2021	1.680	Jan 2022	1.305	Oct 2022	-		1.305	0.000	4.037	4.337
Subtotal			0.000	1.484		1.958		1.605		-		1.605	0.000	5.047	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AFIPPS Engineering, Professional, and Administrative Support Services (EPASS)	C/CPAF	Oasis Systems, LLC : Lexington, MA	0.000	1.640	Mar 2021	0.665	Dec 2021	2.260	Oct 2022	-		2.260	0.000	4.565	14.260
AFIPPS Other Program Support Cost	Various	Various : Various	0.000	2.198	Jan 2021	1.293	Nov 2021	4.274	Nov 2022	-		4.274	0.000	7.765	7.765
Subtotal			0.000	3.838		1.958		6.534		-		6.534	0.000	12.330	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	29.526		22.010		37.901		-		37.901	0.000	89.437	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0605018F / AF Integrated Personnel and Pay System (AF-IPPS)			<b>Project (Number/Name)</b> 676003 / HRM Structural Development

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Integrated Personnel and Pay System</i></b>																												
Prime Development and Integration (Transactional System)																												
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																												
Full Deployment Decision / Capability Support Authority to Proceed																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0605018F / AF Integrated Personnel and Pay System (AF-IPPS)	<b>Project (Number/Name)</b> 676003 / HRM Structural Development	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Integrated Personnel and Pay System</i></b>				
Prime Development and Integration (Transactional System)	1	2021	2	2021
Additional Development Activities (Transactional/Reporting)	3	2021	1	2024
System Integrator Developmental Test (CV&I)	2	2021	4	2023
Government Integrated Test and Evaluation Activities (DT&E, OT&E)	2	2021	1	2026
Cybersecurity Evaluation (CSE)	1	2021	4	2025
Limited Deployment Authority to Proceed	4	2024	4	2024
Limited Deployment / Go-Live	1	2025	1	2025
Full Deployment Decision / Capability Support Authority to Proceed	1	2026	1	2026

### Note

Component Verification and Integration (CV&I)  
Developmental Test & Evaluation (DT&E)  
Operational Test and Evaluation (OT&E)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0605024F I Anti-Tamper Technology Executive Agency							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	46.785	51.492	50.066	0.000	50.066	53.561	54.008	54.409	55.875	Continuing	Continuing
675066: Anti-Tamper Technology Executive Agent	-	46.785	51.492	50.066	0.000	50.066	53.561	54.008	54.409	55.875	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: Project MDAP/MAIS Code(s): N42												
A. Mission Description and Budget Item Justification												
<p>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 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.</p>												
<p>AT directly enables CPI resiliency. AT protects critical program information (CPI) 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.</p>												
<p>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) and government off the shelf (GOTS) products. As the COTS 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.</p>												
<p>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.</p>												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0605024F I Anti-Tamper Technology Executive Agency					
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 element 0605827F, 0605828F, 0605829F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 \$2.4M was expended for civilian pay expenses in this program element and in FY22 \$2.3M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget		47.107	51.492	0.000	0.000	0.000	
Current President's Budget		46.785	51.492	50.066	0.000	50.066	
Total Adjustments		-0.322	0.000	50.066	0.000	50.066	
• 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		-0.322	0.000				
• Other Adjustments		0.000	0.000	50.066	0.000	50.066	
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 FY 2023 cannot be made in a relevant manner.							
C. Accomplishments/Planned Programs (\$ in Millions)					FY 2021	FY 2022	FY 2023
Title: DoD Anti-Tamper Technology Executive Agent (DoD ATEA)					34.921	38.652	36.686
Description: AT technology and product 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>FY 2022 Plans:</b> - Validate and evaluate AT implementations on all DoD Acquisition programs; 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.				
<b>FY 2023 Plans:</b> - Continue to validate and evaluate AT implementations on all DoD Acquisition programs; 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.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to inflation adjustment				
<b>Title:</b> DoDATEA Program Management Support  <b>Description:</b> Includes civilian pay, A&AS, outreach and education, travel, supplies, and AFLCMC/XA-AT support.		6.258	6.744	6.943
<b>FY 2022 Plans:</b> Support program office efforts, including civilian pay, A&AS, intelligence support, outreach and education, travel, and supplies.				
<b>FY 2023 Plans:</b> Support program office efforts, including civilian pay, A&AS, intelligence support, outreach and education, travel, and supplies.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to inflation adjustment				
<b>Title:</b> Air Force Anti-Tamper Office Technology and Product Development  <b>Description:</b> 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 efforts 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.  The AT technology and product development and enhancement efforts include: advanced AT sensor hardware, secure processing, crypto-analysis, tamper penalties, and other AT enablers.		5.606	6.096	6.437
<b>FY 2022 Plans:</b>				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>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><b>FY 2023 Plans:</b> 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><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to inflation adjustment</p>				
<b>Accomplishments/Planned Programs Subtotals</b>		46.785	51.492	50.066
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> <p>The DoD ATEA acquisition strategy is to coordinate DoD AT technology and product developments across the Services which fund development and assessments of new AT technology, as well as enhance existing AT technology efforts by increasing TRL. 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 is to mature promising technologies to the point they can be transitioned to a program office or industry for implementation in DoD weapon systems. Priorities will be given to those technologies that most benefit the DoD AT community.</p> <p>The Air Force AT Office will fund and manage new technology and product efforts to protect Air Force critical program information. These new AT technology requirements will be obtained from AF programs and these new AT technologies will then transition to Air Force programs and be made available for use in other DoD weapon systems.</p>				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0605024F / Anti-Tamper Technology Executive Agency				Project (Number/Name) 675066 / Anti-Tamper Technology Executive Agent					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Air Force AT Technology and Product Development	Various	Not specified. : Dayton, OH	-	4.206	Oct 2020	6.096	Oct 2021	6.437	Oct 2022	-		6.437	Continuing	Continuing	-
Air Force Anti-Tamper Technology and Product Development	Various	Not specified. : Huntsville, AL	-	1.400	Oct 2020	-		-		-		-	Continuing	Continuing	-
Subtotal			-	5.606		6.096		6.437		-		6.437	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DoD Anti-Tamper Technology Executive Agent (DoD ATEA)	Various	Not specified. : Dayton, OH	-	8.185	Oct 2020	10.489	Oct 2021	8.558	Oct 2022	-		8.558	Continuing	Continuing	-
DoD ATEA Technology Executive Agent	Various	Not specified. : Huntsville, AL	-	7.629	Oct 2020	7.440	Oct 2021	7.688	Oct 2022	-		7.688	Continuing	Continuing	-
DoD AT Executive Agent Technology	Various	Not specified. : Crane, IN	-	7.961	Oct 2020	10.761	Oct 2021	8.715	Oct 2022	-		8.715	Continuing	Continuing	-
DoD Anti-Tamper Executive Agent	Various	Not specified. : Albuquerque, NM	-	10.770	Oct 2020	7.979	Oct 2021	9.097	Oct 2022	-		9.097	Continuing	Continuing	-
Subtotal			-	34.545		36.669		34.058		-		34.058	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DoDATEA Program Management Support	Various	Not specified. : Dayton, OH	-	6.258	Oct 2020	8.345	Oct 2021	9.183	Oct 2022	-		9.183	Continuing	Continuing	-
Air Force Tech Development Management Support	Various	Not specified. : Dayton, OH	-	0.376	Oct 2020	0.382	Oct 2021	0.388	Oct 2022	-		0.388	Continuing	Continuing	-
Subtotal			-	6.634		8.727		9.571		-		9.571	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force							<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0605024F / <i>Anti-Tamper Technology Executive Agency</i>				<b>Project (Number/Name)</b> 675066 / <i>Anti-Tamper Technology Executive Agent</i>				
	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>		
<b>Project Cost Totals</b>	-	46.785	51.492	50.066	-	50.066	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 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0605024F / Anti-Tamper Technology Executive Agency										Project (Number/Name) 675066 / Anti-Tamper Technology Executive Agent									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0605024F / Anti-Tamper Technology Executive Agency	Project (Number/Name) 675066 / Anti-Tamper Technology Executive Agent

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ATEA				
ATEA Program Office	1	2021	4	2027
AT RDT&E	1	2021	4	2027
AT Technology Development	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 0605117F I Foreign Materiel Acquisition and Exploitation							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	68.962	71.391	80.338	0.000	80.338	87.084	84.286	85.740	71.719	Continuing	Continuing
675897: Foreign Materiel Acquisition and Exploitation	-	68.962	71.391	80.338	0.000	80.338	87.084	84.286	85.740	71.719	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 \$0.470M was expended for civilian pay expenses in this program element, and in CY \$0.472M 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	71.099	71.391	0.000	0.000	0.000
Current President's Budget	68.962	71.391	80.338	0.000	80.338
Total Adjustments	-2.137	0.000	80.338	0.000	80.338
• 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	-2.137	0.000	80.338	0.000	80.338

**Change Summary Explanation**

The FY22 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 FY 2023 cannot be made in a relevant manner.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		<b>R-1 Program Element (Number/Name)</b> PE 0605117F I Foreign Materiel Acquisition and Exploitation				
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Foreign Materiel Acquisition and Exploitation <b>Description:</b> Classified details can be found in OSD Comptroller's classified Defense Wide Justification Book Volume 6. <b>FY 2022 Plans:</b> Classified  N/A <b>FY 2023 Base Plans:</b> Classified <b>FY 2023 OCO Plans:</b> N/A <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increase is due OUSD(I&S) directed program and inflation. See classified exhibit.		68.962	71.391	80.338	0.000	80.338
<b>Accomplishments/Planned Programs Subtotals</b>		68.962	71.391	80.338	0.000	80.338
<b>D. Other Program Funding Summary (\$ in Millions)</b>						
N/A						
<b>Remarks</b>						
N/A						
<b>E. Acquisition Strategy</b>						
Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.						

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0605117F / Foreign Materiel Acquisition and Exploitation				Project (Number/Name) 675897 / Foreign Materiel Acquisition and Exploitation					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified details can be found in OSD Comptroller's classified Defense-Wide Justification Book Volume 6.	Various	Various : TBD	-	68.490	Apr 2021	70.919	Apr 2022	79.866		0.000		79.866	Continuing	Continuing	-
Subtotal			-	68.490		70.919		79.866		0.000		79.866	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
SAF/CDM Salary and Travel	Allot	SAF/CDMA : Fairfax, VA	-	0.472	Oct 2020	0.472	Oct 2021	0.472		0.000		0.472	Continuing	Continuing	-
Subtotal			-	0.472		0.472		0.472		0.000		0.472	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	68.962		71.391		80.338		0.000		80.338	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0605117F / Foreign Materiel Acquisition and Exploitation

## Project (Number/Name)

675897 / Foreign Materiel Acquisition and Exploitation

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Foreign Materiel Acquisition &amp; Exploitation</b>																												
FY21 Plan executed and updated as required																												
Additional acquisition opportunities reviewed quarterly; FY21 execution reprioritized																												
Additional exploitation opportunities reviewed quarterly; FY21 execution reprioritized																												
FY22 requirements and funding requests submitted by Services/Agencies																												
FY22 requirements and funding requests validated and prioritized																												
FY22 FMP Plan approved and published																												
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																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force														Date: April 2022														
Appropriation/Budget Activity										R-1 Program Element (Number/Name)								Project (Number/Name)										
3600 / 7										PE 0605117F / Foreign Materiel Acquisition and Exploitation								675897 / Foreign Materiel Acquisition and Exploitation										
	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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; 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																												
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																												

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force																<b>Date:</b> April 2022												
<b>Appropriation/Budget Activity</b> 3600 / 7								<b>R-1 Program Element (Number/Name)</b> PE 0605117F / <i>Foreign Materiel Acquisition and Exploitation</i>								<b>Project (Number/Name)</b> 675897 / <i>Foreign Materiel Acquisition and Exploitation</i>												
	<b>FY 2021</b>				<b>FY 2022</b>				<b>FY 2023</b>				<b>FY 2024</b>				<b>FY 2025</b>				<b>FY 2026</b>				<b>FY 2027</b>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
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																												
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																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0605117F / <i>Foreign Materiel Acquisition and Exploitation</i>	<b>Project (Number/Name)</b> 675897 / <i>Foreign Materiel Acquisition and Exploitation</i>	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Foreign Materiel Acquisition &amp; Exploitation</i></b>				
FY21 Plan executed and updated as required	1	2021	1	2022
Additional acquisition opportunities reviewed quarterly; FY21 execution reprioritized	1	2021	1	2022
Additional exploitation opportunities reviewed quarterly; FY21 execution reprioritized	1	2021	1	2022
FY22 requirements and funding requests submitted by Services/Agencies	3	2021	4	2021
FY22 requirements and funding requests validated and prioritized	4	2021	4	2021
FY22 FMP Plan approved and published	4	2021	4	2021
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

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0605117F / <i>Foreign Materiel Acquisition and Exploitation</i>	<b>Project (Number/Name)</b> 675897 / <i>Foreign Materiel Acquisition and Exploitation</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
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
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

**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 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0605278F I HC/MC-130 Recap RDT&E							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	15.552	46.796	47.994	0.000	47.994	12.860	24.744	25.265	25.826	2.613	201.650
675006: HC/MC-130 Recap	0.000	9.840	0.660	0.287	0.000	0.287	0.924	0.742	0.741	0.757	0.000	13.951
675910: Block 8.X	0.000	5.712	46.136	47.707	0.000	47.707	11.936	24.002	24.524	25.069	2.613	187.699
Program MDAP/MAIS Code: 257												

**Note**

In FY 2022, PE 0605278F, (HC/MC-130J Recap RDT&E), Project 675006, (HC/MC-130 Recap) efforts were transferred to, Project 675910, (Block 8.X), in order to combine the Communication Modernization funding to execute a single Communications Modernization program for AC/HC/MC-130J. The HC-130J 7.0/8.1 program and the AC/MC-130J 7.0/8.X program include critical upgrades needed as a baseline requirement for the Communications Modernization radio/software architecture.

**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 aircraft for the Combat Search and Rescue (CSAR) forces, and Air Force Special Operation Forces, which are experiencing airworthiness, maintainability, and operations limitations. The HC/MC-130 Recap incorporates production line modifications to the C-130J common/baseline configuration to convert them to the HC/MC model. 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 Research, Development, Testing and Evaluation (RDT&E) portion of the Recap program funds engineering support and studies to conduct rapid development activities, and develops major "block" 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. Block 7.0/8.1 leverages the baseline C-130J (PE0401132F) Block 7.0/8.1 upgrade, but funds unique AC/HC/MC-130J 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 7.0/8.1 program to accelerate fielding and address 2020 mandates. Additionally, The Air Force recently separated the HC-130J and MC-130J 7.0/8.1 programs to address MC-130J availability for other modifications. 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. That is, some 7.0/8.1 requirements/subsystems must be accelerated

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0605278F I HC/MC-130 Recap RDT&E				
for the new communications systems to function properly; those will now be executed under the Communications Modernization program. The later AC/MC Block 8.x program will then address the remaining requirements.						
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.						
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 2021 \$1.659 million was expended for civilian pay expenses in this program element, and in FY 2022 \$4.067 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		19.491	46.796	0.000	0.000	0.000
Current President's Budget		15.552	46.796	47.994	0.000	47.994
Total Adjustments		-3.939	0.000	47.994	0.000	47.994
• 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		-3.375	0.000			
• SBIR/STTR Transfer		-0.564	0.000			
• Other Adjustments		0.000	0.000	47.994	0.000	47.994
Change Summary Explanation						
FY 2021 funding was reduced by a total of \$3.939 million which included a \$3.375 million reprogramming action for higher Air Force priorities and \$0.564 million for Small Business Innovation Research.						
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 FY 2023 cannot be made in a relevant manner.						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675006: HC/MC-130 Recap	0.000	9.840	0.660	0.287	0.000	0.287	0.924	0.742	0.741	0.757	0.000	13.951
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

In FY 2022, PE 0605278F, (HC/MC-130J Recap RDT&E), Project 675006, (HC/MC-130 Recap) efforts were transferred to, Project 675910, (Block 8.X), in order to combine the Communication Modernization funding to execute a single Communications Modernization program for AC/HC/MC-130J. The HC-130J 7.0/8.1 program and the AC/MC-130J 7.0/8.X program include critical upgrades needed as a baseline requirement for the Communications Modernization radio/software architecture.

## A. Mission Description and Budget Item Justification

HC/MC-130 Recapitalization will replace and augment the aging USAF fleets of combat rescue HC-130P/N and special operations MC-130E/P/H aircraft which are experiencing airworthiness, maintainability and operational 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 36 capabilities 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 will include 2 Capability Management Upgrade, 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 addresses Link-16 integration. 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.

RDT&E permits the initiation and employment of rapid acquisition authorities to respond to emerging threats and requirements as needed.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022				
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				
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 2021 0.522 million was expended for civilian pay expenses in this program element, and in FY 2022 0.285 million is forecasted for civilian pay expenses in this program element.								
B. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: HC/MC-130 Recap Continuous Improvement Program (CIP)				0.001	0.001	0.001	0.000	0.001
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.								
FY 2022 Plans: Recurring Software and hardware enhancements of multiple onboard systems.								
FY 2023 Base Plans: Recurring Software and hardware enhancements of multiple onboard systems.								
FY 2023 OCO Plans: N/A								
FY 2022 to FY 2023 Increase/Decrease Statement: N/A no change in funding.								
Title: HC-130 Block 7.0/8.1				9.718	0.522	0.285	0.000	0.285
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.								
FY 2022 Plans: Combined software/hardware upgrade activities for Block 7.0/8.1.								
FY 2023 Base Plans: Reduced software/hardware upgrade for Block 7.0/8.1. due to HC Block 7.0/8.1 program is scheduled to complete development in 2023.								
FY 2023 OCO Plans:								

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
N/A											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to reduced software/hardware upgrades for Block 7.0/8.1 program approaching completion.											
Title: Government Test Support						0.121	0.137	0.001	0.000	0.001	
Description: Government Test Support includes but are is not limited to, Test and evaluation planning, execution, Joint Interoperability Testing Certification (JITC) and support to include MITRE for developmental and operational testing.											
FY 2022 Plans: Government test support to include but is not limited to Development and operational testing for the HC Block 7.0/8.1 program.											
FY 2023 Base Plans: Government test support includes but is not limited to Development and operational testing for the HC Block 7.0/8.1 program.											
FY 2023 OCO Plans: N/A											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to reduced Government test support as the HC-130 Block 7.0/8.1 program approaches completion.											
Accomplishments/Planned Programs Subtotals						9.840	0.660	0.287	0.000	0.287	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 Line Item HCMC00: HC/MC-130 Modifications	3.961	0.357	0.919	-	0.919	1.756	5.000	5.000	0.000	0.000	16.993
• APAF 02 Line Item C-130JM: MC-130J	383.106	220.049	40.351	-	40.351	10.088	10.364	10.696	10.928	0.000	685.582
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
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>D. Acquisition Strategy</b> <p>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.</p> <p>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.</p> <p>The Continuous Improvement Program (CIP) acquisition strategy is developed on an as needed basis.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
HC/MC-130 Recap Continuous Improvement Program (CIP)	SS/CPIF	Lockheed Martin : Marietta, GA	0.000	0.001	Sep 2021	0.001	Mar 2022	0.001	Mar 2023	-		0.001	0.000	0.003	1.198
HC-130 Recap Block 7.0/8.1	SS/CPIF	Lockheed Martin : Marietta, GA	0.000	9.252	Nov 2020	0.001	Mar 2022	0.001	Mar 2023	-		0.001	18.391	27.645	81.441
Subtotal			0.000	9.253		0.002		0.002		-		0.002	18.391	27.648	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Site Civilian Pay	C/CPAF	Not specified. : TBD	0.000	0.466	Oct 2020	0.521	Oct 2021	0.284	Oct 2022	-		0.284	0.000	1.271	-
Subtotal			0.000	0.466		0.521		0.284		-		0.284	0.000	1.271	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Support Test	RO	46th Test Wing: EAFB, FL : TBD	0.000	0.121	Apr 2021	0.137	Mar 2022	0.001	Mar 2023	-		0.001	0.000	0.259	-
Subtotal			0.000	0.121		0.137		0.001		-		0.001	0.000	0.259	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	9.840		0.660		0.287		-		0.287	18.391	29.178	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0605278F / <i>HC/MC-130 Recap RDT&amp;E</i>	<b>Project (Number/Name)</b> 675006 / <i>HC/MC-130 Recap</i>
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>HC/MC-130 Recap Development</i></b>																												
HC-130J Government Testing																												
HC-130 RECAP Block 7.0/8.1 Development																												
Continuous Improvement Program (CIP)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
HC/MC-130 Recap Development				
HC-130J Government Testing	1	2021	4	2027
HC-130 RECAP Block 7.0/8.1 Development	3	2021	4	2027
Continuous Improvement Program (CIP)	2	2021	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675910: Block 8.X	0.000	5.712	46.136	47.707	0.000	47.707	11.936	24.002	24.524	25.069	2.613	187.699
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2022, PE 0605278F, (HC/MC-130J Recap RDT&E), Project 675006, (HC/MC-130 Recap) efforts were transferred to, Project 675910, (Block 8.X), in order to combine the Communication Modernization funding to execute a single Communications Modernization program for AC/HC/MC-130J. The HC-130J 7.0/8.1 program and the AC/MC-130J 7.0/8.X program include critical upgrades needed as a baseline requirement for the Communications Modernization radio/software architecture.

**A. Mission Description and Budget Item Justification**

This project funding is intended to execute system upgrades for AC/HC/MC-130J aircraft upgrades. The upgrades currently include but are not limited to AC/MC-130J 7.0/8.1 (i.e., Block 8.X) and 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 FY25.

Block 8.X 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 2021 1.136 million was expended for civilian pay expenses in this program element, and in FY 2022 3.790 million is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Communications Modernization Phase I	4.739	41.340	16.318	0.000	16.318

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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		
B. Accomplishments/Planned Programs (\$ in Millions)						
	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
<p><b>Description:</b> 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.</p> <p><b>FY 2022 Plans:</b> Continue NRE EMD activities.</p> <p><b>FY 2023 Base Plans:</b> Continue NRE EMD activities.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to reduced NRE EMD activities as Block 8.X Phase I approaches completion.</p>						
<p><b>Title:</b> Communications Modernization Phase II</p> <p><b>Description:</b> 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.</p> <p>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><b>FY 2022 Plans:</b> Phase II EMD activities begin in FY22.</p> <p><b>FY 2023 Base Plans:</b> Phase II EMD activities for Communications Modernization.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>		0.000	0.003	26.863	0.000	26.863

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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			
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funding increased due to Block 8.X Phase II development Communications Modernization ramp up activities.						
<b>Title:</b> Government Test Support  <b>Description:</b> Includes, but is not limited to test and evaluation planning, conduct and support to included MITRE for developmental and operational testing for Phase I and Phase II activities.  <b>FY 2022 Plans:</b> Development and operational testing in support of Communications modernization.  <b>FY 2023 Base Plans:</b> Development and operational testing in support of Communications modernization.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to ramp up of Test Support for Phase II testing and evaluation.		0.973	0.819	2.186	0.000	2.186
<b>Title:</b> Continuous Improvement (CIP)  <b>Description:</b> Continuous Improvement projects to include but not limited to studies and other research projects.  <b>FY 2022 Plans:</b> Supports continuous improvement cycle of both hardware and software of multiple onboard systems.  <b>FY 2023 Base Plans:</b> Supports continuous improvement cycle of both hardware and software of multiple onboard systems.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to reduced CIP requirements.		0.000	3.974	2.340	0.000	2.340
Accomplishments/Planned Programs Subtotals		5.712	46.136	47.707	0.000	47.707

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0605278F / HC/MC-130 Recap RDT&E	<b>Project (Number/Name)</b> 675910 / Block 8.X
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 HCMC00: HC/ MC-130 Modifications	0.000	2.437	30.638	-	30.638	10.925	48.682	53.200	3.220	0.000	149.102

**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.

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 2023 Air Force												Date: April 2022			
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					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Communications Modernization Phase I	SS/CPIF	Lockheed Martin : Marietta, GA	0.000	4.739	Mar 2022	41.340	Mar 2022	16.318	Mar 2023	-		16.318	0.000	62.397	-
Communications Modernization Phase II	SS/CPIF	Lockheed Martin : Marietta, GA	0.000	-		0.003	Aug 2023	26.863	Aug 2023	-		26.863	0.000	26.866	-
Subtotal			0.000	4.739		41.343		43.181		-		43.181	0.000	89.263	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Support Test	RO	46th Test Wing; TBD : TBD	0.000	0.973		0.819	Dec 2021	2.186	Nov 2022	-		2.186	0.000	3.978	-
Subtotal			0.000	0.973		0.819		2.186		-		2.186	0.000	3.978	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Continuous Improvement Program (CIP)	C/Various	Various : TBD	0.000	-		3.974	Jul 2022	2.340	Jul 2023	-		2.340	0.000	6.314	-
Subtotal			0.000	-		3.974		2.340		-		2.340	0.000	6.314	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	5.712		46.136		47.707		-		47.707	0.000	99.555	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity								R-1 Program Element (Number/Name)						Project (Number/Name)			
3600 / 7								PE 0605278F / HC/MC-130 Recap RDT&E						675910 / Block 8.X			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Block 8.X																												
Communications Modernization Phase I																												
Communications Modernization Phase II																												
Government Test Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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
Block 8.X				
Communications Modernization Phase I	2	2022	3	2027
Communications Modernization Phase II	4	2022	4	2027
Government Test Support	1	2022	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0606018F I NC3 Integration							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	30.521	26.532	23.559	0.000	23.559	24.910	24.920	24.930	24.977	Continuing	Continuing
674877: NC3 Integration, Assessment, and Improvement	-	30.521	26.532	23.559	0.000	23.559	24.910	24.920	24.930	24.977	Continuing	Continuing
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) will ensure 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 will be 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 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 will collaborate 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 reporting, supply chain supportability and risk management, and overall AF NC3 WS integration, development, system test, verification, fielding, and certification. This program also supports 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0606018F I NC3 Integration				
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 FY2021 1.600M was expended for civilian pay expenses in this program element, in FY2022 1.950M is forecasted for civilian pay expenses in this program element.						
The FY23 funding request was reduced by 4.229M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		26.308	26.532	0.000	0.000	0.000
Current President's Budget		30.521	26.532	23.559	0.000	23.559
Total Adjustments		4.213	0.000	23.559	0.000	23.559
• 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		4.782	0.000			
• SBIR/STTR Transfer		-0.569	0.000			
• Other Adjustments		0.000	0.000	23.559	0.000	23.559
Change Summary Explanation						
FY21 Below Threshold Reprogramming Minuteman III to NC3 Integration 4.782M						
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: NC3 Integration, Assessment, and Improvement				30.521	26.532	23.559
Description: Efforts include, but are not limited to:						
- Modeling, simulation, and visualization of the AF NC3 WS current and future capabilities						
- Conducting capability gap and trade-space analyses						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0606018F / NC3 Integration		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- Establishing NC3 capability recapitalization and modernization plans</li> <li>- Developing and conducting the AF NC3 WS test and certification program, as well as, expanding existing High Frequency (HF) and other frequency testbeds utilizing a phased approach</li> <li>- Conducting NC3 system component verification</li> <li>- 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</li> <li>- Issue tracking and resolution, assessments and analysis, and governance</li> <li>- Providing data-driven system of system solutions, and shaping NC3 component program acquisition strategies for AF NC3 WS sustainment and performance capability improvements</li> <li>- 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</li> <li>- Interfacing with JADC2 &amp; 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</li> </ul> <p><b>FY 2022 Plans:</b> NC3 weapon system integration efforts including, but not limited to:</p> <ul style="list-style-type: none"> <li>- Continue to implement test and evaluation certification program for NC3 WS</li> <li>- Continue to expand existing communication spectrum and cyber assessment test bed utilizing a phased approach</li> <li>- Continue to perform NC3 physics, communication and networking analysis</li> <li>- Continue to develop and evolve technical framework of the NC3 WS to meet mission threats of 2030 and beyond</li> <li>- Continue to conduct WS analysis, develop WS capability model, plan WS updates, and implement WS updates</li> <li>- Continue to evaluate options for system-of-system performance improvements within constraints of NC3 WS strategic vision and roadmap</li> <li>- Continue to analyze, model, simulate, visualize and prototype emerging NC3 technologies</li> <li>- 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, budgeting and cost controls, etc.</li> <li>- Continue to conduct NC3 WS health assessments, reporting, and issue resolution</li> <li>- Continue to map out the NC3 WS supply chain and develop supply chain monitoring capability, supply chain supportability, and supply chain risk management</li> <li>- Continue to develop digital models to measure and report capability impacts</li> </ul>				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0606018F / NC3 Integration		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- 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</li> <li>- Continue to establish authoritative intelligence community analysis for high-altitude electromagnetic pulse (HEMP)</li> <li>- Continue to improve integration and interoperability of the NC3 WS</li> <li>- Continue to conduct WS risk, issue, and opportunity analysis, and mitigation/corrective action/pursuit plan development</li> </ul> <p><b>FY 2023 Plans:</b> NC3 weapon system integration efforts including, but not limited to:</p> <ul style="list-style-type: none"> <li>- Continue to implement test and evaluation certification program for NC3 WS</li> <li>- Continue to expand existing communication spectrum and cyber assessment test bed utilizing a phased approach</li> <li>- Continue to perform NC3 physics, communication and networking analysis</li> <li>- Continue to develop and evolve technical framework of the NC3 WS to meet mission threats of 2030 and beyond</li> <li>- Continue to conduct WS analysis, develop WS capability model, plan WS updates, and implement WS updates</li> <li>- Continue to evaluate options for system-of-system performance improvements within constraints of NC3 WS strategic vision and roadmap</li> <li>- Continue to analyze, model, simulate, visualize and prototype emerging NC3 technologies</li> <li>- 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.</li> <li>- Continue to conduct NC3 WS health assessments, reporting, and issue resolution</li> <li>- Continue to map out the NC3 WS supply chain and develop supply chain monitoring capability, supply chain supportability, and supply chain risk management</li> <li>- Continue to develop digital models to measure and report capability impacts</li> <li>- 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</li> <li>- Continue to establish authoritative intelligence community analysis for high-altitude electromagnetic pulse (HEMP)</li> <li>- Continue to improve integration and interoperability of the NC3 WS</li> <li>- Continue to conduct WS risk, issue, and opportunity analysis, and mitigation/corrective action/pursuit plan development</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The FY23 funding request was reduced to account for the availability of prior year execution balances.</p>				
<b>Accomplishments/Planned Programs Subtotals</b>		30.521	26.532	23.559

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0606018F / <i>NC3 Integration</i>	
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>E. Acquisition Strategy</b> 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, 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 2023 Air Force												Date: April 2022			
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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DMS FFRDC/UARC/A&AS	Various	Various : Various	-	27.845	Oct 2020	23.997	Oct 2021	20.876	Oct 2022	-		20.876	Continuing	Continuing	-
Subtotal			-	27.845		23.997		20.876		-		20.876	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Studies /Test Support	Various	Various : Various	-	0.021	Oct 2020	0.023	Oct 2021	0.045	Oct 2022	-		0.045	Continuing	Continuing	-
Subtotal			-	0.021		0.023		0.045		-		0.045	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PMA (Eng/Acq Spt/Travel/Supplies)	Various	Various : Various	-	2.655	Oct 2020	2.512	Oct 2021	2.638	Oct 2022	-		2.638	Continuing	Continuing	-
Subtotal			-	2.655		2.512		2.638		-		2.638	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	30.521		26.532		23.559		-		23.559	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0606018F / NC3 Integration		<b>Project (Number/Name)</b> 674877 / NC3 Integration, Assessment, and Improvement	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>NC3 WS Integration</b>																												
AF NC3 WS Test and Certification Program																												
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 Comm Tech Analysis Repository																												
NC3 Capability Improvement Program (NCIP) Biannually																												
AF NC3 WS Review Biannually																												

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0606018F / NC3 Integration

Project (Number/Name)

674877 / NC3 Integration, Assessment, and Improvement

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>NC3 WS Integration</b>				
AF NC3 WS Test and Certification Program	1	2021	4	2027
NC3 Health Assessment and Analysis	1	2021	4	2027
Enhance Implementation and Target Architecture through Development of NC3 Technologies	1	2021	4	2027
Implement AF NC3 WS Program and Materiel Management Control Process	1	2021	4	2027
AF NC3 WS Risk Management Program, Monthly Working Group, and Quarterly Board	1	2021	4	2027
AF NC3 Maintenance Data Reporting	1	2021	4	2027
NC3 Supply Chain Risk Analysis	1	2021	4	2027
NC3 Supply Chain Normalization and Supply Health Reporting	1	2021	4	2027
AF NC3 WS NC3 Configuration Boards Bi-monthly	1	2021	4	2027
Implement NC3 Enterprise Comm Tech Analysis Repository	1	2021	4	2027
NC3 Capability Improvement Program (NCIP) Biannually	1	2021	4	2027
AF NC3 WS Review Biannually	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 0606942F I Assessments and Evaluations Cyber Vulnerabilities							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	2.885	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.885
677821: Cyberspace Vulnerability Assessment	-	2.885	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.885
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This program funds Ransomware Response to identify and inform real-time cyber-defense operator training for responding to ransomware attacks. This program also develops ransomware scenarios aimed at testing and developing concept of operations, courses of action and development and application of Tactics, Techniques & Procedures (TTP). This funding is part of an FY21 Congressional Add.

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 \$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.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	3.000	0.000	0.000	0.000	0.000
Current President's Budget	2.885	0.000	0.000	0.000	0.000
Total Adjustments	-0.115	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	-0.115	0.000	0.000	0.000	0.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0606942F / <i>Assessments and Evaluations Cyber Vulnerabilities</i>			
<b>Change Summary Explanation</b> 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.				
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Ransomware Response  <b>Description:</b> Identify and inform real-time cyber-defense operator training for responding to ransomware attacks. Develop ransomware scenarios aimed at testing and developing concept of operations, courses of action, develop and apply TTPs.  <b>FY 2022 Plans:</b> Not Applicable  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A		2.885	0.000	-
<b>Accomplishments/Planned Programs Subtotals</b>		2.885	0.000	-
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>  <b>E. Acquisition Strategy</b> When possible, activities in this effort will leverage current competitively-awarded contracts. Additional necessary contracts funded in this program element will be awarded using either competitive or sole source procedures, whichever is most appropriate. The government agency responsible for managing the program is the Air Force Life Cycle Management Center, Cyber Resiliency Office for Weapons Systems, Wright-Patterson Air Force Base, Ohio and Hanscom Air Force Base, Massachusetts.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0606942F / Assessments and Evaluations Cyber Vulnerabilities				Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Ransomware Response scenarios, courses of action, associated TTPs, and training requirements	Various	Various : TBD	-	2.885		-		-		-		-	Continuing	Continuing	-
Subtotal			-	2.885		-		-		-		-	Continuing	Continuing	N/A
Remarks															
In FY 2019, the Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics transitioned the responsibility of funding NDAA 1647 and 1650 activities directly to the Services.															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	2.885		-		-		-		-	Continuing	Continuing	N/A
Remarks															
Ransomware response product development included in response to a FY 2021 Congressional Add															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0606942F / Assessments and Evaluations Cyber Vulnerabilities								Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment			

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0606942F / Assessments and Evaluations Cyber Vulnerabilities	Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Ransomware Response</b>				
Identify and inform real-time cyber-defense operator training for responding to ransomware attacks	3	2021	4	2022
Develop ransomware scenarios aimed at testing and developing concept of operations, courses of action, develop and apply TTPs	3	2021	4	2022

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>											
3600: <i>Research, Development, Test &amp; Evaluation, Air Force / BA 7: Operational Systems Development</i>	PE 0101113F / B-52 Squadrons											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	453.605	646.811	770.313	0.000	770.313	732.254	567.173	345.651	309.094	Continuing	Continuing
671803: <i>B-52 AFMC Test Assets</i>	-	5.977	1.447	4.369	0.000	4.369	0.000	2.740	2.797	2.859	Continuing	Continuing
671805: <i>B-52 VLF/LF Modernization</i>	-	12.744	9.187	9.000	0.000	9.000	0.000	0.000	0.000	0.000	0.000	30.931
671810: <i>B-52 AEHF Integration</i>	-	12.002	29.690	66.515	0.000	66.515	122.411	108.095	0.069	0.000	0.000	338.782
675039: <i>B-52 System Improvements</i>	-	34.342	12.150	13.150	0.000	13.150	5.190	0.000	0.000	0.000	Continuing	Continuing
675041: <i>Bomber Tactical Data Link</i>	-	2.125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.125
675050: <i>CONNECT</i>	-	3.867	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.867
675055: <i>GPS-IU</i>	-	0.771	0.693	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.464
675056: <i>B-52 Radar Modernization Program (RMP)</i>	-	163.384	136.862	261.876	0.000	261.876	211.187	123.633	43.211	0.000	0.000	940.153
675057: <i>B-52 Low Cost Improvement (LCI)</i>	-	0.000	0.058	0.702	0.000	0.702	0.000	0.000	0.000	0.000	Continuing	Continuing
675129: <i>B-52 CERP</i>	-	210.045	429.068	395.736	0.000	395.736	373.190	290.310	265.891	271.803	Continuing	Continuing
675160: <i>B-52 Crypto Modernization</i>	-	8.348	17.453	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.801
675165: <i>B-52 Quad Crew</i>	-	0.000	10.203	18.965	0.000	18.965	0.000	0.000	0.000	0.000	Continuing	Continuing
676039: <i>B-52 Airspace Compliance*</i>	-	0.000	0.000	0.000	0.000	0.000	20.276	42.395	33.683	34.432	Continuing	Continuing

\*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2023

**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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0101113F I B-52 Squadrons				
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 FY21 21.218M was expended for civilian pay expenses in this program element, and in FY22 22.899M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		482.741	715.811	0.000	0.000	0.000
Current President's Budget		453.605	646.811	770.313	0.000	770.313
Total Adjustments		-29.136	-69.000	770.313	0.000	770.313
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	-81.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	12.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		-15.000	0.000			
• SBIR/STTR Transfer		-14.136	0.000			
• Other Adjustments		0.000	0.000	770.313	0.000	770.313
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						
Congressional Add Subtotals for Project: 675039						
Congressional Add Totals for all Projects						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
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	
<p><b><u>Change Summary Explanation</u></b></p> <p>FY2021 adjustment of -\$15M for Above Threshold Reprogramming FY21_11PA</p> <p>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.</p> <p>FY2022 10M increase for Global Strike Innovation Hub and 2M increase for B-52 Training Automation. FY2022 55M decrease for B-52 CERP Rapid Prototyping Material Contract Delay and 26M decrease for B-52 Radar Modernization contract delay.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
671803: B-52 AFMC Test Assets	-	5.977	1.447	4.369	0.000	4.369	0.000	2.740	2.797	2.859	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. This project will support the developmental testing and sustainment needs of the B-52 weapon system as well as the procurement and install of the Bomber Modular Data Acquisition System (BMDAS) on identified B-52 Test Aircraft. Funds include Programmed Depot Maintenance (PDM) costs for Test Aircraft performed 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)/ Operational Testing (OT), 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 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)

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> B-52 AFMC Test Aircraft Asset Support	5.977	1.447	4.369	-	4.369
<b>Description:</b> B-52 Test Support provides funding for the test aircraft, manpower, BMDAS and facilities at the Air Force Test Center, Edwards AFB and Programmed Depot Maintenance (PDM). This will support the developmental testing and sustainment needs of the B-52.					
<b>FY 2022 Plans:</b> Provide funding for the test aircraft, manpower and facilities at the Air Force Test Center, Edwards AFB. This will support the developmental testing, facility, BMDAS and sustainment needs of the B-52.					
<b>FY 2023 Base Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>		<b>Project (Number/Name)</b> 671803 / <i>B-52 AFMC Test Assets</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>
B-52 Test Support provides funding for the test aircraft, manpower, BMDAS, and facilities at the Air Force Test Center, Edwards AFB. This will support the developmental testing and sustainment needs of the B-52.					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding increased due to tempo and manpower requirements.					
<b>Accomplishments/Planned Programs Subtotals</b>		5.977	1.447	4.369	-
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b> Funding sent to Edwards AFB via MIPR 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-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AFMC Test Aircraft Support	PO	AFTC : Edwards AFB, CA	-	5.977	Jan 2021	1.447	Jan 2022	4.369	Jan 2023	-		4.369	Continuing	Continuing	-
Subtotal			-	5.977		1.447		4.369		-		4.369	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	5.977		1.447		4.369		-		4.369	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022				
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)				
3600 / 7					PE 0101113F / B-52 Squadrons					671803 / B-52 AFMC Test Assets				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AFMC Test Aircraft Support																												
Test Support																												
FY21 PDM Induction																												
PDM Jet Induction																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AFMC Test Aircraft Support				
Test Support	1	2021	4	2027
FY21 PDM Induction	2	2021	1	2022
PDM Jet Induction	2	2024	3	2025

Note

B-52 Test Aircraft -036 is planned to be inducted to PDM 2QFY24 and out 3QFY25.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
671805: B-52 VLF/LF Modernization	-	12.744	9.187	9.000	0.000	9.000	0.000	0.000	0.000	0.000	0.000	30.931
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 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> B-52 Very Low Frequency/Low Frequency (VLF/LF)	12.744	9.187	9.000	-	9.000
<b>Description:</b> Provides secure, survivable, receive-only strategic nuclear communication for the B-52					
<b>FY 2022 Plans:</b> Continue Engineering & Manufacturing Development (EMD) phase to support fielding decision. Accomplish kit #1 delivery and A/C mod for test.					
<b>FY 2023 Base Plans:</b> Continue EMD phase to support fielding decision. Accomplish DT/OT, A/C 2 Mod, and Milestone C.					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons				<b>Project (Number/Name)</b> 671805 / B-52 VLF/LF Modernization			

  

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Funding decreased because EMD efforts ramp down in 2023 to support testing (DT/OT), modification of the second aircraft, and Milestone C.										
<b>Accomplishments/Planned Programs Subtotals</b>						12.744	9.187	9.000	-	9.000

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 B05200: BP11 Production	0.000	20.137	16.515	-	16.515	26.240	5.700	6.200	3.200	Continuing	Continuing

  

**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 2023 Air Force												Date: April 2022			
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					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Collins Environmental Study	SS/FFP	Environmental Study : Richardson, TX	-	1.410	Aug 2021	0.290	Mar 2022	-		-		-	Continuing	Continuing	-
VLF/LF EMD	SS/CPFF	Various : Oklahoma, OK	-	9.979	Jan 2021	6.373	Jan 2022	3.138	Oct 2022	-		3.138	Continuing	Continuing	-
Subtotal			-	11.389		6.663		3.138		-		3.138	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
VLF/LF Program Office Support	Various	Various : TBD	-	0.922	Jul 2021	1.285	Jul 2022	0.223	Oct 2022	-		0.223	Continuing	Continuing	-
VLF/LF Trainers	Allot	Not specified. : TBD	-	-		0.000		5.000	Oct 2022	-		5.000	Continuing	Continuing	-
Subtotal			-	0.922		1.285		5.223		-		5.223	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
VLF/LF Test	PO	Not specified. : TBD	-	0.033	Feb 2021	0.039	Feb 2022	0.639	Oct 2022	-		0.639	Continuing	Continuing	-
VLF/LF Certifications	TBD	Not specified. : TBD	-	0.400	May 2021	1.200	May 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	0.433		1.239		0.639		-		0.639	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	12.744		9.187		9.000		-		9.000	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022				
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)				
3600 / 7					PE 0101113F / B-52 Squadrons					671805 / B-52 VLF/LF Modernization				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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-52 VLF/LF Modernization																												
EMD																												
MS C																												
IOC																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
B-52 VLF/LF Modernization				
EMD	1	2021	3	2023
MS C	3	2023	3	2023
IOC	4	2024	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
671810: B-52 AEHF Integration	-	12.002	29.690	66.515	0.000	66.515	122.411	108.095	0.069	0.000	0.000	338.782
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. Funds may be used to purchase long-lead parts following completion of Preliminary Design Review (PDR).

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 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> B-52 AEHF Integration	12.002	29.690	66.515	0.000	66.515
<b>Description:</b> 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					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons	<b>Project (Number/Name)</b> 671810 / B-52 AEHF Integration	

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
integrate the radio, antenna and system components required to provide two-way EHF communication for the B-52.					
<b><i>FY 2022 Plans:</i></b> Complete System Requirements Review (SRR) in FY22. Continue Technology Maturation & Risk Reduction (TMRR) activities to support Milestone B in FY23.					
<b><i>FY 2023 Base Plans:</i></b> 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 EMD contract in preparation for Critical Design Review (CDR).					
<b><i>FY 2023 OCO Plans:</i></b> N/A					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding increased to complete TMRR efforts which include delivering preliminary designs and preparing for a Milestone B decision. After Milestone B, funding will support ramp up and initial execution of EMD which includes ordering AEHF kits for EMD. Moreover, contractor staffing will increase significantly to support required EMD activities.					
<b>Accomplishments/Planned Programs Subtotals</b>	12.002	29.690	66.515	0.000	66.515

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 B05200: B-52	0.000	0.000	0.000	0.000	0.000	16.850	47.850	51.700	64.788	0.000	181.188

**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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 671810 / B-52 AEHF Integration					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Risk Reduction	SS/CPFF	The Boeing Company : Oklahoma City, OK	-	11.962	Mar 2021	27.958	Dec 2021	19.398	Oct 2022	-		19.398	Continuing	Continuing	-
EMD Contract	SS/CPIF	The Boeing Company : Oklahoma City, OK	-	-		-		38.190	Apr 2023	-		38.190	Continuing	Continuing	-
Subtotal			-	11.962		27.958		57.588		-		57.588	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Weapon Trainer Support	C/CPAF	Not specified. : TBD	-	-		-		2.170	Apr 2023	-		2.170	Continuing	Continuing	-
Subtotal			-	-		-		2.170		-		2.170	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Various	Various : TBD	-	-		-		0.257	Oct 2022	-		0.257	Continuing	Continuing	-
Subtotal			-	-		-		0.257		-		0.257	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Office Support (A&AS, Travel)	C/CPAF	Not specified. : TBD	-	0.040	Sep 2021	1.732	Sep 2022	6.500	Sep 2023	-		6.500	Continuing	Continuing	-
Subtotal			-	0.040		1.732		6.500		-		6.500	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons					Project (Number/Name) 671810 / B-52 AEHF Integration				
		Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		-	12.002		29.690		66.515		-		66.515	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)			
3600 / 7								PE 0101113F / B-52 Squadrons								671810 / B-52 AEHF Integration			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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-52 AEHF Integration																												
TMRR Activities																												
Milestone B																												
EMD																												
Flight Test																												
Milestone C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671810 / B-52 AEHF Integration

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
B-52 AEHF Integration				
TMRR Activities	1	2021	3	2023
Milestone B	2	2023	2	2023
EMD	3	2023	2	2026
Flight Test	2	2025	1	2026
Milestone C	2	2026	2	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675039 / B-52 System Improvements			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675039: B-52 System Improvements	-	34.342	12.150	13.150	0.000	13.150	5.190	0.000	0.000	0.000	Continuing	Continuing
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.

This project also supports the Air Force Global Strike Command (AFGSC) Innovation Hub. The B-52 AFGSC Innovation Hub supports Air Force efforts to take innovative approaches to B-52 modernization. This effort includes the Commercial Capabilities Integration Hub (CCIH) which is a local partnership program established to search for commercial/industrial products and services broader than the traditional major defense companies in order to tap into the American innovative talent often overlooked and underutilized. Also, technical scouting of capability solutions nationwide will focus on finding best of breed solutions to meet AFGSC needs to organize, train, and equip military capabilities to support Combatant Command needs to support the Joint Warfighting Concept and National interests. Funds maybe utilized in demonstrations of applicable technologies.

Funding also supports studies, analysis, and tests of aircraft systems' hardness to Chemical, Biological, Radiological, and Nuclear (CBRN) weapons effects, such as Low Level Continuous Wave (LLCW) and High Altitude Electromagnetic Pulse (HEMP) Survivability tests. It upgrades mission critical systems to survive in CBRN environments.

Systems Improvement is permitted to fund modernization program SW merges 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 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Title:</b> B-52 Systems Improvements</p> <p><b>Description:</b> 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.</p> <p><b>FY 2022 Plans:</b> 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><b>FY 2023 Base Plans:</b> 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><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>		28.912	0.150	0.150	-	0.150
<p><b>Title:</b> Advanced Targeting Pod Display Upgrade</p> <p><b>Description:</b> B-52 Advanced Targeting Pod (ATP) Display Upgrade project was meant to replace the legacy monitor to resolve supportability and obsolescence issues, as well as support video resolution improvements of the fielded Sniper and LITENING ATPs. The Sniper and LITENING ATPs are capable of transmitting HD color and video at a much higher resolution than the current monochrome monitor.</p> <p><b>FY 2022 Plans:</b> N/A</p> <p><b>FY 2023 Base Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>		0.430	0.000	0.000	-	0.000
<p><b>Title:</b> Quad Crew</p> <p><b>Description:</b> The B-52 Quad Crew effort transitions Electronic Warfare display functionality to the existing B-52 navigator stations, reducing the aircrew from five to four crew members.</p>		0.000	-	8.000	-	8.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<b>FY 2023 Base Plans:</b> Continue Quad Crew Engineering and Manufacturing Design (EMD) and testing activities, procure hardware, and prepare for Developmental and Operational Test. \$18.965M FY23 Quad Crew funding is in BPAC 675165. \$8M FY23 Quad Crew funding is in BPAC 675039 due to a database error.						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to ramp up in EMD activities and to support hardware purchases.						
<b>Title:</b> Advanced Concept Demonstration  <b>Description:</b> Effort supports a classified Proof of Concept demonstration on the B-52.		0.000	-	5.000	-	5.000
<b>FY 2023 Base Plans:</b> Support a proof of concept demonstration on the B-52 for a new classified initiative.						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A						
Accomplishments/Planned Programs Subtotals		29.342	0.150	13.150	-	13.150
		FY 2021	FY 2022			
<b>Congressional Add:</b> AFGSC Innovation Hub		5.000	10.000			
<b>FY 2021 Accomplishments:</b> Continue to support future investments such as Agile Pods, Future Comm Data Links, and Hypersonic Kill Chain Research and Development						
<b>FY 2022 Plans:</b> Continue to support future investments such as Agile Pods, Future Comm Data Links, and Hypersonic Kill Chain Research and Development.						
<b>Congressional Add:</b> B-52 Training Automation		-	2.000			
<b>FY 2022 Plans:</b> Support updates to B-52 trainers, including automation activities.						
Congressional Adds Subtotals		5.000	12.000			
C. Other Program Funding Summary (\$ in Millions)						
N/A						
Remarks						
\$18.965M FY23 Quad Crew funding is in BPAC 675165. \$8M FY23 Quad Crew funding is in BPAC 675039 due to a database error.						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements

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

Other program funding of 3010 BP11 is placed in Low Cost Mods (99999X) P-Doc totaling 11.130M (FY23-FY27).

D. Acquisition Strategy

The Acquisition Strategy for Quad Crew is addressed under BPAC 675165.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons	<b>Project (Number/Name)</b> 675039 / B-52 System Improvements
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
System Improvements Studies and Analysis	SS/ Various	The Boeing Company, 559 SMXS/MXDPBA : Oklahoma City, OK	-	3.600	Dec 2020	0.100	Jan 2022	0.100	Jan 2023	-		0.100	Continuing	Continuing	-
AFGSC Innovation Hub	C/CPAF	Radiance, SBCC, Outerlink : Barksdale, LA	-	5.000	Feb 2021	10.000	Apr 2022	-		-		-	Continuing	Continuing	-
Agile Pod	C/CPFF	JACOBS, KeyW Corp : Tinker, OK	-	3.635	Sep 2021	-		-		-		-	Continuing	Continuing	-
HEMP	TBD	The Boeing Company : Tinker, OK	-	1.000	Sep 2021	-		-		-		-	Continuing	Continuing	-
Advanced Targeting POD Display Upgrade	TBD	TBD : Oklahoma City, OK	-	0.430	Dec 2020	-		-		-		-	0.000	0.430	-
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	Apr 2023	-		8.000	Continuing	Continuing	-
Proof of Concept Demonstration	TBD	Not Specified: TBD : Tinker, OK	-	-		-		5.000	Jan 2023	-		5.000	Continuing	Continuing	-
<b>Subtotal</b>			-	13.665		12.100		13.100		-		13.100	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
B-52 Centralized Support, Program Management Administration, TDY, A&AS Contractor Support - 675039	Various	TBD : OK	-	20.427	Jan 2021	0.050	Jan 2022	0.040	Jan 2023	-		0.040	Continuing	Continuing	-
B-52 Centralized Support, Travel - 675039	Various	Various : TBD	-	0.250	Jan 2021	-		0.010	Jan 2023	-		0.010	Continuing	Continuing	-
<b>Subtotal</b>			-	20.677		0.050		0.050		-		0.050	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022						
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons					Project (Number/Name) 675039 / B-52 System Improvements							
					Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals					-	34.342		12.150		13.150		-		13.150	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons						Project (Number/Name) 675039 / B-52 System Improvements			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Systems Improvements</b>																												
System Improvements Studies and Analysis, etc. (Began 2Q16)																												
<b>AFGSC Innovation Hub</b>																												
Industry Collaboration Efforts																												
<b>B-52 Training Automation</b>																												
Training System Automation																												
<b>Proof of Concept Demonstration</b>																												
Proof of Concept																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675039 / <i>B-52 System Improvements</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Systems Improvements</i></b>				
System Improvements Studies and Analysis, etc. (Began 2Q16)	1	2021	4	2026
<b><i>AFGSC Innovation Hub</i></b>				
Industry Collaboration Efforts	1	2021	4	2023
<b><i>B-52 Training Automation</i></b>				
Training System Automation	3	2022	2	2023
<b><i>Proof of Concept Demonstration</i></b>				
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 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675041 / Bomber Tactical Data Link			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675041: Bomber Tactical Data Link	-	2.125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.125
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The B-52 Combat Network Communications Technology (CONNECT) Capability Development Document (CDD), dated 18 March 2004, captures the requirements for a Tactical Data Link (TDL) capability on the B-52. The B-52 TDL provides low latency, jam-resistant situational awareness and command and control (C2) communications needed to support in-theater operations and missions. This project will consist of integrating an existing off-the-shelf TDL terminal into the B-52. Integration includes Group A wiring, rack and antennae, and the Group B terminal, blanking unit and notch filter Line Replaceable Units (LRU). The TDL terminal will be fully integrated with CONNECT. This TDL capability allows the warfighter to utilize this capability by maintaining situational awareness, avoiding threats, and employing an array of weapons.

As the TDL upgrade brings additional capability to the B-52, emerging security requirements (Joint-Range Extension messaging, crypto modernization, etc.) as well as other aircraft upgrades may require study/support for potential impact to the CONNECT and TDL system. Funds may also be used for Engineering Development Models (EDMs) as well as System Integration Laboratory (SIL) terminals.

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 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Bomber Tactical Data Link	2.125	0.000	0.000	-	0.000
<b>Description:</b> The TDL will provide low latency, jam-resistant situation awareness and command/control needed to support in-theater operations/missions via a line-of-sight (LOS) Link 16 capability. The program will consist of integrating an existing off-the-shelf Link 16 terminal into the B-52. This will include Group A wiring, rack and antennae and the Group B terminal, blanking unit and notch filter LRUs. The terminals will be installed inside the fuselage of the aircraft and external antennas will be mounted on the fuselage. The TDL terminal and LOS capability will be integrated with the rest of the CONNECT subsystem.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>				<b>Project (Number/Name)</b> 675041 / <i>Bomber Tactical Data Link</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>											
				<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>			
<i><b>FY 2022 Plans:</b></i> N/A											
<i><b>FY 2023 Base Plans:</b></i> N/A											
<i><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></i> N/A											
<b>Accomplishments/Planned Programs Subtotals</b>				2.125	0.000	0.000	-	0.000			
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 Line Item B05200: <i>BP11 Production</i>	11.164	15.841	32.357	-	32.357	29.159	27.100	12.188	7.400	0.000	135.209
• APAF 06 000999: <i>Initial Spares</i>	2.495	-	-	-	-	-	-	-	-	0.000	2.495
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
The Milestone Decision Authority (MDA) approved the 28 October 2016 decision of the B-52 TDL Acquisition Strategy Panel (ASP), which authorized the program to enter into the EMD phase with the Original Equipment Manufacturer (OEM).											
MDA approved the Acquisition Decision Memorandum (ADM) for the revised Acquisition Program Baseline (APB) on 31 Jan 21. The revised APB includes updates for the objective and thresholds for Milestone C and Initial Operational Capability and removes the Full Rate Production (FRP) schedule parameter in the APB.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675041 / Bomber Tactical Data Link					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Link 16 EMD	SS/ Various	Boeing : Oklahoma City, OK	-	2.125		-		-		-		-	0.000	2.125	-
Subtotal			-	2.125		-		-		-		-	0.000	2.125	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	2.125		-		-		-		-	0.000	2.125	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022				
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)				
3600 / 7					PE 0101113F / B-52 Squadrons					675041 / Bomber Tactical Data Link				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Bomber Tactical Data Link																												
EMD																												
Milestone C																												
IOC																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675041 / Bomber Tactical Data Link

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Bomber Tactical Data Link</i>				
EMD	1	2021	2	2022
Milestone C	3	2022	3	2022
IOC	2	2024	2	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675050 / CONECT			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675050: CONECT	-	3.867	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.867
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The B-52H Combat Network Communication Technology (CONNECT) acquisition project supports nuclear and conventional operations by upgrading the B-52H fleet with data and voice communications capabilities along with improved threat and situational awareness to support participation in network centric operations. This CONNECT modification includes procurement of 74 aircraft kits + 2 Engineering and Manufacturing Development (EMD) kits that will be installed in conjunction with Programmed Depot Maintenance (PDM). Ground station mission planning hardware, support equipment, initial spares, and Interim Contractor Support (ICS) will be procured. Additional initial support/readiness efforts will develop and upgrade B-52H training devices with CONNECT functionality. The CONNECT training device upgrades provide full CONNECT functionality to support aircrew training. The Aircrew Training Devices (ATDs) include three B-52H Weapon System Trainers (WST) and two Offensive Station Mission Trainers (OSMT), and the upgrades will also be installed in the Systems Integration Lab (SIL). The Other Government Cost line includes, but is not limited to, Diminishing Manufacturing Sources and Material Shortages (DMSMS) costs to maintain the production configuration through the identification, review, and monitoring of items with high obsolescence risk potential, classification of identified items according to criticality, identification of alternatives, and implementation of resolutions. Resolutions may include non-recurring engineering (NRE) and/or replacement costs for DMSMS components, bridge buys of DMSMS components until NRE can be completed or Life of Type buys, whichever is most appropriate. Included in the Support Equipment line is the planning for establishment of an organic Depot capability, stand-up of the depot, procurement of depot equipment and procurement of the CONNECT Ground Station (CGS).

Funds may be used for, but are not limited to, civilian pay expenses, and to address emerging and short-notice DMSMS issues. Funds may also be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

As the CONNECT upgrade brings additional capability to the B-52, emerging communication and security requirements (upgrades to Intelligence Broadcast Receiver, Joint Range Extension messages, crypto modernization, etc.) and aircraft upgrades (1760 Internal Weapons Bay Upgrade, Mode S/Mode 5 Identification, Identification Friend or Foe, etc.) may require study for potential impacts to CONNECT. In order to maintain currency with the latest aircraft configuration, the CONNECT project will update existing trainers (using stimulate, simulate, and/or computer-based training) to add CONNECT functionality to meet user-training requirements, and update and maintain the SIL for the WSTs. In order to assist PDM during after-install checkout and Barksdale AFB and Minot AFB units with maintenance checkout and operational training, a CONNECT Ground Station is being developed.

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 OM was expended for civilian pay expenses in this program element, and in FY22 OM is forecasted for civilian pay expenses in this program element.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675050 / <i>CONNECT</i>	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> B-52 CONNECT  <b>Description:</b> B-52H CONNECT supports nuclear and conventional operations by upgrading the B-52H fleet with data and voice communications capabilities along with improved threat and situational awareness to support participation in network centric operations.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Base Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A	3.867	0.000	0.000	-	0.000
<b>Accomplishments/Planned Programs Subtotals</b>	3.867	0.000	0.000	-	0.000

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item B05200: <i>BP11 Production</i>	0.000	15.737	17.015	-	17.015	-	-	-	-	0.000	32.752
• APAF 06 000999: <i>Initial Spares</i>	-	-	-	-	-	-	-	-	-	0.000	0.000
• APAF 07 Line Item B05200: <i>Post Production Support</i>	0.936	3.602	5.883	-	5.883	-	-	-	-	0.000	10.421

**Remarks**  
The B-52 CONNECT program is a valid requirement per the Capability Development Document (CDD) signed in 2004 and is in the President's budget.

**D. Acquisition Strategy**

The B-52 CONNECT EMD prime contract is a sole source to Boeing Defense, Space & Security (DSS) in Oklahoma City, OK. Boeing DSS designs, develops, tests and procures necessary equipment from their subcontractors; additionally, they develop engineering drawings, logistic, and technical data. Advanced Training Consulting is the current contractor for the trainer update to integrate CONNECT into the existing trainers.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675050 / CONECT					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Ground Crew Station	SS/CPAF	The Boeing Company : Oklahoma City, OK	-	3.867	Feb 2022	-		-		-		-	0.000	3.867	-
Subtotal			-	3.867		-		-		-		-	0.000	3.867	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	3.867		-		-		-		-	0.000	3.867	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity										R-1 Program Element (Number/Name)									
3600 / 7										PE 0101113F / B-52 Squadrons									
										Project (Number/Name)									
										675050 / CONECT									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CONECT																												
FOC																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675050 / CONECT

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CONECT				
FOC	1	2022	1	2022

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675055: GPS-IU	-	0.771	0.693	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.464
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Global Positioning System Interface Unit (GPS-IU) is considered a FY22 new start due to program schedule delays. The 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 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Global Positioning System Interface Unit (GPS-IU)	0.771	0.693	-	-	-
<b>Description:</b> Global Positioning System Interface Unit (GPS-IU) Upgrade will replace six circuit card assemblies in the GPS-IU, the backplane, and the chassis.					
<b>FY 2022 Plans:</b> FY22 funding will complete EMD and test activities.					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to planned completion of EMD.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.771	0.693	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>			<b>Project (Number/Name)</b> 675055 / <i>GPS-IU</i>			

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 06 Line Item	12.014	7.863	22.827	-	22.827	21.700	0.600	-	-	0.000	65.004
B05200: <i>BP11 Production</i>											
• APAF 06 000999: <i>Initial Spares</i>	-	0.000	1.580	-	1.580	-	-	-	-	0.000	1.580

**Remarks**

Due to late delivery of components for testing, the EMD schedule slipped and is projecting MS C in 3QFY23.

**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 is currently in the Engineering and Manufacturing Development (EMD) phase via a sole source contract to Boeing DSS, awarded 4QFY18. Deliverables include software, eight modernized prototypes, logistics support, ground and flight test support, and engineering drawings. Milestone B was approved June 2018.

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>				<b>Project (Number/Name)</b> 675055 / <i>GPS-IU</i>					

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
GPS-IU EMD Contract	SS/ Various	Boeing : Oklahoma City, OK	-	0.771	Apr 2021	0.693	Nov 2021	-		-		-	0.000	1.464	-
<b>Subtotal</b>			-	0.771		0.693		-		-		-	0.000	1.464	N/A

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	0.771	0.693	-	-	-	0.000	1.464	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force											Date: April 2022				
Appropriation/Budget Activity						R-1 Program Element (Number/Name)						Project (Number/Name)			
3600 / 7						PE 0101113F / B-52 Squadrons						675055 / GPS-IU			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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																												
DT/OT																												
MS C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675055 / GPS-IU	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
GPS-IU				
EMD	1	2021	1	2024
DT/OT	2	2023	3	2023
MS C	3	2023	3	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675056: B-52 Radar Modernization Program (RMP)	-	163.384	136.862	261.876	0.000	261.876	211.187	123.633	43.211	0.000	0.000	940.153
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 all three Weapon System Trainers (WST), the WST Training Systems Integration Laboratory (SIL), both B-52H Offensive Station Maintenance Trainers (OSMTs), the Bombing-Navigation System Maintenance Trainers (BNSMTs), a desktop trainer, as well as 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 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, it includes 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) 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 to 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 2023 Air Force			Date: April 2022			
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 FY21 \$8.739M was expended for civilian pay expenses in this program element, and in FY22 \$9.619M is forecasted for civilian pay expenses in this program element.						
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Title:</b> Radar Modernization Program</p> <p><b>Description:</b> 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><b>FY 2022 Plans:</b> Prepared for and conducted weapon system level Critical Design Review (CDR) in Feb 22 followed by fabrication, qualification, and delivery of subsystem lab/aircraft kits; initial version software code development/integration; installation/checkout of subsystems in B-52 System Integration Lab (SIL); and preparations for aircraft kit installation on the first of two test jets.</p> <p><b>FY 2023 Base Plans:</b> 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.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to an acceleration of activities which require additional FY23 resources over those in FY22. The cross-functional Cost Review Board supporting Milestone B increased resources in FY23 to account for additional contractor and government activities required to develop and test software as well as prepare RMP's first test aircraft for flight test. These activities support the program's MS C Decision Point #1 which initiates LRIP at the earliest opportunity.</p>		163.384	136.862	261.876	-	261.876
Accomplishments/Planned Programs Subtotals		163.384	136.862	261.876	-	261.876

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022	
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)			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 LineItem B05200: BP11 Production	0.000	0.000	0.000	-	0.000	115.470	209.485	239.992	244.258	Continuing	Continuing
• APAF 07 Line Item B05200: Post Production Support	0.098	0.000	0.000	-	0.000	0.106	0.109	0.110	0.112	Continuing	Continuing
• APAF 06 000999: Initial Spares	0.197	0.000	0.000	-	0.000	0.213	0.217	0.220	0.225	Continuing	Continuing
Remarks											
FY21 BA received and executed was 157.792M in accordance with congressional mark realized in FY21.											
FY22 funding for B-52 RMP is 146.058M: RMP BPAC 675056 (136.862M) and Crypto Mod BPAC 675160 (9.196M). RMP and Crypto Mod are two distinct development efforts. An accounting error resulted in 9.196M of FY22 RMP funding being misaligned under Crypto Mod.											
D. Acquisition Strategy											
The Milestone Decision Authority approved the B-52 RMP Acquisition Strategy (AS) on 13 March 2018. Per the AS, the OEM completed radar and other supplier selections in June 2019. The team completed System PDR in October 2020, Milestone B in June 2021, awarded the EMD contract in June 2021, and conducted System CDR in February 2022.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPFF	The Boeing Company : Oklahoma City, OK	-	60.726	Jun 2021	15.108	Dec 2021	8.800	Dec 2022	-		8.800	Continuing	Continuing	-
Engineering & Manufacturing Development (EMD) Phase	SS/CPIF	The Boeing Company : Oklahoma City, OK	-	54.300	Jun 2021	100.016	Nov 2021	213.159	Nov 2022	-		213.159	Continuing	Continuing	-
Risk Reduction	C/CPFF	The Boeing Company : Oklahoma City, OK	-	27.681	Jan 2021	-		-		-		-	Continuing	Continuing	-
Subtotal			-	142.707		115.124		221.959		-		221.959	Continuing	Continuing	N/A
Remarks															
FY 2021 Cost has been reduced from \$149.259 million to \$138.359 million to account for a \$10.900 million Congressional mark.															
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Weapon Trainer Support	C/CPAF	AFLCMC/WNS : WPAFB, OH	-	-		-		4.160	Mar 2023	-		4.160	Continuing	Continuing	-
557th Software Development	PO	557th SWES : Tinker AFB, OK	-	-		3.686	Dec 2021	3.464	Dec 2022	-		3.464	Continuing	Continuing	-
Direct Cite Civilian Pay	Various	AFLCMC/FZA : WPAFB, OH	-	8.739	Oct 2020	9.619	Oct 2021	8.450	Oct 2022	-		8.450	Continuing	Continuing	-
Subtotal			-	8.739		13.305		16.074		-		16.074	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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)					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Edwards AFTC	PO	Edwards AFB : Edwards AFB, CA	-	-		4.172	Dec 2021	19.179	Dec 2022	-		19.179	Continuing	Continuing	-
47th CTS Cyber Test	PO	47th CTS : Eglin AFB, FL	-	-		0.161	Dec 2021	0.164	Dec 2022	-		0.164	Continuing	Continuing	-
Test RMP BPAC 675056	PO	Not specified. : TBD	-	5.011	Feb 2021	0.000	Dec 2021	-		-		-	Continuing	Continuing	-
Studies RMP Development	PO	Not specified. : TBD	-	1.800	Mar 2021	-		-		-		-	Continuing	Continuing	-
Subtotal			-	6.811		4.333		19.343		-		19.343	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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, A&AS Support, Centralized Support, TDY, OGC	Various	Various : Various	-	5.127	Mar 2021	4.100	Dec 2021	4.500	Dec 2022	-		4.500	Continuing	Continuing	-
Subtotal			-	5.127		4.100		4.500		-		4.500	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	163.384		136.862		261.876		-		261.876	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
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)			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Radar Modernization Program																												
Risk Reduction																												
MS B																												
EMD																												
Developmental Testing																												
MS-C																												
IOC																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
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)	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Radar Modernization Program</i>				
Risk Reduction	1	2021	3	2021
MS B	3	2021	3	2021
EMD	3	2021	1	2027
Developmental Testing	4	2023	4	2026
MS-C	4	2024	4	2024
IOC	2	2027	2	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675057: B-52 Low Cost Improvement (LCI)	-	0.000	0.058	0.702	0.000	0.702	0.000	0.000	0.000	0.000	Continuing	Continuing
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 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> B-52 Low Cost Improvements	0.000	0.058	0.702	-	0.702
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b> 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.					
<b>FY 2023 Base Plans:</b> 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.					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022		
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)			
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funding increased due to the plan to integrate and demonstrate an emerging new capability pod on the B-52.											
Accomplishments/Planned Programs Subtotals							0.000	0.058	0.702	-	0.702
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 Line item	0.000	8.925	0.528	-	0.528	2.575	2.622	2.675	2.730	Continuing	Continuing
B05200: BP11 Production											
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-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Studies and analyses to develop and integrate emerging technologies for the B-52, A&AS contractor support.	C/Various	TBD : NV	-	0.000	Mar 2021	0.058	Mar 2022	0.702	Mar 2023	-		0.702	Continuing	Continuing	-
Subtotal			-	0.000		0.058		0.702		-		0.702	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000		0.058		0.702		-		0.702	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)									
3600 / 7					PE 0101113F / B-52 Squadrons					675057 / B-52 Low Cost Improvement (LCI)									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 2023 Air Force		Date: April 2022
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)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Low Cost Improvements				
Low Cost Improvements Studies and Analyses	1	2022	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675129: B-52 CERP	-	210.045	429.068	395.736	0.000	395.736	373.190	290.310	265.891	271.803	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. 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-52H aircraft to employ an array of nuclear and conventional weapons while saving fuel 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 of a B-52 Weapon System Trainer (WST). As 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 CERP may necessitate the construction of facilities or facility upgrades/modification. 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 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 2023 Air Force			Date: April 2022				
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675129 / B-52 CERP				
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 Rapid Virtual Prototyping (RVP) Middle Tier of Acquisition effort is \$1,301.7 million, including RDT&E and procurement of prototype units. The B-52 CERP RVP MTA 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 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 12.479M was expended for civilian pay expenses in this program element, and in FY22 13.280M is forecasted for civilian pay expenses in this program element.							
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: B-52 CERP			210.045	429.068	395.736	-	395.736
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. The program delivered the Virtual System Prototype (VSP) Increment 1 in September 2021, one month ahead of the guardrail trigger.							
FY 2022 Plans: Continue CERP Rapid Virtual Prototyping (RVP) MTA and the Rapid Prototype Phase 1 (RP1) contract. Continue development of the Virtual System Prototype (VSP) Increment 2. Continue preliminary design and Rapid Prototype Material (RPM - long lead material) contract.							
FY 2023 Base Plans: Continue CERP Rapid Virtual Prototyping (RVP) MTA and Rapid Prototype Phase 1 (RP1) contract and deliver Virtual System Prototype (VSP) Increment 2. Complete system preliminary design and begin system critical design. Continue Rapid Prototype Material (RPM - long lead material) contract and complete engine critical design on engine contract. Plan to begin ordering test aircraft hardware. Finally, complete the RVP MTA, accomplish Milestone B, and enter into the Engineering and Manufacturing Development (EMD) phase.							
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to updates made to the acquisition program plan which resulted in moving a portion of the test aircraft hardware order into FY24.							
Accomplishments/Planned Programs Subtotals			210.045	429.068	395.736	-	395.736

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675129 / <i>B-52 CERP</i>	

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 0101113F: <i>B-52 SQUADRONS</i>	-	-	-	-	-	-	230.402	694.039	706.129	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

Acquisition strategy and FY16 NDAA Middle Tier of Acquisition (MTA) Section 804 authority approved Sept 2018. B-52 CERP currently has two planned MTA efforts: RVP and Rapid Physical Prototype (RPP). CERP RVP includes risk reduction activities and executing RP1 activities. RP1 is sole source prototype aircraft development with the aircraft integrator (Boeing). Rolls-Royce is the military derivative commercial engine vendor and also a directed sub-contractor to Boeing. Engines are government furnished material (GFM) to Boeing. CERP RVP delivers the Virtual System Prototype in two increments. Currently the CERP RPP includes the follow-on RP2 and RPM contracts with Boeing for physical prototyping efforts, which delivers two prototype test aircraft. However, B-52 CERP was directed by the Milestone Decision Authority to transition from an MTA strategy to a Major Capability Acquisition with an Engineering and Manufacturing Development (EMD) contract following the completion of RVP MTA and Milestone B approval.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675129 / B-52 CERP					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Rapid Prototyping Phase 1 Contract	SS/CPIF	The Boeing Co : Oklahoma City, OK	-	93.895	Feb 2021	224.767	Jan 2022	151.207	Jan 2023	-		151.207	Continuing	Continuing	-
Engine Contract	C/FFP	Rolls-Royce : Indianapolis, IN	-	25.490	Sep 2021	50.975	Jan 2022	20.109	Dec 2022	-		20.109	Continuing	Continuing	-
Rapid Prototyping Material 0	SS/CPFF	The Boeing Co : Oklahoma City, OK	-	34.902	Mar 2021	90.773	Jan 2022	109.489	Nov 2022	-		109.489	Continuing	Continuing	-
Rapid Prototyping Material 1	SS/CPFF	The Boeing Co : Oklahoma City, OK	-	1.530	Oct 2021	31.125	Mar 2022	55.478	Nov 2022	-		55.478	Continuing	Continuing	-
Engineering & Manufacturing Development (EMD) Phase	C/CPIF	The Boeing Co : Oklahoma City, OK	-	-		-		5.000	Aug 2023	-		5.000	Continuing	Continuing	-
Subtotal			-	155.817		397.640		341.283		-		341.283	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Documentation - Technical Support	MIPR	Booz Allen Hamilton : OKC, OK	-	4.548	May 2021	4.000	Jun 2022	7.600	Jun 2023	-		7.600	Continuing	Continuing	-
557th	PO	557th : Tinker AFB, OK	-	0.454	Jun 2021	0.454	Jun 2022	0.469	Jun 2023	-		0.469	Continuing	Continuing	-
Direct Cite Authorization for CERP Civilian Personnel	Allot	AFLCMC/FZA : TBD	-	12.479	Oct 2020	13.280	Oct 2021	14.000	Oct 2022	-		14.000	Continuing	Continuing	-
Subtotal			-	17.481		17.734		22.069		-		22.069	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Edwards AFTC	PO	Edwards AFB : Edwards AFB, CA	-	28.009	Feb 2021	3.000	Mar 2022	8.930	Dec 2022	-		8.930	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675129 / B-52 CERP					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Digital Engineering	Various	Various : TBD	-	4.150	Aug 2021	1.930	Mar 2022	8.690	Apr 2023	-		8.690	Continuing	Continuing	-
Mock Up A/C and AMARG	Various	Various : TBD	-	3.424	May 2021	0.667	May 2022	-		-		-	Continuing	Continuing	-
AEDC	PO	AEDC/ Flight Systems CTF : Arnold AFB, TN	-	-		0.000	May 2022	4.000	Dec 2022	-		4.000	Continuing	Continuing	-
47th CTS Cyber Test	PO	47th CTS : Edwards AFB, CA	-	0.131	Sep 2021	0.202	Aug 2022	0.202	Jul 2023	-		0.202	Continuing	Continuing	-
AFSEO	PO	AFSEO : Eglin AFB, FL	-	-		0.047	Apr 2022	0.050	Nov 2022	-		0.050	Continuing	Continuing	-
AFOTEC	MIPR	AFOTEC : Edwards AFB, CA	-	0.340	Sep 2021	0.195	Apr 2022	0.440	Dec 2022	-		0.440	Continuing	Continuing	-
Subtotal			-	36.054		6.041		22.312		-		22.312	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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, A&AS Support, Centralized Support, TDY, OGC	Various	Various : Various	-	0.693	Jan 2021	7.653	Mar 2022	10.072	Jan 2023	-		10.072	Continuing	Continuing	-
Subtotal			-	0.693		7.653		10.072		-		10.072	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	210.045		429.068		395.736		-		395.736	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons			Project (Number/Name) 675129 / B-52 CERP				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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-52 CERP																												
Rapid Prototype Phase 1 Contract																												
Virtual System Prototype Increment 1																												
Rapid Prototype Material Contract																												
Engine Contract																												
Virtual System Prototype Increment 2																												
Milestone B																												
Engineering and Manufacturing Development																												
Developmental Testing																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022	
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons		Project (Number/Name) 675129 / B-52 CERP

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>B-52 CERP</b>				
Rapid Prototype Phase 1 Contract	1	2021	1	2024
Virtual System Prototype Increment 1	4	2021	4	2021
Rapid Prototype Material Contract	2	2021	4	2027
Engine Contract	4	2021	4	2027
Virtual System Prototype Increment 2	4	2023	4	2023
Milestone B	4	2023	4	2023
Engineering and Manufacturing Development	4	2023	4	2027
Developmental Testing	1	2027	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675160: B-52 Crypto Modernization	-	8.348	17.453	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.801
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 to prevent loss of beyond line of sight (BLOS) voice and data communications capability. The program will ensure the B-52 meets National Security Agency (NSA) mandates and 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 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> B-52 Crypto Modernization	8.348	8.257	0.000	-	0.000
<b>Description:</b> Upgrades aircraft with MUOS capable ARC-210 radio systems to prevent loss of BLOS voice and data communications capability.					
<b>FY 2022 Plans:</b> Continue Engineering and Manufacturing Development (EMD) phase to support DT/OT and Milestone C documentation creation and accomplish A/C mod #1.					
<b>FY 2023 Base Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to planned completion of EMD.					
<b>Title:</b> B-52 Radar Modernization Program	-	9.196	-	-	-
<b>Description:</b> Support nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>		<b>Project (Number/Name)</b> 675160 / <i>B-52 Crypto Modernization</i>	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
aircraft. Development and production of new systems to replace the legacy equipment and to be installed on all 76 B-52H aircraft.					
<b><i>FY 2022 Plans:</i></b> Prepared for and conducted weapon system level Critical Design Review (CDR) in Feb 22 followed by fabrication, qualification, and delivery of subsystem lab/aircraft kits; initial version software code development/integration; installation/checkout of subsystems in B-52 System Integration Lab (SIL); and preparations for aircraft kit installation on the first of two test jets.					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding decreased because the 9.196M FY22 funding for RMP was misaligned under the Crypto Mod BPAC due to an accounting error. There is no RMP funding in FY23 under the Crypto Mod BPAC.					
<b>Accomplishments/Planned Programs Subtotals</b>	8.348	17.453	0.000	-	0.000

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 Line item B05200: <i>BP11 Production</i>	0.000	3.452	37.567	0.000	37.567	33.662	23.270	5.240	4.740	0.000	107.931

**Remarks**

EMD contract awarded Dec 2018. EMD Contract re-baselined Mar 2020.

FY22 funding for B-52 Crypto Mod is \$8.257M. An accounting error resulted in 9.196M of FY22 funding for RMP (BPAC 675056) being misaligned under Crypto Mod (BPAC 675160). RMP and Crypto Mod are two distinct development efforts.

**D. Acquisition Strategy**

The Milestone Decision Authority (MDA) approved the 31 January 2018 decision of the B-52 Crypto Modernization Acquisition Strategy Panel (ASP), which authorized the program to enter into the EMD phase with the Original Equipment Manufacturer (OEM). The program office awarded a contract to the OEM on 20 December 2018. EMD efforts are underway and scheduled to be complete by FY23. Once complete, the program office will brief the updated ASP and Milestone C for production and fielding for approval from the MDA.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675160 / B-52 Crypto Modernization					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Crypto Modernization: Development and Integration Activities	SS/CPIF	OEM : Oklahoma City, OK	-	5.426	Mar 2021	6.312	Jan 2022	-		-		-	Continuing	Continuing	-
Radar Modernization Program: Engineering & Manufacturing Development (EMD) Phase	SS/CPIF	OEM : Oklahoma City, OK	-	-		9.196	Nov 2021	-		-		-	Continuing	Continuing	-
Subtotal			-	5.426		15.508		-		-		-	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Administration	MIPR	Not specified. : TBD	-	1.000	May 2021	0.545	May 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	1.000		0.545		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test Support	PO	Various : TBD	-	1.792	Mar 2021	1.300	Feb 2022	-		-		-	0.000	3.092	-
Subtotal			-	1.792		1.300		-		-		-	0.000	3.092	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Not specified. : TBD	-	0.130	Jan 2021	0.100	Jan 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	0.130		0.100		-		-		-	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons					Project (Number/Name) 675160 / B-52 Crypto Modernization			
	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	8.348		17.453		-		-		-	Continuing	Continuing	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 2023 Air Force										Date: April 2022				
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)				
3600 / 7					PE 0101113F / B-52 Squadrons					675160 / B-52 Crypto Modernization				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Crypto Modernization																												
EMD																												
IQT/FQT																												
DT/OT																												
MS C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675160 / B-52 Crypto Modernization

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Crypto Modernization				
EMD	1	2021	3	2023
IQT/FQT	3	2021	3	2022
DT/OT	4	2022	2	2023
MS C	3	2023	3	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675165: B-52 Quad Crew	-	0.000	10.203	18.965	0.000	18.965	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Modernization to the B-52 Electronic Warfare systems is critical for situational awareness, self-protection and survivability in a contested environment. The Quad Crew Program will better integrate the ALQ-172 Line Replaceable Units (LRUs) capability and provide more inherent capabilities allowing it to be more fully automated. The planned automation and integration plan will remove the need for a sole function Electronic Warfare Officer (EWO) on the B-52.

The Quad Crew Program supports reduction in B-52 crew size by automating Electronic Warfare Officer duties and relocating control/monitor functions to the Navigator Station. The Quad Crew program also includes expansion of frequency band capability within the ALQ-172 to absorb antiquated systems and manual jammers that current require an additional crew member. To allow movement of this capability, there will be modifications to hardware and infrastructure on the B-52H and layouts of the down stairs crew stations.

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.

Milestone/Development Status  
 Materiel Development Decision (MDD) July 2021  
 Acquisition Strategy (AS) Approved August 2021

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> B-52 Quad Crew	0.000	10.203	18.965	-	18.965
<b>Description:</b> The B-52 Quad Crew effort transitions Electronic Warfare display functionality to the existing B-52 navigator stations, reducing the aircrew from five to four crew members.					
<b>FY 2022 Plans:</b> Award the B-52 Quad Crew Engineering and Manufacturing Development (EMD) contract and begin the development effort to integrate the ALQ-172 Line Replaceable Units.					
<b>FY 2023 Base Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>			<b>Project (Number/Name)</b> 675165 / <i>B-52 Quad Crew</i>					
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Continue Quad Crew EMD design and testing activities, procure hardware, and prepare for Developmental and Operational Test.												
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding increased due to ramp up in EMD activities and to support hardware purchases.												
<b>Accomplishments/Planned Programs Subtotals</b>								0.000	10.203	18.965	-	18.965
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• APAF 06 0101113F: <i>B-52 SQUADRONS</i>	-	-	-	-	-	27.552	41.718	42.808	64.461	Continuing	Continuing	
<b>Remarks</b> 8M FY23 Quad Crew funding is in BPAC 675039 due to a database error. Total FY23 funding for Quad Crew is 26.965M (8M in BPAC 675039 and 18.965M in BPAC 675165).												
<b>D. Acquisition Strategy</b> The Milestone Decision Authority (MDA) for B-52 Quad Crew is PEO ACS and the program will utilize the B-1/B-52 Flexible Acquisition and Sustainment Contract to award studies and development effort to the Original Equipment Manufacturer (OEM). Additionally, the program will also utilize existing sustainment contracts for studies and development of ALQ-172 functionally to support the transition to the B-52 Quad Crew. The OEM will be responsible for the integration of the ALQ-172 which will be provided as Government Furnished Equipment. The Electronic Warfare & Avionics Division will work with B-52 Division for final integration and test.												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons						Project (Number/Name) 675165 / B-52 Quad Crew			
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Quad Crew EMD	TBD	Not specified. : Oklahoma City, OK	-	-		10.203	Aug 2022	18.965	Apr 2023	-		18.965	Continuing	Continuing	-
Subtotal			-	-		10.203		18.965		-		18.965	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		10.203		18.965		-		18.965	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)	
3600 / 7	PE 0101113F / B-52 Squadrons	675165 / B-52 Quad Crew	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675165 / B-52 Quad Crew	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
QUAD CREW				
EMD	4	2022	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
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)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	1.377	0.453	0.571	0.000	0.571	0.529	0.538	0.550	0.562	Continuing	Continuing
674797: ALCM Upgrades	-	1.377	0.453	0.571	0.000	0.571	0.529	0.538	0.550	0.562	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 0605831F. In FY21 no funding was expended for civilian pay expenses in this program element, and in FY22 no funding 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 2023 Air Force				Date: April 2022		
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)				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	1.430	0.453	0.000	0.000	0.000	
Current President's Budget	1.377	0.453	0.571	0.000	0.571	
Total Adjustments	-0.053	0.000	0.571	0.000	0.571	
• 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	-0.053	0.000	0.571	0.000	0.571	
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Inertial Navigation Element (INE)				1.147	0.000	0.000
Description: Conducting analysis and engineering efforts to ensure short and long term supportability of the ALCM Inertial Navigation Element (INE).						
FY 2022 Plans: N/A						
FY 2023 Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: N/A						
Title: ALCM Test Plan Development and Evaluation				0.230	0.453	0.571
Description: Develop test procedures to implement CJCS-directed requirement for Electromagnetic (EM) testing for nuclear systems.						
FY 2022 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0101122F / <i>Air-Launched Cruise Missile (ALCM)</i>							
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>										<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Support test plan development for Pylon/CSRL Neutron Testing												
<b>FY 2023 Plans:</b> Execution of Pylon/CSRL Neutron Test												
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase used in support of CBRN Test Planning beginning in FY22												
<b>Accomplishments/Planned Programs Subtotals</b>										1.377	0.453	0.571
<b>D. Other Program Funding Summary (\$ in Millions)</b>												
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>	
• MPAF 03 Line Item MALCBG: <i>ALCM, Missile Modifications</i>	52.924	46.799	36.976	-	36.976	27.116	27.102	21.676	22.096	Continuing	Continuing	
• MPAF 04 Line Item MALCBG: <i>ALCM, Replenishment Spares</i>	2.303	2.369	2.508	-	2.508	2.563	2.609	2.641	2.684	Continuing	Continuing	
• MPAF 04 Line Item 999/Replen <i>Spa...: ALCM, Initial Spares</i>	0.328	0.428	0.452	-	0.452	0.358	0.362	0.367	0.373	Continuing	Continuing	
<b>Remarks</b>												
<b>E. Acquisition Strategy</b>												
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.												
Inertial Navigation Element (INE) Service Life Extension Program (SLEP) plans for a three phase reliability assessment with comprehensive plan to address short and long term supportability.												
Phase 1 - Short-term parts shortage mitigation analyses with Tomahawk Reference Measuring Unit and Computer												
Phase 2 - Definition of scope of efforts and establishing the manufacturing methodology												
Phase 3 - Delivery of working engineering samples, certification of production, and production of INE's equal to the function and reliability of 'like new' devices												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101122F / Air-Launched Cruise Missile (ALCM)				Project (Number/Name) 674797 / ALCM Upgrades					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
INE Prototype	SS/ Various	NG : UT	-	1.147	Aug 2021	-		-		-		-	Continuing	Continuing	-
CBRN Test Plan Development & Evaluation	Various	WSMR, Boeing : NV	-	0.000		0.333	Mar 2022	0.446	Mar 2023	-		0.446	Continuing	Continuing	-
Subtotal			-	1.147		0.333		0.446		-		0.446	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Management and Engineering Services for research, development, test and evaluation on ALCM	C/CPAF	Not specified. : TBD	-	0.210	Jul 2021	0.100	Jul 2022	0.105	Jul 2023	-		0.105	Continuing	Continuing	-
PMA - Government Costs	Various	Various : Various	-	0.020	Jun 2021	0.020	Jun 2022	0.020	Jul 2023	-		0.020	Continuing	Continuing	-
Subtotal			-	0.230		0.120		0.125		-		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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.377		0.453		0.571		-		0.571	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022							
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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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101122F / Air-Launched Cruise Missile (ALCM)	Project (Number/Name) 674797 / ALCM Upgrades

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>INE Sustainment</b>				
INE CCA Development	4	2021	2	2022
<b>CBRN Test</b>				
CBRN Test Plan Development	2	2022	4	2024
CBRN Test Execution	2	2023	4	2024

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0101126F / <i>B-1B Squadrons</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	15.276	39.127	13.144	0.000	13.144	14.084	16.321	2.004	0.008	0.000	99.964
675344: <i>B-1B Modernization</i>	-	15.276	39.127	13.144	0.000	13.144	14.084	16.321	2.004	0.008	0.000	99.964
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.

The total B-1B inventory is 45 aircraft.

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 FAA/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 RT-1797 and ARC-210 RT-1851 with common ARC-210 next generation radios. Additionally, the program will provide MUOS capability. The program will be implemented in two increments.  
- Radio-Crypto ARC-210 (formerly increment 1) addresses the NSA mandate by providing crypto compliant radios and second generation anti-jam Ultra High-Frequency radio for NATO (SATURN.) This increment will replace the two obsolete ARC-210 Gen 3/4 radios with modernized ARC-210 Gen 6 radios and associative aircraft wiring/software in order to support the new radios.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0101126F I B-1B Squadrons	
<p>- Radio-Crypto MUOS (formerly Increment 2) incorporates 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 increment 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>HYPERSONIC INTEGRATION (HWICC) The FY22 Conference Appropriations, detailed in the Congressional Conference Reports of Interest under RTD&amp;E, AF B-1 squadrons, added a 10M appropriation PB request for hypersonic weapon integration. This appropriation amount limits the ability to fully demonstrate and qualify an operational capability on the B-1B, but does provide converging opportunities to aggressively reconnoiter an excursion to revitalize operational external-carry capability on the B-1B that supports hypersonic weapons.</p> <p>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 one test aircraft (A/C 85-0075), 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) are included.</p> <p>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.</p> <p>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.</p> <p>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.</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 0605831F. In FY2021 3.07M was expended for civilian pay expenses in this program element, and in FY2022 3.7M is forecasted for civilian pay expenses in this program element.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0101126F I B-1B Squadrons				
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		15.737	29.127	0.000	0.000	0.000
Current President's Budget		15.276	39.127	13.144	0.000	13.144
Total Adjustments		-0.461	10.000	13.144	0.000	13.144
• Congressional General Reductions		-0.461	0.000			
• Congressional Directed Reductions		0.000	0.000			
• 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		0.000	0.000			
• Other Adjustments		0.000	0.000	13.144	0.000	13.144
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						
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.						
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: B-1 AFMC Test Assets		0.000	19.222	0.000	0.000	0.000
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 one test aircraft (A/C 85-0075), which is performed at Tinker AFB, Oklahoma.						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0101126F I B-1B Squadrons				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<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><b>FY 2022 Plans:</b> Fully fund one test aircraft Programmed Depot Maintenance (PDM) to support developmental activities. PDM for test aircraft 85-0075 will be performed at Tinker AFB, OK.</p> <p><b>FY 2023 Base Plans:</b> N/A</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> There are no FY23 requirements to fund.</p>						
<p><b>Title:</b> RADIO-CRYPTO</p> <p><b>Description:</b> The B-1B Radio Crypto Modernization and Compliance requirements originate 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, HALF 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 (RT-1797 &amp; RT-1851) with common ARC-210 next generation radios. Additionally, the program will provide MUOS capability.</p> <p>The Radio Crypto program has two increments. - Increment I addresses the NSA mandate by providing crypto compliant radios and second generation anti-jam Ultra High-Frequency radio for NATO (SATURN.) This increment will replace the two obsolete ARC-210 Gen</p>		7.653	5.615	13.144	0.000	13.144

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0101126F I B-1B Squadrons				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>3/4 radios with modernized ARC-210 Gen 6 radios and associative aircraft wiring/software in order to support the new radios.</p> <p>- Increment 2 incorporates 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 increment 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><b>FY 2022 Plans:</b> Continue Engineering and Manufacturing Development (EMD) Phase for Increment 1. Major Milestone: CDR - Q3FY22</p> <p><b>FY 2023 Base Plans:</b> Increment 1: Progress from CDR through Flight Test and complete the EMD phase. Increment 2: Release the EMD Request for Proposal with a tentative contract award in Q1FY24.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Rephase program funding</p>						
<p><b>Title:</b> MIDS-JTRS</p> <p><b>Description:</b> 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>		7.623	4.290	0.000	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force								Date: April 2022					
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development				R-1 Program Element (Number/Name) PE 0101126F I B-1B Squadrons									
C. Accomplishments/Planned Programs (\$ in Millions)								FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
FY 2022 Plans: Continue Engineering and Manufacturing Development (EMD) Phase Major Milestone: Complete DT/OT - Q3FY22 Closeout EMD and enter Production Major Milestone: MS-C - Q1FY23  FY 2023 Base Plans: N/A  FY 2023 OCO Plans: N/A  FY 2022 to FY 2023 Increase/Decrease Statement: MIDS-JTRS Increment 2 cancellation by AFGSC (Q2FY22)													
Accomplishments/Planned Programs Subtotals								15.276	29.127	13.144	0.000	13.144	
								FY 2021	FY 2022				
Congressional Add: Hypersonic Integration								-	10.000				
FY 2022 Plans: Complete Early Strategy and Issue Session (ESIS) NLT 3QFY22 Complete Acquisition Strategy Plan (ASP) NLT 3QFY22													
Congressional Adds Subtotals								-	10.000				
D. Other Program Funding Summary (\$ in Millions)													
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost		
• APAF 05 Line Item B01B00: Training Support to Units, Mods PE 0809731F	0.799	0.071	0.102	-	0.102	0.500	0.509	0.517	0.528	0.000	3.026		
• APAF 05 B01B00: B-1B	-	-	-	-	-	-	-	-	-	0.000	0.000		
• APAF 05 B00100: B-1	17.307	30.519	36.314	-	36.314	15.739	18.805	18.167	16.466	0.000	153.317		
• APAF 05 Line Item B01B00 Spares: B-1B Squadrons, Spares	2.959	0.847	0.891	-	0.891	0.000	-	-	-	0.000	4.697		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0101126F I B-1B Squadrons							
D. Other Program Funding Summary (\$ in Millions)												
	<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
<u>Remarks</u>												
E. Acquisition Strategy												
B-1 AFMC Test Assets will utilize funding to fully fund one Programmed Depot Maintenance (PDM) for the test aircraft, A/C 85-0075, at Tinker AFB, OK.												
Radio Crypto acquisition strategy addresses National Security Agency (NSA) as well as DoD mandates and directives through EMD and production with a five-year Sole Source (SS), 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) FAA/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.												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons				Project (Number/Name) 675344 / B-1B Modernization					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
B-1 AFMC Test Assets (PDM)	MIPR	Tinker AFB : OKC, OK	-	-		19.222	Mar 2022	-		-		-	Continuing	Continuing	-
Radio Crypto Compliance	SS/CPFF	Boeing : OKC, OK	-	5.951	Sep 2021	3.614	Dec 2022	9.329	Nov 2022	-		9.329	0.000	18.894	-
MIDS-JTRS EMD	SS/CPFF	Boeing : OKC, OK	-	3.219	Jul 2021	1.000	Jun 2022	-		-		-	0.000	4.219	-
MIDS-JTRS Regression Testing and Navigation Reset Workaround	SS/CPFF	Boeing : OKC, OK	-	2.313	Nov 2021	-		-		-		-	Continuing	Continuing	-
MIDS-JTRS Risk Management: Regression Testing and Navigation Reset Workaround	SS/CPFF	Boeing : OKC, OK	-	0.000	Jun 2022	0.445	Sep 2022	-		-		-	Continuing	Continuing	-
MIDS-JTRS Technical Change Request	SS/CPAF	Boeing : OKC, OK	-	0.000	Apr 2022	-		-		-		-	Continuing	Continuing	-
Hypersonic weapons integration	TBD	TBD : TBD, OK	-	-		10.000	Sep 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	11.483		34.281		9.329		-		9.329	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
BAH (A&AS)	MIPR	GSA : OKC, OK	-	0.361	Jun 2021	-		-		-		-	Continuing	Continuing	-
Subtotal			-	0.361		-		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MIDS-JTRS DT/OT (BU3 Delta Testing)	PO	Edwards : CA	-	-		0.400	Aug 2022	-		-		-	Continuing	Continuing	-
MIDS-JTRS JITC Testing	MIPR	Not specified. : TBD	-	-		0.035	May 2022	-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons				Project (Number/Name) 675344 / B-1B Modernization					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Radio Crypto Increment 1 Flight Testing	MIPR	Edwards : CA	-	-		-		1.883	Nov 2022	-		1.883	Continuing	Continuing	-
Subtotal			-	-		0.435		1.883		-		1.883	Continuing	Continuing	N/A
Remarks															
MIDS-JTRS Project Order (PO) for BU3 Delta testing is to the 419th Test Squadron.															
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PMA/DCA	Various	Various : OKC, OK	-	3.432	Aug 2021	4.411	Jan 2022	1.932	Jan 2023	-		1.932	0.000	9.775	-
Subtotal			-	3.432		4.411		1.932		-		1.932	0.000	9.775	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	15.276		39.127		13.144		-		13.144	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0101126F / B-1B Squadrons		<b>Project (Number/Name)</b> 675344 / B-1B Modernization	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>B-1 AFMC Test Assets (PDM)</b>																												
B-1B A/C 85-0075 PDM																												
<b>Radio Crypto</b>																												
Radio Crypto (RC) - EMD Increment #1																												
RC PDR #1																												
RC CDR #1																												
RC DT/OT #1																												
RC MS C #1																												
RC - EMD Increment #2																												
RC PDR #2																												
RC CDR #2																												
RC DT/OT #2																												
RC MS C #2																												
<b>MIDS-JTRS</b>																												
MIDS-JTRS - EMD																												
MIDS-JTRS PDR																												
MIDS-JTRS CDR																												
MIDS-JTRS DT/OT																												
MIDS-JTRS MS C																												
<b>Hypersonic Integration</b>																												
ESIS																												
ASP																												

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0101126F / B-1B Squadrons

Project (Number/Name)

675344 / B-1B Modernization

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>B-1 AFMC Test Assets (PDM)</b>				
B-1B A/C 85-0075 PDM	2	2022	1	2023
<b>Radio Crypto</b>				
Radio Crypto (RC) - EMD Increment #1	1	2021	4	2024
RC PDR #1	1	2021	1	2021
RC CDR #1	2	2022	2	2022
RC DT/OT #1	4	2023	2	2024
RC MS C #1	4	2024	4	2024
RC - EMD Increment #2	2	2023	3	2026
RC PDR #2	1	2024	1	2024
RC CDR #2	3	2024	3	2024
RC DT/OT #2	4	2025	1	2026
RC MS C #2	3	2026	3	2026
<b>MIDS-JTRS</b>				
MIDS-JTRS - EMD	1	2021	1	2023
MIDS-JTRS PDR	1	2021	1	2021
MIDS-JTRS CDR	1	2021	1	2021
MIDS-JTRS DT/OT	2	2022	3	2022
MIDS-JTRS MS C	1	2023	1	2023
<b>Hypersonic Integration</b>				
ESIS	3	2022	3	2022
ASP	3	2022	3	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0101127F I B-2 Squadrons							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	147.390	131.647	111.990	0.000	111.990	112.890	20.742	0.004	0.004	Continuing	Continuing
675345: B-2 Modernization	0.000	132.818	116.987	96.554	0.000	96.554	112.890	20.742	0.004	0.004	Continuing	Continuing
676021: BASELINE SUPPORT	0.000	14.572	14.660	15.436	0.000	15.436	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 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 Communications Upgrade (formerly known only as Adaptable Communications Suite) includes multiple modernization efforts including Adaptable Communications Suite (ACS) Increment 4.0, Airborne Integrated Terminal Group (AITG) Replacement and B-2 Collaborative Combat Communication (B2C3).

ACS is a non-integrated system that provides SATCOM connectivity for Command and Control en route to the target. A critical capability is the ability to receive Airborne Mission Transfer (AMT) and Beyond Line-of-Sight situational awareness. This effort includes improvements to the suite of B-2 ACS Ultra High Frequency (UHF) communications system in order to become part of the baseline configuration, as well as modernization upgrades to conform to mandates.

AITG provides Line-of-Sight UHF and Very High Frequency (VHF) voice communications including anti-jam, encrypted, and unencrypted. 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.

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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	
<p>The B-2 Crash Survivable Memory Unit (CSMU) provides a more capable Flight Data Recorder (FDR) with increased capacity for storing Flight Information Data (FID) for recovery and use in the event of a mishap.</p> <p>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 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>This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-2 capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY 2021 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.</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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0101127F I B-2 Squadrons			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	181.068	144.047	0.000	0.000	0.000
Current President's Budget	147.390	131.647	111.990	0.000	111.990
Total Adjustments	-33.678	-12.400	111.990	0.000	111.990
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-12.400			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-27.787	0.000			
• SBIR/STTR Transfer	-5.891	0.000			
• Other Adjustments	0.000	0.000	111.990	0.000	111.990
Congressional Add Details (\$ in Millions, and Includes General Reductions)					
Project: 675345: B-2 Modernization					
Congressional Add: B-2 Trainers Modernization Congressional Add					
Congressional Add Subtotals for Project: 675345					
Congressional Add Totals for all Projects					
Change Summary Explanation					
FY 2021 reprogramming of -27.742M on ATR package FY2116 PA along with small reprogramming adjustments.					
FY 2022 Congressional reduction for -12.4M for B-2 Display Modernization carryover					
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 FY 2023 cannot be made in a relevant manner					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675345: B-2 Modernization	0.000	132.818	116.987	96.554	0.000	96.554	112.890	20.742	0.004	0.004	Continuing	Continuing
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 Communications Upgrade (formerly known only as Adaptable Communications Suite) includes multiple modernization efforts including Adaptable Communications Suite (ACS) Increment 4.0 and Airborne Integrated Terminal Group (AITG) Replacement.

ACS is a non-integrated system that provides SATCOM connectivity for Command and Control en route to the target. A critical capability is the ability to receive Airborne Mission Transfer (AMT) and Beyond Line-of-Sight situational awareness. This effort includes improvements to the suite of B-2 ACS Ultra High Frequency (UHF) communications system in order to become part of the baseline configuration, as well as modernization upgrades to conform to mandates.

AITG provides Line-of-Sight UHF and Very High Frequency (VHF) voice communications including anti-jam, encrypted, and unencrypted. 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.

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

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022				
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons	Project (Number/Name) 675345 / B-2 Modernization				
<p>System, Signature Diagnostic System, next generation Tier II and Tier III systems, Test Article 0998 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.</p> <p>The B-2 Crash Survivable Memory Unit (CSMU) provides a more capable Flight Data Recorder (FDR) with increased capacity for storing Flight Information Data (FID) for recovery and use in the event of a mishap.</p> <p>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 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, 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.</p> <p>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.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-2 weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY2021 0M was expended for civilian pay expenses in this program element, and in FY2022 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 approval for full rate production and anticipate production funding in the current or subsequent fiscal year.</p>							
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Low Observable Signature and Supportability Mods and Trainers			9.892	9.279	5.268	-	5.268

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Description:</b> 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><b>FY 2022 Plans:</b> 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. Continue development efforts for Advanced Signature Reduction efforts, the Next Generation Zonal Radar, an upgrade to the Tier One Material Inspection System, Tailpipe Improvement analysis, and Test Article 0998. Continue Signature Diagnostic System Spiral 12, essential for integrating the Next Generation Zonal Radar, which is critical for field maintainers.</p> <p><b>FY 2023 Base Plans:</b> Continue development of on-going LOSSM and Training System core upgrades. Continue final development efforts for advanced LO materials, structures, procedures, and other enhanced diagnostics and measurement systems. Address any safety issues for Test Article 0998. Finalize Signature Diagnostic System Spiral 12 integration of the new software baseline to optimize the Next Generation Zonal Radar.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decrease from FY 2022 to FY 2023 due to a decrease in development activities in FY 2023.</p>						
<p><b>Title:</b> B-2 Communications Upgrade -- formerly known as Adaptable Communications Suite (ACS)</p> <p><b>Description:</b> The Adaptable Communications Suite provides a non-integrated avionics and communications system that allows the B-2 fleet to receive mission data, time sensitive targeting information, intelligence and weather updates, positive command and control procedures, and perform operational reconnaissance. ACS Increment 4.0 will involve replacing the current PRC-117G radios with the AN/ARC-210 Gen 6 radio to transition B-2 SATCOM to the Mobile User Objective System (MUOS) satellite constellation.</p> <p>The B-2 Airborne Integrated Terminal Group (AITG) provides Line-of-Sight UHF and VHF voice communications including anti-jam, encrypted and unencrypted, for the aircraft. Acquisition planning and risk reduction efforts are underway for replacement of the AITG.</p> <p><b>FY 2022 Plans:</b></p>		0.200	19.726	34.187	-	34.187

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
ACS Increment 4.0: Complete risk reduction, System Requirements Review, System Functional Review, and Preliminary Design Review for a modernized ACS system. AITG Replacement: Continue acquisition planning and trade study efforts. <b>FY 2023 Base Plans:</b> ACS Increment 4.0: Achieve Milestone B, complete Critical Design Review, initiate Developmental Testing and Evaluation. Award ACR-210 radio production buy. AITG Replacement: Complete planning and trade studies and initiate acquisition for EMD. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increase from FY 2022 to FY 2023 due to ramp up of development efforts for the AITG Replacement and production planning for ACS Increment 4.0 in FY 2023.						
<b>Title:</b> B-2 Identification Friend or Foe (IFF) Mode 5/S Program  <b>Description:</b> The B-2 IFF Mode 5/S Program is part of B-2 Integrated Functional Capability (IFC) drop P6.5, which also includes software sustainment updates and form, fit, function hardware replacement. The IFC Process is the framework within which B-2 avionics-related improvements are designed, developed, integrated, tested, and delivered. 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 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.  <b>FY 2022 Plans:</b> Execute Engineering and Manufacturing Development (EMD) phase activities to include completion of developmental testing in the WSSC environment, certification of hardware/software for aircraft install, Flight Readiness Review, and initiation of on-aircraft ground/flight development/operational testing.  <b>FY 2023 Base Plans:</b>		6.028	9.309	0.000	-	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101127F / B-2 Squadrons		<b>Project (Number/Name)</b> 675345 / B-2 Modernization		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Continue on-aircraft ground/flight development/operational testing, aircraft monitoring and control testing (AMAC), and Milestone C decision.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Not applicable. FY 2022 is last year of 3600 funding.					
<b>Title:</b> B-2 Crash Survivable Memory Unit (CSMU)  <b>Description:</b> The B-2 Crash Survivable Memory Unit (CSMU) provides a more capable Flight Data Recorder (FDR) with increased capacity for storing Flight Information Data (FID) for recovery and use in the event of a mishap. The initiative includes replacement of the current CSMU with an adapted Commercial Off the Shelf (COTS) replacement, modification of the Flight Data Recorder Processor (FDRP) to provide 28 vdc power to the new CSMU, modification of the FDRP Operational Flight Program (OFP), and addition of a Underwater Locator Beacon (ULB).  <b>FY 2022 Plans:</b> No development efforts in FY 2022.  <b>FY 2023 Base Plans:</b> No development efforts in FY 2023.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A	1.098	0.000	0.000	-	0.000
<b>Title:</b> B-2 Display Modernization (BDM)  <b>Description:</b> 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>FY 2022 Plans:</b> Deliver engineering development units of MDU replacement hardware (MDU-R) to the development labs. Order MDU-R hardware for Engineering and Manufacturing Development kits. Begin modification of the B-2 Test Aircraft and development labs to support the BDM program. Continue software development and integration activities. Conduct appropriate systems engineering and design reviews, and release the Request for Proposal (RFP) for the Production phase of the program.  <b>FY 2023 Base Plans:</b>	110.090	78.161	56.558	-	56.558

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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 appropriate systems engineering and design reviews to support restructured program.						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decrease from FY 2022 to FY 2023 due to a decrease in development activities in FY 2023, including prime contractor open commitments that will not be required in FY 2023.						
Title: B-2 Trainers Modernization		0.673	0.512	0.541	-	0.541
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, PMA, A&AS, and travel to enable mission requirements.						
FY 2022 Plans: FY22 Funding for Trainers Division/Directorate PMA, IPT travel, and A&AS EPASS costs.						
FY 2023 Base Plans: FY23 Funding for Trainers Division/Directorate PMA, IPT travel, and A&AS EPASS costs.						
FY 2022 to FY 2023 Increase/Decrease Statement: N/A: Funding from FY22 to FY23 relatively stable						
Accomplishments/Planned Programs Subtotals		127.981	116.987	96.554	-	96.554
		FY 2021	FY 2022			
Congressional Add: B-2 Trainers Modernization Congressional Add		4.837	0.000			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0101127F / B-2 Squadrons		<b>Project (Number/Name)</b> 675345 / B-2 Modernization
			<b>FY 2021</b>	<b>FY 2022</b>
<b>FY 2021 Accomplishments:</b> Virtual Reality Phase 2 - Deploy Virtual Reality headsets and controllers to integrate with high fidelity immersive 3D B-2 training content in SAP environment.				
<b>FY 2022 Plans:</b> FY22 Funding for Trainers Division/Directorate PMA, IPT travel, and A&AS EPASS costs.				
<b>Congressional Adds Subtotals</b>			4.837	0.000

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item B00200: B-2 ACS Mod Funding PE 0101127F	0.300	0.300	0.306	-	0.306	0.311	25.511	31.527	32.167	Continuing	Continuing
• APAF 05 Line Item B00200 (1)...: B-2 LOSSM Mod Funding, PE 0101127F	19.194	16.407	18.829	-	18.829	20.536	11.479	11.715	-	Continuing	Continuing
• APAF 05 Line Item B00200 (2)...: B-2 CSMU Mod Funding, PE 0101127F	3.268	1.568	1.594	-	1.594	1.620	1.649	1.685	-	Continuing	Continuing
• APAF 05 Line Item B00200 (3)...: B-2 IFF Mode 5/S Mod Funding, PE 0101127F	-	2.795	15.552	-	15.552	10.264	-	-	-	Continuing	Continuing
• APAF 05 Line Item B00200 (4)...: BDM	-	-	38.114	-	38.114	17.574	3.669	3.309	0.014	Continuing	Continuing

**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 2023 Air Force** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101127F / B-2 Squadrons	<b>Project (Number/Name)</b> 675345 / B-2 Modernization
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Low Observable Signature and Supportability Mods	Various	Various : Various	0.000	9.892	Oct 2020	9.279	Oct 2021	5.268	Dec 2022	-		5.268	Continuing	Continuing	-
B-2 Communications Upgrade	Various	Various : Various	0.000	0.200	Dec 2020	15.726	Aug 2022	34.187	Feb 2023	-		34.187	66.338	116.451	-
B-2 IFF Mode 5/S	Various	Various : Various	0.000	6.028	Nov 2020	9.309	May 2022	-		-		-	0.000	15.337	-
B-2 Crash SurvivableMemory Unit (CSMU)	Various	Various : Various	0.000	1.098	Dec 2020	-		-		-		-	0.000	1.098	-
B-2 Display Modernization (BDM)	Various	Various : Various	0.000	94.945	Feb 2021	67.510	Apr 2022	45.294	May 2023	-		45.294	30.206	237.955	-
Aircrew Training	Various	Various : Various	0.000	5.510	Sep 2021	0.512	Feb 2022	0.541	Feb 2023	-		0.541	Continuing	Continuing	-
<b>Subtotal</b>			0.000	117.673		102.336		85.290		-		85.290	Continuing	Continuing	N/A

**Remarks**  
Northrop-Grumman is the prime contractor and serves as integrator and hence main contractor for many (ie "Various"), but not all, B-2 modernization efforts.

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	TBD	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
Government Test	MIPR	Various : CA	0.000	2.828		0.155	Dec 2021	0.164	Dec 2022	-		0.164	5.310	8.457	-
<b>Subtotal</b>			0.000	2.828		0.155		0.164		-		0.164	5.310	8.457	N/A

**Remarks**  
B-2 Display Modernization (BDM) transitioned to PE 0101127F in FY 2021

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Management Services	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons				Project (Number/Name) 675345 / B-2 Modernization					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PMA	Various	Various : TBD	0.000	12.317	Oct 2020	14.496	Feb 2022	11.100	Dec 2022	-		11.100	22.442	60.355	-
Subtotal			0.000	12.317		14.496		11.100		-		11.100	22.442	60.355	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	132.818		116.987		96.554		-		96.554	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 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons						Project (Number/Name) 675345 / B-2 Modernization			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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																												
Crash Survivable Memory Unit EMD Contract																												
B-2 Display Modernization (BDM) Displays EMD Phase																												
Adaptable Communications Suite (ACS)																												
Airborne Integrated Terminal Group (AITG)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101127F / <i>B-2 Squadrons</i>	<b>Project (Number/Name)</b> 675345 / <i>B-2 Modernization</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>B-2 Modifications Schedule</i></b>				
Low Observable Signature and Supportability Mods and Trainers	1	2021	4	2023
IFF Mode 5/S EMD Phase	1	2021	3	2022
Crash Survivable Memory Unit EMD Contract	1	2021	2	2022
B-2 Display Modernization (BDM) Displays EMD Phase	2	2021	4	2025
Adaptable Communications Suite (ACS)	4	2022	2	2027
Airborne Integrated Terminal Group (AITG)	3	2023	2	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
676021: BASELINE SUPPORT	0.000	14.572	14.660	15.436	0.000	15.436	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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Baseline Support Acq Plan/Studies/Integr Test Support	0.297	0.290	0.290	-	0.290
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b> Continue Baseline Support activities including acquisition planning for future capabilities, long range planning, studies, and program integration activities.					
<b>FY 2023 Base Plans:</b> Continue Baseline Support activities including acquisition planning for future capabilities, long range planning, studies, and program integration activities.					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A - No increase/decrease					
<b>Title:</b> Baseline Support Flight Test	14.275	14.370	15.146	-	15.146
<b>Description:</b> 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					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0101127F / B-2 Squadrons		<b>Project (Number/Name)</b> 676021 / BASELINE SUPPORT	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>
<p>need for additional operational aircraft and accelerating deployment of advanced operational capabilities to the warfighter.</p> <p><b>FY 2022 Plans:</b> 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><b>FY 2023 Base Plans:</b> 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><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increase due to an increase in flight test support requirements for P6.5 (IFF), P6.6, and B-2 communications upgrade.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>		14.572	14.660	15.436	-
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b>					
Key elements of the overall 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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101127F / B-2 Squadrons				Project (Number/Name) 676021 / BASELINE SUPPORT					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Support	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
Other Government Costs	Various	Various : Various	0.000	10.019	Oct 2020	10.128	Oct 2021	10.870	Dec 2022	-		10.870	Continuing	Continuing	-
Subtotal			0.000	10.019		10.128		10.870		-		10.870	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
Government Test	MIPR	AFTC : CA	0.000	2.716	Oct 2020	2.531	Oct 2021	3.000	Dec 2022	-		3.000	Continuing	Continuing	-
Subtotal			0.000	2.716		2.531		3.000		-		3.000	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Management Services	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
PMA	Various	Various : TBD	0.000	1.837	Oct 2020	2.001	Oct 2021	1.566	Dec 2022	0.000	Dec 2022	1.566	Continuing	Continuing	-
Subtotal			0.000	1.837		2.001		1.566		0.000		1.566	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	14.572		14.660		15.436		0.000		15.436	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 2023 Air Force											Date: April 2022				
Appropriation/Budget Activity						R-1 Program Element (Number/Name)						Project (Number/Name)			
3600 / 7						PE 0101127F / B-2 Squadrons						676021 / BASELINE SUPPORT			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>B-2 Baseline Support</b>																												
FY 2021 Flight Test Core Support Annual Contract Award																												
FY 2022 Flight Test Core Support Annual Contract Award																												
FY 2023 Flight Test Core Support Annual Contract Award																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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
<b>B-2 Baseline Support</b>				
FY 2021 Flight Test Core Support Annual Contract Award	1	2021	1	2022
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

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0101213F / <i>Minuteman Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	63.535	113.622	69.650	0.000	69.650	33.005	3.115	3.117	3.123	0.000	289.167
672983: <i>MM Ground and Comm Equipment</i>	0.000	12.043	19.811	6.781	0.000	6.781	0.000	0.000	0.000	0.000	0.000	38.635
672984: <i>MM III Baseline Support</i>	0.000	47.203	90.123	49.414	0.000	49.414	33.005	3.115	3.117	3.123	0.000	229.100
672985: <i>MM Support Equip</i>	0.000	0.000	0.000	13.455	0.000	13.455	0.000	0.000	0.000	0.000	0.000	13.455
672986: <i>MM Crypto Mods</i>	0.000	4.289	3.688	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.977

**Note**

This program, BA 7, PE 0101213F, project 672984, LGM-30G Higher Authority Command Test System (HACTS) 2.0, is a new start.  
 This program, BA 7, PE 0101213F, project 672985, LGM-30G MM III Acquisition of Transportation and Handling and Support Equipment (MATH), is a new start.

Project 672984, LGM-30G Arm/Disarm Switch Replacement (ADSR), is expected to complete EMD by 4QFY22.  
 In FY2022 Project 672986, LGM-30G ICBM Cryptography Upgrade II, was completed.

**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 Ground Based Strategic Deterrent (GBSD). 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 GBSD. 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 GBSD. 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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0101213F I Minuteman Squadrons				
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.						
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 0605831F and 0605833F. In FY 2021 \$1.100M was expended for civilian pay in this program element, and in FY2022 \$1.100M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		89.306	113.622	0.000	0.000	0.000
Current President's Budget		63.535	113.622	69.650	0.000	69.650
Total Adjustments		-25.771	0.000	69.650	0.000	69.650
• 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		-22.665	0.000			
• SBIR/STTR Transfer		-3.106	0.000			
• Other Adjustments		0.000	0.000	69.650	0.000	69.650
Change Summary Explanation						
Fiscal Year 2021 funding reflects a Small Business Innovation Research (SBIR) adjustment of -\$3.106 million, a congressionally-approved reprogramming of -\$14.883 million, and a below threshold reprogramming of -\$7.782 million.						
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 FY 2023 cannot be made in a relevant manner.						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672983 / MM Ground and Comm Equipment			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672983: MM Ground and Comm Equipment	0.000	12.043	19.811	6.781	0.000	6.781	0.000	0.000	0.000	0.000	0.000	38.635
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 Ground Based Strategic Deterrent (GBSD). 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).

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 0605831F and 0605833F. In FY 2021 \$1.100M was expended for civilian pay in this program element, and in FY2022 \$1.100M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP)	12.043	19.811	6.781
<b>Description:</b> 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.			
<b>FY 2022 Plans:</b>			
• Critical Design Review			
• Component Level Test & Evaluation Execution			
• System Level Test Readiness Review			
<b>FY 2023 Plans:</b>			
• Functional Configuration Audit			
• Systems Integration Test			
• Production Readiness Review			
• Milestone C			
• Production Award			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101213F / <i>Minuteman Squadrons</i>	<b>Project (Number/Name)</b> 672983 / <i>MM Ground and Comm Equipment</i>	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Funding decreased due to program transition from Engineering and Manufacturing Development to Production and Deployment.			
<b>Accomplishments/Planned Programs Subtotals</b>	12.043	19.811	6.781

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• MPAF 03 Line Item	47.640	65.690	55.158	-	55.158	37.766	26.555	2.362	9.962	Continuing	Continuing
M30MLG: <i>MM III Modifications</i>											
• MPAF 01 00099L: <i>Missile Replacement Eq-Ballistic</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• MPAF 04 Line Item 00098A: <i>Msl Sprs / Repair Parts (Initial)</i>	60.276	38.645	39.774	-	39.774	46.861	57.212	49.345	50.347	Continuing	Continuing

**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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672983 / MM Ground and Comm Equipment					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP) EMD	C/CPFF	Northrop Grumman : Salt Lake City, UT	0.000	10.461	Dec 2020	16.396	Oct 2021	5.730	Oct 2022	-		5.730	Continuing	Continuing	21.949
Subtotal			0.000	10.461		16.396		5.730		-		5.730	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP) Test & Evaluation	Various	Various : Various	0.000	0.110	Jan 2021	0.838	Oct 2021	0.200	Oct 2022	-		0.200	Continuing	Continuing	0.000
Subtotal			0.000	0.110		0.838		0.200		-		0.200	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP) A&AS	C/FP	BAE : Layton, UT	0.000	0.733	Nov 2020	0.753	Oct 2021	0.311	Oct 2022	-		0.311	Continuing	Continuing	3.692
LGM-30G Fast Rising B-Plug Service Life Extension Program (FRBP SLEP) PSC	Various	Various : Various	0.000	0.739	Jan 2021	1.824	Jan 2022	0.540	Jan 2023	-		0.540	Continuing	Continuing	0.000
Subtotal			0.000	1.472		2.577		0.851		-		0.851	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	12.043		19.811		6.781		-		6.781	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons		Project (Number/Name) 672983 / MM Ground and Comm Equipment				
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)									
3600 / 7					PE 0101213F / Minuteman Squadrons					672983 / MM Ground and Comm Equipment									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MM Ground and Comm Equipment																												
FRBP SLEP Engineering & Manufacturing Development Phase																												
FRBP SLEP Milestone C (Apr 2023)																												
FRBP SLEP Production & Deployment Phase																												
FRBP SLEP FOC (June 2026)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672983 / MM Ground and Comm Equipment

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MM Ground and Comm Equipment				
FRBP SLEP Engineering & Manufacturing Development Phase	1	2021	3	2023
FRBP SLEP Milestone C (Apr 2023)	3	2023	3	2023
FRBP SLEP Production & Deployment Phase	3	2023	3	2026
FRBP SLEP FOC (June 2026)	3	2026	3	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672984 / MM III Baseline Support			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672984: MM III Baseline Support	0.000	47.203	90.123	49.414	0.000	49.414	33.005	3.115	3.117	3.123	0.000	229.100
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program, BA 7, PE 0101213F, project 672984, LGM-30G Higher Authority Command Test System (HACTS) 2.0, is a new start.

Project 672984, LGM-30G Arm/Disarm Switch Replacement (ADSR), is expected to complete EMD by 4QFY22.

**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 elements 0605831F and 0605833F. In FY 2021 1.100M was expended for civilian pay in this program element, and in FY2022 1.100M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> LGM-30G Arm Disarm Switch Replacement (ADSR)	3.761	0.161	0.000
<p><b>Description:</b> 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</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672984 / MM III Baseline Support		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023
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.					
<b>FY 2022 Plans:</b> <ul style="list-style-type: none"><li>• Conclude qualification testing</li><li>• Conduct Milestone C</li></ul> <b>FY 2023 Plans:</b> N/A					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to conclusion of Engineering and Manufacturing Development activities and commencement of Production and Deployment.					
<b>Title:</b> LGM-30G Flight Test Telemetry and Termination System (FT3) <b>Description:</b> 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 a wafer-less Integrated Instrumentation System (IIS), along with an upgraded LSS, will meet 30th Space Wing Range Safety and Air Force Global Strike Command (AFGSC) requirements and resolve obsolescence concerns/issues.  The AODS, Mod 7 Instrumentation Wafer, and LSS include many 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.  The OTLs are critical to validating the continued accuracy and reliability of the MM III ICBM Weapon System until GBSD is fielded by providing valuable data to ensure a safe, secure, and effective nuclear deterrent. The FT3 System of Systems (SoS) 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.  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 Sep 2022 jeopardizes the MM III OTL schedule. Rapid Fielding execution has increased concurrency of technical milestones, delaying some noncritical activities to post first flight (September 2022).			38.992	89.506	34.539

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672984 / MM III Baseline Support		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023
<b>FY 2022 Plans:</b> <ul style="list-style-type: none"><li>• Complete component level qualification testing</li><li>• Complete System of Systems Level qualification testing at Utah Lab</li><li>• Complete System of Systems Level qualification testing at Vandenberg SFB CA</li><li>• Complete Flight Systems Production Readiness Review</li><li>• Complete Milestone C</li><li>• Conduct and close out Systems Verification Review (SVR) #1</li><li>• Deliver LRIPs 1 and 2 (flight test kits)</li><li>• Prepare for first flight (7 Sep 2022)</li></ul> <b>FY 2023 Plans:</b> <ul style="list-style-type: none"><li>• Review post flight studies/reports of system performance</li><li>• Conduct and complete Technical Order Validation/Verification and Type I Training</li><li>• Complete Full Rate Production Decision Review</li><li>• Complete Launch Facility 09 installation activities</li><li>• Complete Missile Alert Facility 01-A Launch Support System (LSS) install</li><li>• Complete Maintenance Mockup Trainer build and install</li><li>• Conduct and close out SVR #2 and #3</li><li>• Take Delivery of LRIPs 3 - 8</li></ul> <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> <p>Funding decreased due to completion of component, system and system of systems qualifications and completion of Flight Systems Production Readiness Review.</p>					
<b>Title:</b> LGM-30G Higher Authority Command Test System (HACTS) 2.0			0.000	0.000	9.875
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672984 / MM III Baseline Support			
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023
N/A											
FY 2023 Plans: • Complete Milestone B • Award Engineering Manufacturing and Development (EMD) contract											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to program initiation and award of Engineering and Manufacturing Development contract.											
Title: LGM-30G Baseline Support									4.450	0.456	5.000
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 2022 Plans: • Conduct studies of system performance. • Conduct cost trades and acquisition planning activities, up to and including proposal preparation, technology for future capabilities.											
FY 2023 Plans: • Conduct studies of system performance. • Conduct cost trades and acquisition planning activities, up to and including proposal preparation, technology for future capabilities.											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to increase in number of system performance studies.											
Accomplishments/Planned Programs Subtotals									47.203	90.123	49.414
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• MPAF 03 Line Item	0.000	4.534	4.469	-	4.469	0.000	0.000	0.000	0.000	Continuing	Continuing
M30MLG: MM III Modifications											
• MPAF 01 Line Item 00099L:	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Missile Replacement Eq- Ballistic											
• MPAF 04 Line Item 00098A:	60.276	38.645	39.774	-	39.774	46.861	57.212	49.345	50.347	Continuing	Continuing
Msl Sprs/Repair Parts (Initial)											

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022	
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672984 / MM III Baseline Support			
C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2023</u>	<u>FY 2023</u>	<u>FY 2023</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Complete</u>	<u>Total Cost</u>
<u>Remarks</u>											
<b>D. Acquisition Strategy</b>											
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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672984 / MM III Baseline Support					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LGM-30G Arm Disarm Switch Replacement (ADSR)	C/CPFF	MOOG/ BIONETICS/ EBAD : Moorpark, CA. Blacksburg VA. Heath OH, CA	0.000	3.089	Oct 2020	-		-		-		-	0.000	3.089	8.587
LGM-30G Flight Test Telemetry and Termination System (FT3) TMRR/EMD	C/CPIF	Boeing : Clearfield, UT	0.000	19.227	Dec 2020	75.376	Dec 2021	26.014	Dec 2022	-		26.014	Continuing	Continuing	177.789
LGM-30G Higher Authority Command Test System (HACTS) 2.0	C/CPAF	TBD : TBD	0.000	-		-		9.875	Oct 2022	-		9.875	Continuing	Continuing	-
Subtotal			0.000	22.316		75.376		35.889		-		35.889	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LGM-30G Arm Disarm Switch Replacement (ADSR) Support	C/Various	Hill AFB : Clearfield, UT	0.000	0.139	Jan 2021	0.161	Jan 2022	-		-		-	0.000	0.300	-
LGM-30G Flight Test Telemetry and Termination System (FT3) Support	C/Various	Various : Clearfield, UT	0.000	8.956	Oct 2020	5.599	Nov 2021	3.757	Nov 2022	-		3.757	Continuing	Continuing	-
LGM-30G Baseline Support	C/Various	Various : Various	0.000	4.450	Mar 2021	0.456	Mar 2022	5.000	Mar 2023	-		5.000	Continuing	Continuing	-
Subtotal			0.000	13.545		6.216		8.757		-		8.757	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LGM-30G Flight Test Telemetry and Termination System (FT3) Lead	MIPR	AEDC/TST : AAFB, TN	0.000	0.510	Dec 2020	0.344	Nov 2021	0.099	Nov 2022	-		0.099	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672984 / MM III Baseline Support					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Developmental Test Organization															
Subtotal			0.000	0.510		0.344		0.099		-		0.099	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LGM-30G Arm Disarm Switch Replacement (ADSR) PSC	Various	Various : Various	0.000	0.533	Jan 2021	-		-		-		-	0.000	0.533	-
LGM-30G Flight Test Telemetry and Termination System (FT3) PSC	Various	Various : Various	0.000	8.419	Oct 2020	6.436	Nov 2021	2.743	Nov 2022	-		2.743	Continuing	Continuing	-
LGM-30G Flight Test Telemetry and Termination System (FT3) A&AS	C/FFP	Various : Clearfield, UT	0.000	1.880	Oct 2020	1.751	Nov 2021	1.926	Nov 2022	-		1.926	Continuing	Continuing	-
Subtotal			0.000	10.832		8.187		4.669		-		4.669	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	47.203		90.123		49.414		-		49.414	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101213F / <i>Minuteman Squadrons</i>	<b>Project (Number/Name)</b> 672984 / <i>MM III Baseline Support</i>
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>MM III Baseline Support</b>																												
ADSR Engineering and Manufacturing Development Phase																												
ADSR CDR (Feb 2021)																												
ADSR Milestone C (Sep 2022)																												
ADSR Production and Deployment Phase																												
FT3 Engineering and Manufacturing Development Phase																												
FT3 PRR (Feb 2022)																												
FT3 Milestone C (Jun 2022)																												
FT3 Production and Deployment Phase																												
FT3 RAA (May 2022)																												
FT3 Operations and Support Phase																												
HACTS 2.0 Milestone B (Oct 2022)																												
HACTS 2.0 Engineering and Manufacturing Development Phase (Oct 2023)																												
HACTS 2.0 Milestone C (Jul 2024)																												
HACTS 2.0 Production and Deployment (Jul 2024)																												
HACTS 2.0 Full Operational Capability (Jan 2025)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672984 / MM III Baseline Support	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>MM III Baseline Support</b>				
ADSR Engineering and Manufacturing Development Phase	1	2021	4	2022
ADSR CDR (Feb 2021)	2	2021	2	2021
ADSR Milestone C (Sep 2022)	4	2022	4	2022
ADSR Production and Deployment Phase	4	2022	4	2023
FT3 Engineering and Manufacturing Development Phase	1	2021	3	2024
FT3 PRR (Feb 2022)	2	2022	2	2022
FT3 Milestone C (Jun 2022)	3	2022	3	2022
FT3 Production and Deployment Phase	3	2022	3	2024
FT3 RAA (May 2022)	3	2022	3	2022
FT3 Operations and Support Phase	2	2023	4	2027
HACTS 2.0 Milestone B (Oct 2022)	1	2023	1	2023
HACTS 2.0 Engineering and Manufacturing Development Phase (Oct 2023)	1	2023	3	2024
HACTS 2.0 Milestone C (Jul 2024)	4	2024	4	2024
HACTS 2.0 Production and Deployment (Jul 2024)	4	2024	1	2025
HACTS 2.0 Full Operational Capability (Jan 2025)	2	2025	2	2025

### 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 the program consumes the flight test units, the program replaces those units through replenishment spares. The order of replenishment spares overlaps EMD to deliver spares at a rate that keeps pace with consumption.
- P&D Phase ends when the last of the eight LRIPs have been delivered and the EMD contract ends, 3QFY24
- 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

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672984 / MM III Baseline Support
<ul style="list-style-type: none"><li>• Plan is to purchase up to 24 replenishment spares (up to 4 per year through 2030) which will support the MMIII OTL mission</li></ul>		

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672985: MM Support Equip	0.000	0.000	0.000	13.455	0.000	13.455	0.000	0.000	0.000	0.000	0.000	13.455
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program, BA 7, PE 0101213F, project 672985, LGM-30G MM III Acquisition of Transportation and Handling and Support Equipment (MATH), is a new start.

**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 Ground Based Strategic Deterrent (GBSD). 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 emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Minuteman Squadron 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 elements 0605833F or 0605831F. In FY 2021 \$1.100M was expended for civilian pay expenses in this program element, and in FY2022 \$1.100M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> LGM-30G MM III Acquisition of Transportation and Handling and Support Equipment (MATH)	-	0.000	13.455
<p><b>Description:</b> The MATH program ensures the sustainment of the MM III and concurrent transition to GBSD through 2036 without any disruption to the nuclear deterrence mission. The current T&amp;H and support equipment will not sustain MM III through end of life. Current T&amp;H and support equipment technical data packages (TDP) are 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&amp;H and support equipment. Items include the following:</p> <ul style="list-style-type: none"> <li>a. Missile Transport (MT) tractor and trailer;</li> <li>b. Propulsion System Rocket Engine (PSRE) tractor and trailer;</li> <li>c. Rocket motor semi-trailer;</li> <li>d. Operational Missile Carriage, all three stages;</li> <li>e. Support Equipment.</li> </ul> <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><b>FY 2022 Plans:</b></p>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0101213F / <i>Minuteman Squadrons</i>				<b>Project (Number/Name)</b> 672985 / <i>MM Support Equip</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	
N/A											
<b><i>FY 2023 Plans:</i></b> <ul style="list-style-type: none"> <li>• Initiate program at Milestone B</li> <li>• Award Engineering and Manufacturing Development contract</li> <li>• Update Technical Data Package</li> <li>• Complete Critical Design Review (CDR)</li> </ul>											
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding increased due to program initiation.											
<b>Accomplishments/Planned Programs Subtotals</b>								-	0.000	13.455	
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF 03 Line Item	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
M30MLG: <i>MM III Modifications</i>											
• MPAF 01 Line Item 00099L:	73.474	57.793	55.650	-	55.650	70.896	66.382	54.186	58.428	Continuing	Continuing
<i>Missile Replacement Eq- Ballistic</i>											
• MPAF 04 Line Item 00098A:	60.276	38.645	39.774	-	39.774	46.861	57.212	49.345	50.347	Continuing	Continuing
<i>Msl Spares/Repair Parts (Initial)</i>											
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672985 / MM Support Equip					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MM III Transportation/ Handling and Support Equipment MATH (Missile Transporter)	TBD	TBD : TBD	0.000	-		-		0.100	Feb 2023	-		0.100	Continuing	Continuing	-
MM III Transportation/ Handling and Support Equipment MATH (Carriage)	TBD	TBD : TBD	0.000	-		-		0.100	Feb 2023	-		0.100	Continuing	Continuing	-
MM III Transportation/ Handling and Support Equipment MATH (PSRE)	TBD	TBD : TBD	0.000	-		-		6.744	Feb 2023	-		6.744	Continuing	Continuing	-
MM III Transportation/ Handling and Support Equipment MATH (Rocket Motor Semitrailer)	TBD	TBD : TBD	0.000	-		-		5.893	Feb 2023	-		5.893	Continuing	Continuing	-
MM III Transportation/ Handling and Support Equipment MATH (Support Equipment)	TBD	TBD : TBD	0.000	-		-		0.100	Feb 2023	-		0.100	Continuing	Continuing	-
Subtotal			0.000	-		-		12.937		-		12.937	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MM III Transportation/ Handling and Support Equipment MATH PSC	TBD	TBD : TBD	0.000	-		-		0.273	Feb 2023	-		0.273	0.000	0.273	-
MM III Transportation/ Handling and Support Equipment MATH A&AS	C/FFP	TBD : TBD	0.000	-		-		0.245	Feb 2023	-		0.245	0.000	0.245	-
Subtotal			0.000	-		-		0.518		-		0.518	0.000	0.518	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons					Project (Number/Name) 672985 / MM Support Equip			
	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		13.455		-		13.455	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons			Project (Number/Name) 672985 / MM Support Equip				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MM Support Equipment																												
MATH Milestone B (Feb 2023)																												
MATH Engineering and Manufacturing Development Phase																												
MATH Milestone C (Sep 2024)																												
MATH Production and Deployment Phase																												
MATH FOC (Mar 2026)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672985 / MM Support Equip	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MM Support Equipment				
MATH Milestone B (Feb 2023)	2	2023	2	2023
MATH Engineering and Manufacturing Development Phase	2	2023	4	2024
MATH Milestone C (Sep 2024)	4	2024	4	2024
MATH Production and Deployment Phase	1	2025	4	2027
MATH FOC (Mar 2026)	4	2027	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672986: MM Crypto Mods	0.000	4.289	3.688	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.977
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note In FY2022 Project 672986, LGM-30G ICBM Cryptography Upgrade II, was completed.												
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 2021	FY 2022	FY 2023	
Title: LGM-30G ICBM Cryptography Upgrade II (ICU II)									4.289	3.688	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 2022 Plans: • Continue Guided Missile Launcher Electronic Circuit (GMLEC) interface modification efforts												
FY 2023 Plans: N/A												
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to completion of Guided Missile Launcher Electronic Circuit (GMLEC) interface modification efforts.												
Accomplishments/Planned Programs Subtotals									4.289	3.688	0.000	
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• MPAF 03 Line Item	33.337	10.782	7.054	-	7.054	0.000	0.000	0.000	0.000	Continuing	Continuing	
M30MLG: MM III Modifications												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0101213F / <i>Minuteman Squadrons</i>			<b>Project (Number/Name)</b> 672986 / <i>MM Crypto Mods</i>	

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• MPAF 04 Line Item 00098A: <i>Msl Spares/Repair Parts (Initial)</i>	60.276	38.645	39.774	-	39.774	46.861	57.212	49.345	50.347	Continuing	Continuing

**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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672986 / MM Crypto Mods					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
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	3.544	Jan 2021	2.805	Jan 2022	-		-		-	0.000	6.349	8.367
Subtotal			0.000	3.544		2.805		-		-		-	0.000	6.349	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LGM-30G ICBM Cryptography Upgrade II Nuclear Safety Support (NSCCA/IV&V)	C/CPFF	Northrop Grumman : Clearfield, UT	0.000	-		-		-		-		-	0.000	0.000	7.400
LGM-30G ICBM Cryptography SIBR & FFRDC Support	Various	Various : Various	0.000	0.000	Jan 2021	0.223	Jan 2022	-		-		-	0.000	0.223	-
Subtotal			0.000	0.000		0.223		-		-		-	0.000	0.223	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LGM-30G ICBM Cryptography Upgrade II LDTO	PO	AEDC/TSTS : Arnold AFB, TN	0.000	0.000	Nov 2020	0.051	Nov 2021	-		-		-	0.000	0.051	-
Subtotal			0.000	0.000		0.051		-		-		-	0.000	0.051	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons				Project (Number/Name) 672986 / MM Crypto Mods					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LGM-30G ICBM Cryptography Upgrade II PSC	Various	Various : Various	0.000	0.427	Jan 2021	0.384	Jan 2022	-		-		-	0.000	0.811	-
LGM-30G ICBM Cryptography Upgrade II A&AS	C/FFP	BAE Systems : Clearfield, UT	0.000	0.318	Dec 2020	0.225	Dec 2021	-		-		-	0.000	0.543	0.475
Subtotal			0.000	0.745		0.609		-		-		-	0.000	1.354	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	4.289		3.688		-		-		-	0.000	7.977	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)			
3600 / 7								PE 0101213F / Minuteman Squadrons								672986 / MM Crypto Mods			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MM Crypto Mods																												
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) (Jun 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 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101213F / Minuteman Squadrons	Project (Number/Name) 672986 / MM Crypto Mods	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MM Crypto Mods				
ICU II Engineering and Manufacturing Development Phase (GMLEC)	1	2021	1	2023
ICU II Production and Deployment Phase	1	2021	2	2024
ICU II Required Assets Available (RAA) for Initial Operational Capability (IOC) (Jun 2022)	3	2022	3	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 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0101316F I Worldwide Joint Strategic Communications							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	30.124	15.202	22.725	0.000	22.725	2.597	2.646	2.702	2.762	Continuing	Continuing
671820: Strategic Automated Command and Control System	-	30.124	15.202	22.725	0.000	22.725	2.597	2.646	2.702	2.762	Continuing	Continuing
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), Aircrew Alerting Communications Electromagnetic Pulse (AACE), the Strategic Emergency Action Transmission System (SEATS), the Defense Red Switch Network (DRSN), 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 Ground Based Strategic Deterrent (GBSD).

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 Ground Based Strategic Deterrent (GBSD) fielding plans.

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 elements 0605831F and 0605833F. In FY2021 \$0.378M was expended for civilian pay expenses in this program element, in FY22 \$0.600M 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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0101316F I Worldwide Joint Strategic Communications			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	31.166	15.202	0.000	0.000	0.000
Current President's Budget	30.124	15.202	22.725	0.000	22.725
Total Adjustments	-1.042	0.000	22.725	0.000	22.725
• 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	-1.042	0.000			
• Other Adjustments	0.000	0.000	22.725	0.000	22.725
Congressional Add Details (\$ in Millions, and Includes General Reductions)					
Project: 671820: Strategic Automated Command and Control System					FY 2021
Congressional Add: NC3 Architecture					FY 2022
					8.000
					-
Congressional Add Subtotals for Project: 671820					8.000
					-
Congressional Add Totals for all Projects					8.000
					-
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.					
FY21: -\$1.042 SBIR reduction					
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022
Title: SACCS Replacement				22.124	15.202
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; support a bridge connection to GBSD					22.725

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0101316F / <i>Worldwide Joint Strategic Communications</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> through GBSD NC3 Terrestrial Integration (GNTI); and supports meeting the Chairman Joint Chiefs of Staff Nuclear Technical Performance Criteria and Operational Standards (CJCSI 6811.01).  <b>FY 2022 Plans:</b> Build 1.1 -Complete Technology Maturation & Risk Reduction (TMRR) efforts to facilitate Build 1.1 to include a temporary modification to address near term obsolescence issues -Perform transition of TDM circuits to IP circuits through System Program Office (SPO)/Defense Information Systems Agency (DISA) process -Perform site modifications in support of Build 1.1 -Continue to facilitate solution to address the multi-level security requirement (Cross Domain Solution - CDS) -Continue design of Black IP Transport (Storm Cloud) for implementation in SACCS -Continue to update the SACCS core to facilitate Build 1.1 and the Cybersecurity Operations Cell -Develop and integrate the HAIPE Management Terminal (HMT) -Update and deliver training to onsite teams in use of Build 1.1 hardware -Document and maintain the configuration management (CM) for all designs, drawings, and publications -Purchase hardware in support of Build 1.1  Port Expansion Processor (PEP) Replacement -Continue TMRR efforts in support of the new PEPs and future SACCS-R efforts -Continue to update the SACCS core to facilitate PEP-R -Perform site modifications in support of PEP-R -Update and deliver training to onsite teams on use of PEP hardware -Document and maintain the CM for all designs, drawings, and publications -Purchase hardware in support of PEP-R  Build 1.2 -Continue TMRR efforts to facilitate Build 1.2 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 and testing of Cybersecurity Operations Cell -Continue to facilitate CDS -Continue to update the SACCS core to facilitate Build 1.2 -Document and maintain the CM for all designs, drawings, and publications -Purchase hardware in support of Build 1.2		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0101316F / <i>Worldwide Joint Strategic Communications</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
-Perform site modifications in support of Build 1.2  GBSD NC3 Terrestrial Integration (GNTI) -Continue TMRR efforts to include a temporary modification to address near term obsolescence issues -Support fielding of SACCS-R GNTI efforts as a bridge to GBSD to facilitate Build 2.0 solution -Continue to update the SACCS core to facilitate GNTI -Purchase hardware in support of GNTI  <b>FY 2023 Plans:</b> Port Expansion Processor (PEP) Replacement -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 CM for all designs, drawings, and publications -Purchase hardware in support of PEP-R -Perform site modifications in support of PEP-R  Build 1.2 -Continue TMRR efforts to facilitate Build 1.2 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 Build 1.2 -Document and maintain the CM for all designs, drawings, and publications -Initiate fielding of Cybersecurity Operations Cell -Facilitate Cybersecurity penetration testing of Cyber Security Operation Cell -Purchase hardware in support of Build 1.2 -Perform site modifications in support of Build 1.2  GNTI -Continue TMRR efforts to include a temporary modification to address near term obsolescence issues -Support fielding of SACCS-R GNTI efforts as a bridge to GBSD to facilitate Build 2.0 solution -Support preliminary design for the modifications to the GBSD Trainer -Continue to update the SACCS core to facilitate GNTI				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0101316F / <i>Worldwide Joint Strategic Communications</i>						
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	
-Purchase hardware in support of GNTI											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increase due to continuing efforts to implement/test temporary modifications to support interim TDM-IP transition/OMNI Crypto replacement, the completion of Build 1.2, and the additional implementation of GNTI connectivity capability.											
<b>Accomplishments/Planned Programs Subtotals</b>								22.124	15.202	22.725	
								<b>FY 2021</b>	<b>FY 2022</b>		
<b>Congressional Add:</b> NC3 Architecture								8.000	-		
<b>FY 2021 Accomplishments:</b> N/A											
<b>Congressional Adds Subtotals</b>								8.000	-		
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 PE 0101316F: <i>Strategic Command and Control (833140)</i>	24.520	29.539	31.993	-	31.993	29.680	26.773	27.988	27.977	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> 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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0101316F / <i>Worldwide Joint Strategic Communications</i>						<b>Project (Number/Name)</b> 671820 / <i>Strategic Automated Command and Control System</i>			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
SACCS-R TMRR	SS/CPFF	Northrop Grumman : Layton, UT	-	18.200	Nov 2020	11.433	Nov 2021	17.759	Nov 2022	-		17.759	Continuing	Continuing	-
<b>Subtotal</b>			-	18.200		11.433		17.759		-		17.759	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
SACCS-R Engineering Development	Various	Various : Various	-	0.790	Nov 2020	1.000	Nov 2021	0.670	Nov 2022	-		0.670	Continuing	Continuing	-
NC3 Architecture Development	Various	Various : Various	-	8.000		-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	8.790		1.000		0.670		-		0.670	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
SACCS-R Development Test & Evaluation	Various	Various : Various	-	0.785	Nov 2020	0.271	Dec 2021	0.645	Nov 2022	-		0.645	Continuing	Continuing	-
<b>Subtotal</b>			-	0.785		0.271		0.645		-		0.645	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
SACCS-R Other Program Support Costs (PSC)	Various	Various : Various	-	1.360	Jan 2021	1.259	Nov 2021	2.273	Nov 2022	-		2.273	Continuing	Continuing	-
SACCS-R Integration Support	C/FFP	BAE Systems, Inc. : Hill AFB, UT	-	0.989	Jan 2021	1.239	Nov 2021	1.378	Nov 2022	-		1.378	Continuing	Continuing	-
<b>Subtotal</b>			-	2.349		2.498		3.651		-		3.651	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force										Date: April 2022						
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101316F / Worldwide Joint Strategic Communications					Project (Number/Name) 671820 / Strategic Automated Command and Control System						
Management Services (\$ in Millions)					FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	
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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			-	30.124		15.202		22.725		-		22.725	Continuing	Continuing	N/A	
Remarks																

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0101316F / Worldwide Joint Strategic Communications

## Project (Number/Name)

671820 / Strategic Automated Command and Control System

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Strategic Automated Command and Control System</b>																												
SACCS-R Technology Maturation/Risk Reduction																												
SACCS-R TDM-IP 1.1																												
SACCS-R TDM-IP 1.1 Decision to Retain																												
SACCS-R PEP																												
SACCS-R TDM-IP 1.2																												
SACCS-R TDM-IP 1.2 Decision to Retain																												
GNTI																												
SACCS-R PDR																												
SACCS-R Milestone B																												
SACCS-R Engineering and Manufacturing Development																												
SACCS-R Build 2.0																												
SACCS-R CDR																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101316F / <i>Worldwide Joint Strategic Communications</i>	<b>Project (Number/Name)</b> 671820 / <i>Strategic Automated Command and Control System</i>	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Strategic Automated Command and Control System</i></b>				
SACCS-R Technology Maturation/Risk Reduction	1	2021	3	2023
SACCS-R TDM-IP 1.1	1	2021	3	2022
SACCS-R TDM-IP 1.1 Decision to Retain	3	2022	3	2022
SACCS-R PEP	1	2021	1	2023
SACCS-R TDM-IP 1.2	1	2021	3	2023
SACCS-R TDM-IP 1.2 Decision to Retain	3	2023	3	2023
GNTI	1	2022	4	2027
SACCS-R PDR	3	2024	3	2024
SACCS-R Milestone B	3	2024	3	2024
SACCS-R Engineering and Manufacturing Development	4	2024	4	2027
SACCS-R Build 2.0	4	2024	4	2027
SACCS-R CDR	3	2025	3	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0101324F I Integrated Strategic Planning & Analysis Network							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	23.420	29.564	3.180	0.000	3.180	0.003	0.000	0.002	0.002	0.000	56.171
675029: <i>ISPAN Increment 5</i>	-	23.420	29.564	3.180	0.000	3.180	0.003	0.000	0.002	0.002	0.000	56.171
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

INTEGRATED STRATEGIC PLANNING AND ANALYSIS NETWORK(ISPAN):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.

ISPAN Increment 5 (INC5): ISPAN 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, automation testing, automation 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 system capability. The use of such programs 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-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0101324F I Integrated Strategic Planning & Analysis Network				
B. Program Change Summary (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		24.227	0.000	0.000	0.000	0.000
Current President's Budget		23.420	29.564	3.180	0.000	3.180
Total Adjustments		-0.807	29.564	3.180	0.000	3.180
• Congressional General Reductions		-0.044	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	29.564			
• Reprogrammings		0.000	0.000			
• SBIR/STTR Transfer		-0.763	0.000			
• Other Adjustments		0.000	0.000	3.180	0.000	3.180
Change Summary Explanation						
FY21 funding reduction is a result of congressional general reduction and SBIR transfer.						
FY22 funding was returned from PE 0608158F after entrance into BA-08 Pilot Program was denied.						
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: ISPAN Increment 5				23.420	29.564	3.180
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 2022 Plans: Funds will be used for Section 804 Beta Phase development and fielding activities to develop the hardware and software architecture for Mission Planning Analysis System (MPAS)Increment 5 modernization; to include alternate site stand-up, cybersecurity improvements, and continue the life-cycle procurement of commercial-based hardware and software components for the MPAS effort.						
No OCO Requested						
FY 2023 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0101324F / <i>Integrated Strategic Planning &amp; Analysis Network</i>	
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
Residual Funding will be transferred to 0680158F during execuuiou.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding was returned to 0680158F due to BA-08 pilot program denial.			
<b>Accomplishments/Planned Programs Subtotals</b>		23.420	29.564
<b>D. Other Program Funding Summary (\$ in Millions)</b>			
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>
• OPAF 03 833560: <i>Integrated Strat Plan &amp; Analy Network (ISPAN)</i>	9.806	4.845	4.740
			<b>FY 2023 OCO</b>
			-
			<b>FY 2023 Total</b>
			4.740
			<b>FY 2024</b>
			1.366
			<b>FY 2025</b>
			4.824
			<b>FY 2026</b>
			6.135
			<b>FY 2027</b>
			-
			<b>Cost To Complete</b>
			Continuing
			<b>Total Cost</b>
			Continuing
<b>Remarks</b> Procurement funds (3080) required starting in FY24.			
<b>E. Acquisition Strategy</b> Assistant Secretary of the Air Force (Acquisition, Technology & Logistics) (SAF/AQ) designated ISPAN Inc 5 as a FY 2016 NDAA Section 804 Rapid Fielding program and delegated Milestone Decision Authority (MDA) to the Air Force Program Executive Officer (AFPEO) Digital.  Increment 5 will develop and modernize software for the combatant commanders using an Agile DevOps Continuous Delivery / Continuous Integration (CD/CI) acquisition strategy with development contracts that are negotiated and awarded in a competitive environment. The program will consider the best contract options to implement the Agile DevOps CD/CI strategy. Other activities are also accomplished through the use of various contracting vehicles such as Military Interdepartmental Purchase Requests (MIPRs).  Continuous, ongoing agile software development activities; producing a secure software development environment located in existing space at Offutt AFB. Software development environment will meet classification/security regulations/criteria, which will promote competition.  The PEO is the AF PEO Digital. Air Force Life Cycle Management Center at Hanscom AFB (AFLCMC/HB) and the 55 CONS at Offutt AFB are the contracting authorities for ISPAN and provide contracts, legal, and financial management support.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity						R-1 Program Element (Number/Name)						Project (Number/Name)					
3600 / 7						PE 0101324F / Integrated Strategic Plannin g & Analysis Network						675029 / ISPAN Increment 5					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
ISPAN Inc 5 - IPT Primary Development	Various	Various : Offutt AFB, NE	-	13.479	Jan 2021	17.856	Jan 2022	3.180	Jan 2023	-		3.180	0.000	34.515	-		
Rogue Blue SW Factory	Various	Various : Offutt AFB, NE	-	2.012	Jan 2021	4.404	Jan 2022	-		-		-	Continuing	Continuing	-		
Subtotal			-	15.491		22.260		3.180		-		3.180	Continuing	Continuing	N/A		
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
Dev Ops Support	Various	Offutt AFB : Offutt AFB, NE	-	1.423	Nov 2020	1.330	Jan 2022	-		-		-	Continuing	Continuing	-		
Engineering and Technical DMS	C/CPFF	Not specified. : TBD	-	4.747	Nov 2020	4.445	Feb 2022	-		-		-	0.000	9.192	-		
Subtotal			-	6.170		5.775		-		-		-	Continuing	Continuing	N/A		
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
Test and Evaluation - JITC	Various	Not specified. : TBD	-	0.086	Nov 2020	0.086	Nov 2021	-		-		-	0.000	0.172	-		
Subtotal			-	0.086		0.086		-		-		-	0.000	0.172	N/A		
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
Systems Engineering and Operations	Various	Offutt AFB : Offutt AFB, NE	-	1.673	Nov 2020	1.443	Nov 2021	-		-		-	0.000	3.116	-		
Subtotal			-	1.673		1.443		-		-		-	0.000	3.116	N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022				
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101324F / Integrated Strategic Plannin g & Analysis Network					Project (Number/Name) 675029 / ISPAN Increment 5					
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	23.420		29.564		3.180		-		3.180	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101324F / Integrated Strategic Plannin g & Analysis Network						Project (Number/Name) 675029 / ISPAN Increment 5			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ISPAN Increment 5																												
ISPAN Inc 5 section 804 "Beta" Development phase																												
Interim Progress Review																												
Quarterly Software Releases																												
Sustainment Decision IPR (Full Deployment Milestone)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101324F / Integrated Strategic Plannin g & Analysis Network	Project (Number/Name) 675029 / ISPAN Increment 5	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ISPAN Increment 5				
ISPAN Inc 5 section 804 "Beta" Development phase	1	2021	1	2024
Interim Progress Review	4	2022	4	2022
Quarterly Software Releases	1	2021	1	2024
Sustainment Decision IPR (Full Deployment Milestone)	1	2024	1	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0101328F I ICBM Reentry Vehicles							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	77.231	108.625	96.313	118.616	0.000	118.616	368.449	640.795	835.562	854.140	Continuing	Continuing
674920: W87-1/Mk21A	77.231	108.625	96.313	118.616	0.000	118.616	368.449	640.795	698.244	595.010	248.117	2,951.400
675920: Next Generation Reentry Vehicle*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	137.318	259.130	Continuing	Continuing
Program MDAP/MAIS Code: 576												
*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2023												
A. Mission Description and Budget Item Justification												
The Intercontinental Ballistic Missile (ICBM) Reentry Vehicles (RVs) program will design, develop, produce, and deploy an integrated RV capable of delivering the W87-1 Warhead and future warheads when released from the Ground Based Strategic Deterrent (GBSD) ICBM.												
The Mk21A program will meet the requirements laid out in the GBSD 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: high velocity nose tip; high impulse transducer; arming and fuzing assembly; 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 GBSD.												
The Next Generation Reentry Vehicle (NGRV) will meet requirements for future RVs in alignment with the Air Force's RV strategy to maintain continued effectiveness as technology matures. Future RV programs will be able to integrate with current and/or future warheads.												
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 0605831F and 0605833F. In FY2021 \$2.681M was expended for civilian pay expenses in this program element, and in FY2022 \$2.838M is forecasted for civilian pay expenses in this program element.												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0101328F I ICBM Reentry Vehicles			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	112.547	96.313	0.000	0.000	0.000
Current President's Budget	108.625	96.313	118.616	0.000	118.616
Total Adjustments	-3.922	0.000	118.616	0.000	118.616
• 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	-3.922	0.000			
• Other Adjustments	0.000	0.000	118.616	0.000	118.616
Change Summary Explanation					
FY2021 funding reflects a Small Business Innovation Research (SBIR) adjustment of \$3.922 million.					
The FY2022 President's Budget submittal did not reflect FY2023 through FY2026 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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles				Project (Number/Name) 674920 / W87-1/Mk21A			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674920: W87-1/Mk21A	77.231	108.625	96.313	118.616	0.000	118.616	368.449	640.795	698.244	595.010	248.117	2,951.400
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 Ground Based Strategic Deterrent (GBSD) Intercontinental Ballistic Missile (ICBM). The Mk21A program will provide needed performance and security enhancements over the Mk21 RV to meet the upgraded requirements for the Department of Energy 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 GBSD Capability Development Document (CDD) as directed by Air Force Global Strike Command. The Mk21A RV includes: high velocity nose tip; high impulse transducer; arming and fuzing assembly; 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 GBSD.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Mk21A Technology Maturation Risk Reduction	108.625	96.313	84.045
<b>Description:</b> The objectives of TMRR for Mk21A are as follows: (1) Deliver one preliminary design and three prototypes for flight testing to inform National Nuclear Security Administration/ Department of Energy 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			
<b>FY 2022 Plans:</b> • Continue TMRR contract efforts			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles	Project (Number/Name) 674920 / W87-1/Mk21A		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023
<ul style="list-style-type: none"><li>• Continue to 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</li><li>• Continue to mature the weapon system RV preliminary design and reduce integration risk by initiating/conducting trade studies, system engineering, test activities, and system modeling and simulation</li><li>• Continue/complete development of demonstration flight RV</li><li>• Continue to develop and execute a unified certification strategy which meets nuclear surety, cyber security, and nuclear safety requirements</li><li>• Conduct prototype RV flight test</li><li>• Conduct activities to mitigate RV development risks</li><li>• 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</li></ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"><li>• Conclude TMRR contract efforts</li><li>• 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</li><li>• Finalize weapon system RV preliminary design and reduce integration risk by concluding trade studies, system engineering, test activities, and system modeling and simulation</li><li>• Continue to develop, mature, and execute a unified certification strategy which meets nuclear surety, cyber security, and nuclear safety requirements</li><li>• Conduct prototype RV flight test</li><li>• Continue activities to mitigate RV development risks</li><li>• 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</li><li>• Conduct planning and test activities in preparation to integrate the Mk21A onto GBSD</li></ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to the completion of TMRR efforts and transition to EMD.</p>					
Title: Mk21A Engineering & Manufacturing Development			-	-	34.571
Description: The objectives of EMD for Mk21A are as follows: (1) Develop and build a Mk21A RV capable of delivering National Nuclear Security Administration/Department of Energy 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					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles				Project (Number/Name) 674920 / W87-1/Mk21A				
B. Accomplishments/Planned Programs (\$ in Millions)										FY 2021	FY 2022	FY 2023
(5) Integrate Mk21A/W87-1 into the GBSD weapon system												
FY 2023 Plans: • 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 GBSD • Begin GBSD integration activities to support delivery of the Mk21A and W87-1 • Continue activities to mitigate RV development risks • Continue to develop, mature, and execute a unified certification strategy which meets nuclear surety, cyber security, and nuclear safety requirements												
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to the completion of TMRR and transition to EMD.												
Accomplishments/Planned Programs Subtotals										108.625	96.313	118.616
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• RDTE 04 PE 0605230F: Ground Based Strategic Deterrent	1,397.485	2,553.541	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3,951.026	
• RDTE 05 PE 0605238F: Ground Based Strategic Deterrent EMD	0.000	0.000	3,614.290	-	3,614.290	3,614.629	3,255.759	3,190.113	2,628.739	4,439.300	20,742.830	
• MPAF 01 MGBSD0: GBSD	0.000	10.895	0.000	-	0.000	610.586	502.720	5,689.931	6,410.554	48,355.610	61,580.296	
• RDTE 05 0604933F/655082: Fuze Modernization	151.158	129.709	98.376	-	98.376	72.756	14.329	0.000	0.000	0.000	466.328	
• RDTE 04 060351F/641022: Dem/Val - RVAP	10.456	18.166	13.042	-	13.042	0.000	0.000	0.000	0.000	Continuing	Continuing	
• RDTE 04 0603851F: Intercontinental Ballistic Missile - Dem/Val	0.162	23.433	29.253	-	29.253	16.717	28.424	7.821	7.995	Continuing	Continuing	
Remarks												
Prototype RV Flight Test #2 costs are shared between the Mk21A and ICBM Demonstration/Validation program elements to meet combined interests.												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101328F / <i>ICBM Reentry Vehicles</i>	<b>Project (Number/Name)</b> 674920 / <i>W87-1/Mk21A</i>
<p><b><u>D. Acquisition Strategy</u></b></p> <p>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 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 nose tip, high impulse transducer, arming and fuzing assembly, aeroshell forward section/body section and rear cover, radio frequency subsystem, antennas, spin generators, and cables.</p> <p>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.</p> <p>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.</p> <p>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 GBSD weapon system.</p> <p>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 GBSD. 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 GBSD weapon system. The EMD/Production &amp; Deployment contract is a thirteen year based contract with EMD efforts through 2QFY27. After Milestone B approval, the EMD contract is planned to be awarded in 4QFY23.</p>		

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101328F / ICBM Reentry Vehicles	<b>Project (Number/Name)</b> 674920 / W87-1/Mk21A
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Mk21A TMRR Contractor	C/CPFF	Lockheed Martin : King of Prussia, PA	50.321	68.501	Nov 2020	41.922	Nov 2021	49.474	Nov 2022	-		49.474	0.000	210.218	240.947
GBSD Integration Contract	C/CPIF	Northrop Grumman Sys Corp : El Segundo, CA	0.000	-		-		2.863	Nov 2022	-		2.863	2.770	5.633	-
W87-1 Integration	MIPR	NNSA : Various	0.000	-		-		14.700	Nov 2022	-		14.700	2.819	17.519	-
Mk21A EMD Contract	TBD	TBD : TBD	0.000	-		-		21.804	Aug 2023	-		21.804	1,114.296	1,136.100	-
<b>Subtotal</b>			50.321	68.501		41.922		88.841		-		88.841	1,119.885	1,369.470	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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Mk21A Fuze Trade Study (TMRR)	MIPR	Sandia National Lab : Albuquerque, NM	1.913	-		-		-		-		-	0.000	1.913	-
Mk21A TMRR Support: PMA (TMRR)	Various	Various : Various	0.347	0.238	Nov 2020	0.550	Nov 2021	0.348	Nov 2022	-		0.348	9.554	11.037	-
Mk21A Integration Support: BAE (TMRR)	C/FP	BAE : Hill AFB, UT	4.404	3.047	Oct 2020	3.766	Oct 2021	-		-		-	0.000	11.217	-
Mk21A Integration Support: ISC	C/TBD	TBD : TBD	0.000	-		-		3.700	Oct 2022	-		3.700	39.734	43.434	-
Mk21A Integration Support: FFRDC/UARC (TMRR)	MIPR	Various : Various	0.987	-		2.304	Nov 2021	1.261	Nov 2022	-		1.261	8.750	13.302	-
Mk21A Direct Cite Civilian Pay	Various	US Gov Civilians : Hill AFB, UT	1.596	2.681	Oct 2020	2.838	Oct 2021	3.055	Oct 2022	-		3.055	32.253	42.423	-
Digital and Model Based System Engineering Support	TBD	TBD : TBD	0.000	-		-		1.035	Oct 2022	-		1.035	7.235	8.270	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles				Project (Number/Name) 674920 / W87-1/Mk21A					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Mk21A EMD Support	Various	TBD : TBD	0.000	-		-		2.806	Aug 2023	-		2.806	669.105	671.911	-
Subtotal			9.247	5.966		9.458		12.205		-		12.205	766.631	803.507	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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Mk21A Test & Evaluation	Various	Various : Various	7.523	27.549	Nov 2020	37.120	Nov 2021	12.516	Nov 2022	-		12.516	0.000	84.708	-
Mk21A Test & Evaluation: Air Force and NNSA Demonstrator Initiative (ANDI) (TMRR)	MIPR	Various : Various	8.111	5.835	Oct 2020	4.200	Oct 2021	-		-		-	0.000	18.146	-
Mk21A EMD Test Support	Various	TBD : TBD	0.000	-		-		1.298	Aug 2023	-		1.298	656.230	657.528	-
Subtotal			15.634	33.384		41.320		13.814		-		13.814	656.230	760.382	N/A
Remarks															
• FY22 and FY23 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. Funding for the FY22 flight began in FY20, and funding for the FY23 flight began in FY21. 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.															
• 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-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles				Project (Number/Name) 674920 / W87-1/Mk21A					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Mk21A PMA	C/Various	Various : Various	2.029	0.774	Nov 2020	3.613	Nov 2021	3.756	Nov 2022	-		3.756	7.869	18.041	-
Subtotal			2.029	0.774		3.613		3.756		-		3.756	7.869	18.041	N/A
Remarks															
• The efforts within this cost category cover both TMRR and EMD phases of the program.															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			77.231	108.625		96.313		118.616		-		118.616	2,550.615	2,951.400	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0101328F / ICBM Reentry Vehicles				Project (Number/Name) 674920 / W87-1/Mk21A			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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																												
Preliminary Design Review (Mar 2021)																												
Prototype RV Flight Test #1 (Jul 2022)																												
Prototype RV Flight Test #2 (May 2023)																												
Milestone B (Jul 2023)																												
EMD Phase																												
Delta PDR (Jun 2024)																												
Critical Design Review (Jun 2025)																												
Milestone C (Sep 2025)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101328F / ICBM Reentry Vehicles	<b>Project (Number/Name)</b> 674920 / W87-1/Mk21A	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Mk21A Reentry Vehicle (RV)</i></b>				
TMRR Phase	1	2021	4	2023
Preliminary Design Review (Mar 2021)	2	2021	2	2021
Prototype RV Flight Test #1 (Jul 2022)	4	2022	4	2022
Prototype RV Flight Test #2 (May 2023)	3	2023	3	2023
Milestone B (Jul 2023)	4	2023	4	2023
EMD Phase	4	2023	2	2027
Delta PDR (Jun 2024)	3	2024	3	2024
Critical Design Review (Jun 2025)	3	2025	3	2025
Milestone C (Sep 2025)	4	2025	4	2025

**Note**

- TMRR Phase began in 1QFY20
- Flight Tests: flight tests delayed to 4QFY22 (flight test #1) and 3QFY23 (flight test #2) due to range availability; no impact to 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 P&D. P&D phase continues beyond FY2027.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0102110F I UH-1N Replacement Program							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	547.421	34.524	16.132	17.922	0.000	17.922	27.945	9.003	9.702	0.000	27.144	689.793
672021: MH-139A	547.421	34.524	16.132	9.818	0.000	9.818	19.506	0.000	0.000	0.000	0.000	627.401
672023: MH-139A PE/PI	0.000	0.000	0.000	8.104	0.000	8.104	8.439	9.003	9.702	0.000	27.144	62.392
Program MDAP/MAIS Code: 562												
<b>Note</b> This program, BA 7, PE 0102110F, project , MH-139A Performance Enhancements, is a new start. This program, BA 7, PE 0102110F, project , MH-139A Government Test Planning, Test and Evaluation, is a new start.												
<b>A. Mission Description and Budget Item Justification</b> 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 MH-139A will provide vertical airlift and support four Air Force Major Commands (MAJCOMs) and other operating agencies: Air Force Global Strike Command (AFGSC), Air Education and Training Command (AETC), Air Force Materiel Command (AFMC), Air Force Reserve Command, and the Air Force District of Washington (AFDW). AFGSC is the Air Force lead command and operational capability requirements sponsor.  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 2021 \$4.782 million was expended for civilian pay expenses in this program element, and in FY 2022 \$5.600 million is forecasted 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.  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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0102110F / <i>UH-1N Replacement Program</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	41.388	16.132	0.000	0.000	0.000
Current President's Budget	34.524	16.132	17.922	0.000	17.922
Total Adjustments	-6.864	0.000	17.922	0.000	17.922
• 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	-6.000	0.000			
• SBIR/STTR Transfer	-0.864	0.000			
• Other Adjustments	0.000	0.000	17.922	0.000	17.922

**Change Summary Explanation**

FY 2021 funding was reduced by a total of \$6.864 million which included a \$6.000 million reprogramming action for higher Air Force priorities and \$0.864 million for Small Business Innovation Research.

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 FY 2023 cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program				Project (Number/Name) 672021 / MH-139A			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672021: MH-139A	547.421	34.524	16.132	9.818	0.000	9.818	19.506	0.000	0.000	0.000	0.000	627.401
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 four Air Force major commands and operating agencies: Air Force Global Strike Command (AFGSC), Air Force District of Washington (AFDW), Air Education and Training Command (AETC), 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 courseware, non-developmental item (NDI) integration, cyber test articles, associated Government support activities, remedy of Demonstration Test (DT) deficiencies, and permits for future performance enhancements activities.

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 2021 \$4.782 million was expended for civilian pay expenses in this program element, and in FY 2022 \$5.600 million is forecasted for civilian pay expenses in this program element.

MH-139A 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.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> MH-139 Development	28.614	14.360	5.618	0.000	5.618
<b>Description:</b> 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.					
<b>FY 2022 Plans:</b>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022				
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program		Project (Number/Name) 672021 / MH-139A				
B. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continue systems engineering efforts, government oversight, contractor and government systems engineering tasks and management services. Complete conditional DD-250 aircraft acceptance and initial military flight release.  <b>FY 2023 Base Plans:</b> Conclude systems engineering efforts, government oversight, contractor and government systems engineering tasks and management services. Continue preparation for MS-C, production LRIP order 1, and Military type certificate.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to reduction in development efforts as MS-C is approached and decrease in Program Support Costs (PSC) as program transitions to Procurement funding.								
<b>Title:</b> MH-139 Government Test and Evaluation  <b>Description:</b> System and subsystem test and evaluation and remedy of DT deficiencies of the MH-139 solution.  <b>FY 2022 Plans:</b> Continue LFT&E, DT and OA, and OT support execution.  <b>FY 2023 Base Plans:</b> Complete LFT&E, DT and transition to OA, and OT support execution.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to increased subsystem testing, evaluation and remedy of DT deficiencies prior to OT.				5.910	1.772	4.200	0.000	4.200
Accomplishments/Planned Programs Subtotals				34.524	16.132	9.818	0.000	9.818

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0102110F / <i>UH-1N Replacement Program</i>				<b>Project (Number/Name)</b> 672021 / <i>MH-139A</i>			

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 04 Line Item H0106O: <i>UH-1N Replacement</i>	194.016	141.360	156.192	-	156.192	282.143	420.714	537.747	356.119	776.363	2,864.654
• APAF 06 Line Item H0106O: <i>UH-1N Replacement</i> <i>Initial Spares/Repair Parts</i>	18.389	0.000	11.253	-	11.253	31.256	34.085	28.292	23.685	55.651	202.611
• MILCON 0: <i>UH-1N</i> <i>Replacement - Primary Facility</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**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 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 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 RDT&E funded integration tasks and the test and evaluation program will be determined as part of the overall program strategy.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity						R-1 Program Element (Number/Name)						Project (Number/Name)					
3600 / 7						PE 0102110F / UH-1N Replacement Program						672021 / MH-139A					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	469.741	3.809	Dec 2020	6.295	Dec 2021	0.821	Dec 2022	-		0.821	1.000	481.666	-		
Subtotal			469.741	3.809		6.295		0.821		-		0.821	1.000	481.666	N/A		
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	11.705	8.272	Jan 2021	1.965	Jan 2022	1.255	Jan 2023	-		1.255	2.925	26.122	-		
MH-139 Direct Cite Authority CIV Pay	C/Various	Various : TBD	4.782	4.832	Jan 2021	5.600	Jan 2022	3.542	Jan 2023	-		3.542	3.000	21.756	-		
Subtotal			16.487	13.104		7.565		4.797		-		4.797	5.925	47.878	N/A		
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	32.159	5.910	Dec 2020	1.772		4.200	Dec 2022	-		4.200	11.381	55.422	-		
Subtotal			32.159	5.910		1.772		4.200		-		4.200	11.381	55.422	N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program				Project (Number/Name) 672021 / MH-139A					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	4.269	3.253	Dec 2020	0.500	Dec 2021	0.000	Dec 2022	-		0.000	1.200	9.222	-
MH-139 A&AS Support	C/CPFF	EPASS : Dayton, OH	24.765	8.448	Dec 2020	0.000		0.000		-		0.000	0.000	33.213	-
Subtotal			29.034	11.701		0.500		0.000		-		0.000	1.200	42.435	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			547.421	34.524		16.132		9.818		-		9.818	19.506	627.401	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)						Project (Number/Name)			
3600 / 7						PE 0102110F / UH-1N Replacement Program						672021 / MH-139A			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MH-139A Program																												
MH-139A NDI Contract																												
Test and Evaluation																												
System/Subsystem Test and Integration																												
Weapon System Integration																												
Milestone C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022	
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program		Project (Number/Name) 672021 / MH-139A

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>MH-139A Program</b>				
MH-139A NDI Contract	1	2021	4	2023
Test and Evaluation	1	2021	4	2024
System/Subsystem Test and Integration	1	2021	1	2023
Weapon System Integration	1	2021	1	2023
Milestone C	2	2023	3	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Progra m				Project (Number/Name) 672023 / MH-139A PE/PI			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672023: MH-139A PE/PI	0.000	0.000	0.000	8.104	0.000	8.104	8.439	9.003	9.702	0.000	27.144	62.392
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program, BA 7, PE 0102110F, project , MH-139A Performance Enhancements, is a new start.  
This program, BA 7, PE 0102110F, project , MH-139A Government Test Planning, Test and Evaluation, is a new start.

**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 four Air Force major commands and operating agencies: Air Force Global Strike Command (AFGSC), Air Force District of Washington (AFDW), Air Education and Training Command (AETC), 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 weapon systems deficiencies, improve mission planning compatibility, and resolve usability concerns, and other critical capabilities.

The program office will utilize the additional flight test aircraft in support of modernization efforts to address emerging threats and evolving mission needs.

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 2021 \$00.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$00.000 million is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> MH-139A Performance Enhancements	0.000	0.000	6.104	0.000	6.104
<b>Description:</b> Development and integration of MH-139A helicopter solutions to solve capability gaps found during development and test to include communication and weapon system deficiencies, improve mission planning compatibility, resolve usability concerns and other critical capabilities.					
<b>FY 2022 Plans:</b>					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force								Date: April 2022		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program			Project (Number/Name) 672023 / MH-139A PE/PI			
B. Accomplishments/Planned Programs (\$ in Millions)						FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A										
FY 2023 Base Plans: Begin systems engineering efforts to include by not limited to communication and weapon system deficiencies, improve mission planning 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.										
FY 2023 OCO Plans: N/A										
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to ramp-up of engineering efforts and program planning activities.										
Title: MH-139A Government Test Planning, Test and Evaluation						0.000	0.000	2.000	0.000	2.000
Description: Planning for system and subsystem test and evaluation and remedy of DT deficiencies of the MH-139 Performance Enhancement and Product Improvement solutions.										
FY 2022 Plans: N/A										
FY 2023 Base Plans: Begin test planning in support of capability upgrade efforts.										
FY 2023 OCO Plans: N/A										
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to ramp-up of subsystem testing and evaluation of DT deficiencies.										
Accomplishments/Planned Programs Subtotals						0.000	0.000	8.104	0.000	8.104
C. Other Program Funding Summary (\$ in Millions)										
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete Total Cost
• APAF 04 H0106O: MH-139A	194.016	141.360	156.192	-	156.192	282.143	420.714	537.747	356.119	776,363.00078,451.291

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program				Project (Number/Name) 672023 / MH-139A PE/PI			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 06 H0106O: UH-1N Replacement Program	18.389	0.000	11.253	-	11.253	31.256	34.085	28.292	23.685	55.651	202.611
• MILCON UH-1N Replacement: Primary Facility	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0102110F / UH-1N Replacement Program				Project (Number/Name) 672023 / MH-139A PE/PI					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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-139A Performance Enhancements	C/CPFF	Boeing : Philadelphia, PA	0.000	0.000		0.000		6.104	Dec 2022	-		6.104	20.358	26.462	-
Subtotal			0.000	0.000		0.000		6.104		-		6.104	20.358	26.462	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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-139A PE/PI Test and Evaluation	C/Various	Various : TBD	0.000	0.000		0.000		2.000	Dec 2022	-		2.000	6.786	8.786	-
Subtotal			0.000	0.000		0.000		2.000		-		2.000	6.786	8.786	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		0.000		8.104		-		8.104	27.144	35.248	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0102110F / UH-1N Replacement Program		<b>Project (Number/Name)</b> 672023 / MH-139A PE/PI	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>MH-139A Performance Enhancements and Product Improvements</i></b>																												
Comm Upgrade Planning and Contract Award																												
Comm Upgrade Development and Integration																												
Comm Upgrade T&E																												
Weapon Systems Upgrade Planning and Contract Award																												
Weapon Systems Upgrade Development and Integration																												
Weapon Systems T&E																												
Mission Planning Upgrade Planning and Contract Award																												
Mission Planning Upgrade Development and Integration																												
Mission Planning Upgrade T&E																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0102110F / <i>UH-1N Replacement Program</i>	<b>Project (Number/Name)</b> 672023 / <i>MH-139A PE/PI</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>MH-139A Performance Enhancements and Product Improvements</i></b>				
Comm Upgrade Planning and Contract Award	1	2023	2	2023
Comm Upgrade Development and Integration	2	2023	1	2024
Comm Upgrade T&E	1	2024	4	2024
Weapon Systems Upgrade Planning and Contract Award	1	2023	1	2024
Weapon Systems Upgrade Development and Integration	2	2024	1	2025
Weapon Systems T&E	1	2025	4	2025
Mission Planning Upgrade Planning and Contract Award	1	2024	1	2025
Mission Planning Upgrade Development and Integration	2	2025	1	2026
Mission Planning Upgrade T&E	1	2026	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0102326F I Region/Sector Operation Control Center Modernization Program							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	9.846	0.771	0.451	0.000	0.451	0.829	0.845	0.863	0.882	Continuing	Continuing
674592: R/SAOC MODERNIZATION	-	9.846	0.771	0.451	0.000	0.451	0.829	0.845	0.863	0.882	Continuing	Continuing
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 limited selection of key improvements delivered through an agile process include: Integrated Fire Control (IFC), course of action generation, predictive analytics, improved visualizations.

NATIONAL CAPITAL REGION-INTEGRATED AIR DEFENSE SYSTEM (NCR-IADS): NCR-IADS is a post-September 11, 2001 rapidly fielded capability that improves low altitude detection in order to prosecute airborne threats to the National Capital Region (NCR). NCR-IADS provides ground-based air defense of the NCR airspace by delivering, an integrated air picture, ground air defense weapons, enhanced regional situational awareness system and forensic data collection capabilities to support the warfighter mission to protect the NCR. Efforts may include but are not limited to, studies, system engineering, development, integration, and test & evaluation required to prevent system obsolescence and evolving cyber security requirements and evolving mission requirements.

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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0102326F I Region/Sector Operation Control Center Modernization Program				
0606398F. In PY21 0.000M was expended for civilian pay expenses in this program element and in CY22 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		10.704	0.771	0.000	0.000	0.000
Current President's Budget		9.846	0.771	0.451	0.000	0.451
Total Adjustments		-0.858	0.000	0.451	0.000	0.451
• Congressional General Reductions		-0.858	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	0.451	0.000	0.451
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Battle Control System-Fixed Modification 1				3.669	0.100	0.100
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.						
FY 2022 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						
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.						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding level remains the same to support BCS-F Modification 1 ADS-B and ECEF test and evaluation, documentation, fielding and training at operational sites.						
Title: Battle Control System Modernization				1.527	0.671	0.351

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0102326F / <i>Region/Sector Operation Control Center Modernization Program</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Description:</b> 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.  <b>FY 2022 Plans:</b> Activities include, but are not limited to: - Continued development and integration of Digital Infrastructure, Joint Effects Real-time Interface for C2 Operators (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  <b>FY 2023 Plans:</b> Activities include, but are not limited to: - Continued 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  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Limited FY23 modernization funding will delay the release of modern capabilities critically required by the Defensive Counter Air mission by hindering the developing of a BCS-F replacement system.				
<b>Title:</b> National Capital Region - Integrated Air Defense System Camera Modernization  <b>Description:</b> NCR-IADS Camera System Tech Refresh of legacy camera system to address mission critical component DMSMS issues.  <b>FY 2022 Plans:</b> Activities include, but are not limited to: studies, system engineering, development, integration, and test & evaluation required to prevent system obsolescence and evolving cyber security requirements and evolving mission requirements.  <b>FY 2023 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>		4.650	0.000	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0102326F I Region/Sector Operation Control Center Modernization Program							
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2021	FY 2022	FY 2023
N/A												
Accomplishments/Planned Programs Subtotals										9.846	0.771	0.451
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• OPAF 03 833030: Battle Control System - Fixed	7.172	2.940	1.597	-	1.597	3.115	3.370	3.465	3.534	0.000	25.193	
Remarks												
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 Canada PMO and are under the purview of the Air Force Program Executive Officer for Battle Management (AFPEO BM). Air Force Life Cycle Management Center (AFLCMC) is the Contracting Authority.												
Contracting Strategy: The BCS-F PMO utilized a full and open competition to complete the development and integration of MOD 1 capabilities. Cost Plus contract with some Fixed Price and Time & Material CLINs will be utilized where possible and appropriate. The Agile Development Modernization work is done under an Other Transaction Authority contract that was completed in the prototype phase with a strategy approve to award a follow-on production OT contract.												
NCR-IADS is using a Middle Tier Acquisition (MTA) Rapid Prototyping strategy and leveraging an Other Transaction Authority (OTA) expedited contracting vehicle for the ERSA camera replacement. The ERSA software sustainment contract will also be modified to support required software development for the camera prototypes.												

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0102326F / Region/Sector Operation Control Center Modernization Program						<b>Project (Number/Name)</b> 674592 / R/SAOC MODERNIZATION			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
BCS-F Modification 1	Various	Various : Various	-	0.608	Aug 2021	0.100	Dec 2021	0.100	Dec 2022	-		0.100	Continuing	Continuing	0.000
BCS Modernization	Various	Various : Various	-	1.527	Feb 2021	0.538	Dec 2021	0.218	Dec 2023	-		0.218	Continuing	Continuing	-
NCR-IADS Camera Modernization	Various	Various : Various	-	4.650	Aug 2021	-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	6.785		0.638		0.318		-		0.318	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
46th Test Wing/Other Test Act	Various	Various : Various	-	0.735	Apr 2021	-		-		-		-	Continuing	Continuing	0.000
<b>Subtotal</b>			-	0.735		-		-		-		-	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
A&AS	Various	Various : Hanscom AFB, MA	-	0.791	Jul 2021	0.133	Dec 2021	0.133	Dec 2022	-		0.133	Continuing	Continuing	-
FFRDC	Various	Various : Hanscom AFB, MA	-	1.223	Mar 2021	-		-		-		-	Continuing	Continuing	-
Other	Various	Various : Hanscom AFB, MA	-	0.312	May 2021	-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	2.326		0.133		0.133		-		0.133	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
<b>Project Cost Totals</b>			-	9.846	0.771		0.451		-		0.451	Continuing	Continuing	N/A	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0102326F / Region/Sector Operation Control Center Modernization Program			Project (Number/Name) 674592 / R/SAOC MODERNIZATION				
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0102326F / Region/Sector Operation Control Center Modernization Program

## Project (Number/Name)

674592 / R/SAOC MODERNIZATION

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Battle Control System Fixed Modification 1</b>																												
System Acceptance Test (SAT)																												
Developmental Test (DT)																												
AF System Interoperability Test (AFSIT)																												
Operational Test and Fielding																												
<b>Battle Control System Modernization</b>																												
Agile Capabilities Development																												
<b>NCR-IADS Camera Modernization</b>																												
Contract Award																												
Camera Prototype Prep and Delivery																												
Software/Laser Integration																												
Prototype Test and Evaluation																												
Camera Selection																												

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0102326F / Region/Sector Operation Control Center Modernization Program

Project (Number/Name)

674592 / R/SAOC MODERNIZATION

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Battle Control System Fixed Modification 1</i></b>				
System Acceptance Test (SAT)	1	2021	1	2021
Developmental Test (DT)	3	2021	3	2021
AF System Interoperability Test (AFSIT)	4	2021	2	2022
Operational Test and Fielding	2	2022	2	2023
<b><i>Battle Control System Modernization</i></b>				
Agile Capabilities Development	2	2021	4	2027
<b><i>NCR-IADS Camera Modernization</i></b>				
Contract Award	3	2021	4	2021
Camera Prototype Prep and Delivery	4	2021	2	2022
Software/Laser Integration	3	2022	4	2022
Prototype Test and Evaluation	4	2022	4	2022
Camera Selection	4	2022	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0102412F I North Warning System (NWS)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.096	0.099	76.910	0.000	76.910	63.035	73.725	73.364	31.682	Continuing	Continuing
674592: Region/Sector Operations Modernization Center (R/SAOC)	-	0.096	0.099	76.910	0.000	76.910	63.035	73.725	73.364	31.682	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 FY21, 0.00M was expended for civilian pay expenses in this program element, and in FY22, 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	0.100	0.099	0.000	0.000	0.000
Current President's Budget	0.096	0.099	76.910	0.000	76.910
Total Adjustments	-0.004	0.000	76.910	0.000	76.910
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	-0.004	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	76.910	0.000	76.910

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0102412F I <i>North Warning System (NWS)</i>			
<p><b><u>Change Summary Explanation</u></b></p> <p>25M Congressional Add funds were receive d to accelerate development activities.</p> <p>\$25M Congressional Add was deleted since that money actually flowed into the OTHR Backscatter Radar PE per SAF/AQIJ (POC - Mr. Craig Hayes) // jrw 6 Apr 22</p>				
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> North Warning System (NWS)  <b>Description:</b> The details of this program are classified. Details are available upon request.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> FY 23 Funds will be used to develop, field and test OTHR system for Homeland Defense.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A		0.096	0.099	76.910
<b>Accomplishments/Planned Programs Subtotals</b>		0.096	0.099	76.910
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>   <b>E. Acquisition Strategy</b> N/A				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
N/A	TBD	N/A : N/A	-	0.096		0.099		76.910		-		76.910	Continuing	Continuing	-
Subtotal			-	0.096		0.099		76.910		-		76.910	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.096		0.099		76.910		-		76.910	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
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)			

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
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)	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
N/A	1	2021	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 0102417F I Over-the-Horizon Backscatter Radar							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	67.400	12.210	0.000	12.210	5.100	0.000	0.000	0.000	0.000	84.710
674865: TACMOR Development	-	0.000	67.400	12.210	0.000	12.210	5.100	0.000	0.000	0.000	0.000	84.710
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program, BA 7, PE 0102417F, project 674865, Homeland Defense OTHR Development, is a new start.

**A. Mission Description and Budget Item Justification**

Efforts funded in this Program Element include the Tactical Multi-Mission Over the Horizon Radar (TACMOR) is a compact Over the Horizon Radar (OTHR) 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 transitions to a production ready system after the successful completion of a Military Utility Assessment (MUA) and system-level Production Readiness Review (PRR).

Additional OTHR efforts targeted at Homeland Defense (HLD) funded in FY22; will develop modeling and simulation capability to validate performance required at up to 4 sites in CONUS.

TACMOR efforts funded in this Program Element include but are not limited to:

A remote, unattended 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 ionogram information for optimizing frequency selection.

A remote, unattended 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,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0102417F I Over-the-Horizon Backscatter Radar					
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.e							
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget		0.000	42.300	0.000	0.000	0.000	
Current President's Budget		0.000	67.400	12.210	0.000	12.210	
Total Adjustments		0.000	25.100	12.210	0.000	12.210	
• Congressional General Reductions		0.000	0.000				
• Congressional Directed Reductions		0.000	0.000				
• Congressional Rescissions		0.000	0.000				
• Congressional Adds		0.000	25.100				
• 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	12.210	0.000	12.210	
Change Summary Explanation							
FY22: Congressional funding added targeted at Homeland Defense (HLD) OTHR.							
FY23: 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.							
C. Accomplishments/Planned Programs (\$ in Millions)					FY 2021	FY 2022	FY 2023
Title: Homeland Defense OTHR Development					-	25.100	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 2022 Plans:							
- Focus efforts on analysis of unique characteristics of the proposed 4 sites in CONUS to site configuration required to optimize system performance							

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0102417F <i>I Over-the-Horizon Backscatter Radar</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
-- Will continue establishment of modeling and simulation capability to assist in the verification and validation of metrics to establish baseline transmitter and receive array performance specifications  -- Will begin drafting initial Key Performance Parameters, Key System Attributes and initiate engagement with industry to understand options for remote operations, automation, along with logistics and sustainment planning  -- Build options for a sustainable software development environment to encourage rapid prototyping and technology insertion  <b>FY 2023 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Initiated efforts to establish research, development and analysis of HLD OTHR				
<b>Title:</b> TACMOR Development  <b>Description:</b> Will establish initial TACMOR prototype transition and development activities necessary to accept post production readiness system components and sub-components.  <b>FY 2022 Plans:</b> - Developing and implementing full-scale production and factory acceptance test (FAT) capabilities for major sub-system components such as digital receivers and receiver optical control (ROC) units  - Procuring long-lead items for full-scale production such as secure containers, transmit and receive elements, high-density multilayered printed circuit boards (PCBs), high power amplifiers, servers, and network switches  - Began the assembly of major subsystem components such as the digital receivers, ROCs, transmit optical control (TOC) units, and direct digital drive chain  - Performing assembly and integration of 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).  - Executing test plans, procedures, and completing development of FAT-unique test equipment necessary to collect data at multiple points within the TACMOR system to confirm subsystem components meet performance specifications		0.000	42.300	12.210

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0102417F <i>I Over-the-Horizon Backscatter Radar</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- Executing FAT according to test plan, 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</li> <li>- Developing and installing communication infrastructure in support of offsite data transmission and dissemination. This includes associated authority to operate and cyber hardening</li> </ul> <b>FY 2023 Plans:</b> <ul style="list-style-type: none"> <li>- 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).</li> <li>- 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</li> <li>- 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</li> <li>- 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.</li> <li>- 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</li> <li>- 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</li> <li>- Will begin development of initial operations training material in support of Initial Operational Test and Evaluation (IOT&amp;E) process</li> <li>- Will complete development of support documentation; i.e.; Technical Orders, Site Diagrams, and finalize requirements for specific contractor deliverables in support of IOT&amp;E</li> </ul> <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0102417F <i>I Over-the-Horizon Backscatter Radar</i>			
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
The second year of development activity involves lower costs non-recurring engineering and software integration in a lab environment along with associated testing activities				
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	67.400	12.210
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> TACMOR will be executed out of the PEO Digital portfolio and Air Force Life Cycle Management Center Command and Control, Intelligence, Surveillance and Reconnaissance Division. For contracting efforts, a Single Award IDIQ contract with multiple task orders will be competitively awarded.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
System Integration Lab development and Communications Architecture Development	C/FFP	AFLCMC/HBG : Robins, AFB, GA	-	-		-		9.610	Feb 2023	-		9.610	Continuing	Continuing	-
Long Lead Items; Prototype Production Readiness Review and Component Integration activities	C/FFP	AFLCMC/HBG : Robins, AFB, GA	-	-		39.960	Aug 2022	-		-		-	Continuing	Continuing	-
Homeland Defense OTHR Modeling and Simulation, Site Analysis, Requirements and Performance Metrics Development	Various	AFLCMC/HBG : Robins, AFB, GA	-	-		23.040	Aug 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	-		63.000		9.610		-		9.610	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	MIPR	DIA & HAF/A2 : Patrick/SFB, FL	-	-		1.000	Mar 2022	1.000	Nov 2022	-		1.000	Continuing	Continuing	-
Subtotal			-	-		1.000		1.000		-		1.000	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Various	AFLCMC/HBG : Robins, AFB, GA	-	-		1.100	Mar 2022	0.300	Dec 2022	-		0.300	Continuing	Continuing	-
Subtotal			-	-		1.100		0.300		-		0.300	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0102417F / <i>Over-the-Horizon Backscatterer Radar</i>				<b>Project (Number/Name)</b> 674865 / <i>TACMOR Development</i>				

  

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	
Systems Engineering and Program Office Management	Various	AFLCMC/HBG : Robins, AFB, GA	-	-		2.300	Nov 2021	1.300	Nov 2022	-		1.300	Continuing	Continuing	-	
<b>Subtotal</b>			-	-		2.300		1.300		-		1.300	Continuing	Continuing	N/A	

  

			Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			-	-	67.400	12.210	-	12.210	Continuing	Continuing	N/A

  

**Remarks**

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0102417F / Over-the-Horizon Backscatter Radar

## Project (Number/Name)

674865 / TACMOR Development

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
1	2	3	4	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

Long lead item 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 Implementation

Training Material Development in support of IOT&amp;E

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0102417F / Over-the-Horizon Backscatterer Radar	Project (Number/Name) 674865 / TACMOR Development	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>HLD OTHR</i></b>				
CONUS Site environmental site analysis	4	2022	2	2023
Model Based System Engineering	4	2022	3	2023
Requirements developments and system performance specification validation	3	2022	3	2023
Software Development Environment	3	2022	4	2023
<b><i>TACMOR Development</i></b>				
Full-scale prototype and FAT capability development	2	2022	4	2024
Long lead item antenna fabrication and delivery	2	2022	2	2023
Assembly and integration activities for major components and subsystems	2	2022	4	2024
Test plan and test procedure development and data collection	2	2022	3	2024
FAT test plan execution	4	2022	4	2024
Communication infrastructure development	1	2022	4	2024
System Integration Lab development, software integration and communications testing	1	2023	4	2024
Cybersecurity Risk Management Framework Implementation	1	2023	4	2024
Training Material Development in support of IOT&E	1	2023	2	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0202834F I Vehicles and Support Equipment - General							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	5.889	14.483	0.000	14.483	13.878	11.477	11.459	11.713	Continuing	Continuing
672800: AVIATION SUPPORT EQUIPMENT MODERNIZATION	-	0.000	5.889	14.483	0.000	14.483	13.878	11.477	11.459	11.713	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

FY22 represented the first year of funding for PEC 0202834F

## 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 civilian pay expenses required to manage, execute, and deliver Aviation Support Modernization. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605832F, 0605833F, 0605898F, 0606398F. In 2021 \$0.000M was expended, and in 2022 \$0.000M is forecast for civilian pay expenses.

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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0202834F I Vehicles and Support Equipment - General			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	5.889	0.000	0.000	0.000
Current President's Budget	0.000	5.889	14.483	0.000	14.483
Total Adjustments	0.000	0.000	14.483	0.000	14.483
• 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	14.483	0.000	14.483
Change Summary Explanation					
FY22 represented the first year of funding in 0202834F for 3600 Appropriations. The FY22 President's Budget submittal did not reflect FY23 through FY26 funding. Therefore, an explanation of the change between the two budget positions for FY23 cannot be made in a relevant manner.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Powered AGE Systems Modernization	0.000	1.805	3.664	0.000	3.664
Description: Ensures powered aerospace ground equipment (AGE) remains available and suitable to meet the requirements of 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 2022 Plans:					
Efforts include the 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					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0202834F I Vehicles and Support Equipment - General				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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.						
N/A						
FY 2023 Base 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 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: FY 2022 increase to FY 2023 is due to standard inflation and additional funds to support Agile Combat Employment (ACE) support equipment requirements.						
Title: Munitions Materiel Handling Equipment (MMHE) Modernization		0.000	2.894	7.079	0.000	7.079
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						
FY 2022 Plans: Efforts include the 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/						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0202834F I Vehicles and Support Equipment - General				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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.  <b>FY 2023 Base Plans:</b> 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.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY 2022 increase to FY 2023 is due to standard inflation and additional funds to support Agile Combat Employment (ACE) support equipment requirements.						
<b>Title:</b> Tow Systems Modernization  <b>Description:</b> New Common Tow Systems Modernization across the aircraft fleet. RDT&E efforts support development, testing, and producibility of Tow Bar and Tow Systems.  <b>FY 2022 Plans:</b> 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.  <b>FY 2023 Base Plans:</b>		0.000	1.190	3.740	0.000	3.740

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>			<b>R-1 Program Element (Number/Name)</b> PE 0202834F / <i>Vehicles and Support Equipment - General</i>		

  

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>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&amp;AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY 2022 increase to FY 2023 is due to standard inflation and additional funds to support Agile Combat Employment (ACE) support equipment requirements.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	5.889	14.483	0.000	14.483

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 07 000071: <i>Aircraft Replacement Support Equip</i>	-	-	161.513	-	161.513	-	-	-	-	Continuing	Continuing
<b>Remarks</b>											
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).											
<b>E. Acquisition Strategy</b>											
The acquisition strategy for the Munitions Materiel Handling Equipment (MMHE) Modernization project is expected to be open competition and may award to multiple vendors.											
The acquisition strategy for the Powered Aerospace Ground Equipment (AGE) Modernization project is expected to be open competition and may award to multiple vendors.											
The acquisition strategy for Tow Systems Modernization project is expected to be open competition.											

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0202834F / Vehicles and Support Equipment - General						<b>Project (Number/Name)</b> 672800 / AVIATION SUPPORT EQUIPMENT MODERNIZATION			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
MMHE Contract	C/TBD	Not specified. : TBD	-	-		2.164	Mar 2022	7.019	Mar 2023	-		7.019	Continuing	Continuing	-
Powered AGE Contract	C/TBD	Not specified. : TBD	-	-		1.385	Feb 2022	3.255	Feb 2023	-		3.255	Continuing	Continuing	-
Tow Systems Contract	C/TBD	Not specified. : TBD	-	-		1.080	Feb 2022	2.949	Feb 2023	-		2.949	Continuing	Continuing	-
<b>Subtotal</b>			-	-		4.629		13.223		-		13.223	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Contractor Support	PO	Not specified. : TBD	-	-		1.200	Mar 2022	1.200	Mar 2023	-		1.200	Continuing	Continuing	-
<b>Subtotal</b>			-	-		1.200		1.200		-		1.200	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Office Management/Government Services	TBD	Not specified. : TBD	-	-		0.060	Feb 2022	0.060	Feb 2023	-		0.060	Continuing	Continuing	-
<b>Subtotal</b>			-	-		0.060		0.060		-		0.060	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	-		5.889		14.483		-		14.483	Continuing	Continuing	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0202834F / Vehicles and Support Equip ment - General						Project (Number/Name) 672800 / AVIATION SUPPORT EQUIPMENT MODERNIZATION			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Aviation Support Equipment Mod																												
Powered AGE Development																												
MMHE Development																												
Tow Systems Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0202834F / Vehicles and Support Equip ment - General	Project (Number/Name) 672800 / AVIATION SUPPORT EQUIPMENT MODERNIZATION	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Aviation Support Equipment Mod				
Powered AGE Development	3	2022	3	2025
MMHE Development	3	2022	3	2026
Tow Systems Development	2	2022	2	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0205219F I MQ-9 UAV							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	103.245	79.121	98.499	0.000	98.499	80.940	44.674	45.606	46.621	278.285	776.991
675212: MQ-9 SLAM	0.000	24.628	38.327	61.358	0.000	61.358	80.663	44.417	45.313	46.321	242.071	583.098
675246: MQ-9 Development and Fielding	0.000	4.144	1.680	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.824
675247: Squadron Operations Centers (SOC)	0.000	0.000	0.251	0.268	0.000	0.268	0.277	0.257	0.293	0.300	1.053	2.699
675249: MQ-9 Upgrade	0.000	74.473	38.863	36.873	0.000	36.873	0.000	0.000	0.000	0.000	35.161	185.370
Program MDAP/MAIS Code: 424												
A. Mission Description and Budget Item Justification												
<p>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.</p>												
<p>The MQ-9 Reaper system has four separate development programs. This PE includes:</p> <p>1. MQ-9 System Lifecycle Agile Modernization (SLAM). This effort is to develop improvements for existing systems and to field new capabilities for the baseline MQ-9 fleet using an Agile Acquisition Strategy to include concept exploration for Torrential Apex, a Next-Gen Multi-Role UAS.</p> <p>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.</p> <p>3. Squadron Operations Centers (SOC). This effort is for development and fielding of standardized operations centers. SOC's 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.</p> <p>4. MQ-9 Upgrade. This effort is to develop improvements for existing systems and to field new capabilities for the baseline MQ-9 fleet using an Agile Acquisition Strategy.</p>												
<p>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, Signal Excision, Digital Spread Spectrum Signal, Enhanced Line of Site, Enhanced Auto-Takeoff and Landing, Enhanced Autonomy (including Intelligence Electronic Units). The number of M2DO aircraft, and final capabilities within this configuration, are subject to change as requirements evolve.</p>												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0205219F I MQ-9 UAV				
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.						
This program element may include necessary civilian pay expenses required to manage, execute, and deliver MQ-9 WEAPON SYSTEM capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In PY \$1.336M and in CY \$2.268M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		106.885	85.135	0.000	0.000	0.000
Current President's Budget		103.245	79.121	98.499	0.000	98.499
Total Adjustments		-3.640	-6.014	98.499	0.000	98.499
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	-6.014			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	0.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		-0.001	0.000			
• SBIR/STTR Transfer		-3.639	0.000			
• Other Adjustments		0.000	0.000	98.499	0.000	98.499
Change Summary Explanation						
FY23 Base						
- 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. Change in FY2021 President's Budget reprogramming is due to an unpaid bill, and the SBIR/SBTTR is due to small business taxes.						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675212: MQ-9 SLAM	0.000	24.628	38.327	61.358	0.000	61.358	80.663	44.417	45.313	46.321	242.071	583.098
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 for Torrential Apex.

The objective is to enable rapid fielding of new software, hardware, and sustainability for integration into the MQ-9 fleet with requirements from the Candidate 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, the MQ-9 Program of Record (PoR) and Air Force Special Operations Command (AFSOC) will cost share on joint efforts that are required by both programs to support new capabilities.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> MQ-9 SLAM	21.037	34.441	51.058
<b>Description:</b> 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.			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0205219F / MQ-9 UAV		<b>Project (Number/Name)</b> 675212 / MQ-9 SLAM	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Candidate Capabilities are determined by ACC and AFSOC direction and inputs that include Joint Urgent Operational Need (JUON) and Urgent Operational Need (UON) requests.					
Activities also include, but are not limited to, operator simulators, reliability and maintainability, test support, communications, and urgent services.					
During development, MQ-9 PoR and AFSOC will cost share on joint efforts that are required by both programs to support the new capabilities.					
Includes but is not limited to, program planning for Torrential Apex which explores Multi-Role UAS capabilities in a contested environment.					
<b>FY 2022 Plans:</b> Continue TME developing upgrade capabilities in conjunction with the CCL to include, but not limited to: <ul style="list-style-type: none"> <li>• Weapons usability improvements</li> <li>• Unified Tactical Situational Awareness</li> <li>• Mode 5</li> <li>• Ku or Global Positioning System (GPS) jamming</li> <li>• Data encryption, Identification Friend or Foe (IFF)</li> </ul>					
<b>FY 2023 Plans:</b> 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.					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased to support M2DO configuration and continuation of modernization efforts.					
<b>Title:</b> Reliability and Maintainability			0.100	0.100	0.100
<b>Description:</b> 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.					
Funding was approved for this R&M effort in the FY20 appropriation.					
<b>FY 2022 Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205219F / MQ-9 UAV	<b>Project (Number/Name)</b> 675212 / MQ-9 SLAM	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
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.  <b>FY 2023 Plans:</b> 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.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Continue reliability and maintainability efforts.			
<b>Title:</b> Test Support  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> 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.  <b>FY 2023 Plans:</b> 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.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased with ramp down for MQ-9 SLAM test support		0.100	0.200
<b>Title:</b> Communications  <b>Description:</b> 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).  <b>FY 2022 Plans:</b> 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.  <b>FY 2023 Plans:</b>		0.100	0.100

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205219F / MQ-9 UAV	<b>Project (Number/Name)</b> 675212 / MQ-9 SLAM	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
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.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Continue development of communications capabilities.			
<b>Title:</b> Concept Exploration for Torrential Apex, a Next-Generation Multi-Role UAS.  <b>Description:</b> Includes but is not limited to, program planning for Torrential Apex which explores Multi-Role UAS capabilities in a contested environment.  <b>FY 2022 Plans:</b> Explores concepts for a potential next-generation Multi-Role UAS. 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. This effort does not establish a new UAS Program of Record.  <b>FY 2023 Plans:</b> Explores concepts for a potential next-generation Multi-Role UAS. 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. This effort does not establish a new UAS Program of Record.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Development activities increased for studies, analysis, and prototyping Multi-Role UAS operations in a contested environment.	3.291	3.486	10.000
<b>Accomplishments/Planned Programs Subtotals</b>	24.628	38.327	61.358

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 06 PRDTB1: MQ-9	47.396	28.182	14.778	-	14.778	0.000	0.000	0.000	0.000	0.000	90.356
• APAF 05 PRDTB2: MQ-9 Mods	155.011	144.287	64.370	-	64.370	64.778	12.240	12.077	28.961	0.000	481.724

**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 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM
<p>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.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV				Project (Number/Name) 675212 / MQ-9 SLAM					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MQ-9 SLAM	SS/CPAF	GA-ASI : Poway, CA	0.000	20.133	Nov 2020	26.807	Nov 2021	45.598	Nov 2022	-		45.598	196.236	288.774	-
Reliability and Maintainability	SS/CPAF	GA-ASI : Poway, CA	0.000	0.100	Nov 2020	0.100	Nov 2021	0.100	Nov 2022	-		0.100	2.722	3.022	-
Communications	SS/CPAF	GA-ASI : Poway, CA	0.000	0.100	Jan 2021	0.100	Jan 2022	0.100	Jan 2023	-		0.100	0.934	1.234	-
Concept Exploration for Torrential Apex, a Next Generation Multi-Role UAS	Various	Various : Various	0.000	3.291	Jul 2021	3.486	Mar 2022	10.000	Mar 2023	-		10.000	0.000	16.777	-
Subtotal			0.000	23.624		30.493		55.798		-		55.798	199.892	309.807	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test Support	Various	Various : Various	0.000	0.100	Jun 2021	0.200	Jun 2022	0.100	Jun 2023	-		0.100	1.655	2.055	-
Subtotal			0.000	0.100		0.200		0.100		-		0.100	1.655	2.055	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Other Government Costs	Various	Various : Various	0.000	0.904	Apr 2021	7.634	Apr 2022	5.460	Apr 2023	-		5.460	40.524	54.522	-
Subtotal			0.000	0.904		7.634		5.460		-		5.460	40.524	54.522	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	24.628		38.327		61.358		-		61.358	242.071	366.384	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)			Project (Number/Name)				
3600 / 7					PE 0205219F / MQ-9 UAV			675212 / MQ-9 SLAM				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 for Torrential Apex, a Next Generation Multi-Role UAS																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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	4	2021	4	2027
Reliability and Maintainability	4	2022	4	2027
Communications	4	2021	4	2027
Test Support	4	2022	4	2027
Concept Exploration for Torrential Apex, a Next Generation Multi-Role UAS	3	2021	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV				Project (Number/Name) 675246 / MQ-9 Development and Fielding			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675246: MQ-9 Development and Fielding	0.000	4.144	1.680	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.824
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

Quantity of RDT&E Articles refers only to test aircraft.

In FY2023 Project "MQ-9 Development and Fielding" was completed.

## 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 aircraft is a single-engine, turbo-prop Remotely Piloted Aircraft (RPA) designed to operate over-the-horizon at medium-to-high altitude for long endurance sorties. The aircraft is designed to primarily prosecute critical emerging Time-Sensitive-Targets (TSTs) using a Synthetic Aperture Radar (SAR), Electro-optical/Infrared (EO/IR), and laser designator-based attack asset with on-board hard-kill weapon capability (hunter-killer). It also performs Intelligence, Surveillance, Reconnaissance, and Target Acquisition (ISR TA).

The MQ-9 system is continuing to develop and field capabilities to meet evolving mission needs through incremental upgrades, including but not limited to, increasing the maximum gross takeoff and landing weight; increasing operational range and endurance; propulsion system improvements; integrated redundant avionics; incorporating provisions for a Foreign Military Sales (FMS) exportable version of the weapon system; communications upgrades to include but not limited to datalink encryption, Internet Protocol (IP) networking, secure voice and data communications; navigation system upgrades; electrical system upgrades; sensor/stores management computer improvement; MIL STD-1760 advanced weapons data bus; advanced sensor and weapon payloads; improved human-machine interface (HMI); software updates needed to support new configurations and development; integrating additional precision weapons; and hardware and software upgrades to the GCS. The program will also complete airworthiness and weapon system certification and accreditation; produce applicable training for payloads funded in other program elements (e.g. SIGINT, communications, Wide Area Motion Imagery (WAMI), Near Vertical Direction Finding (NVDF), Gorgon Stare Quick Reaction Capability, advanced Counter-Improvised Explosive Device (C-IED), missile defense, hyperspectral, and other sensors and weapons). Development efforts will address reliability, maintainability, sustainability, Diminishing Manufacturing Sources (DMS), and safety issues. Activities also include, but are not limited to, trade studies, analyses, preliminary systems engineering, system and subsystem level testing in accordance with DoD and military standards, and specification development in support of both current program planning and execution, and studies supporting analysis and investment in future MQ-9 program planning.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675246 / MQ-9 Development and Fielding		
<p>The GCS functions as the aircraft cockpit and can control the aircraft either within Line-of-Sight (LOS) or Beyond Line-of-Sight (BLOS) via a combination of satellite relay and terrestrial communication architectures. The GCS is either mobile to support forward operating locations or fixed at a facility to support reach back Remote Split Operations (RSO). The GCS has the capability to perform mission planning; provide a means for manual control; and enable personnel to launch, recover, and monitor aircraft, payloads, and system communications status. It incorporates secure data links to send aircraft and payload commands and receive system telemetry and payload data; monitors threats to the aircraft; displays the common operational picture; and provides support functions. Launch and Recovery GCS (LRGCS) is used for servicing, systems checks, maintenance, launch and recovery of aircraft under LOS control for hand-off to a mobile or fixed facility GCS, and conducting operations within LOS range of the LRGCS. GCS upgrades will be developed and fielded in coordination with improvements to other MQ-9 system capabilities and in response to evolving operational and information assurance/certification and accreditation requirements.</p> <p>This project will also increase interoperability among developed systems by developing common standards and tools.</p> <p>MQ-9 Program of Record (PoR) and Air Force Special Operations Command (AFSOC) will cost share during development, where appropriate, on joint efforts that are required by both programs to support the new capabilities.</p> <p>Funding may be used to address DMS and Non-Recurring Engineering (NRE) issues.</p> <p>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.</p> <p>This program is 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>				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<p><b>Title:</b> Ground Control Station (GCS) Development</p> <p><b>Description:</b> Develop GCS capabilities. Major capabilities include, but are not limited to, flight payload separation, open system architecture, processors, multi-level security, ergonomic cockpit design, single seat operations, reducing or eliminating known deficiencies in legacy GCS, and updates to facilitate single software.</p> <p><b>FY 2022 Plans:</b> Will continue GCS design/development, manufacturing and testing to include, but not limited to:</p> <ul style="list-style-type: none"><li>• Hardware/Software Development</li><li>• Integration and test</li><li>• Continue GCS Development Test assets</li><li>• Continue Contractor test build</li><li>• Maintenance evaluation team event</li><li>• Military Flight Release</li></ul>		0.042	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205219F / MQ-9 UAV	<b>Project (Number/Name)</b> 675246 / MQ-9 Development and Fielding	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>• Resolution of DMS issues</li> <li>• Field Service Representative (FSR) support during IOT&amp;E</li> <li>• Block 30 Articulating Arm</li> <li>• Block 30 Monitor</li> <li>• Processor(s)</li> </ul> <p><b>FY 2023 Plans:</b> GCS Development is complete.</p>			
<p><b>Title:</b> Release 1 and Release 2</p> <p><b>Description:</b> Release 1 and Release 2 continue execution of a subset of work previously performed under the System Development and Demonstration (SDD) effort, while rapidly integrating upgrades or improvements (including limited urgent needs) fleet-wide. Development will combine the rigor of an event driven development process (referred to as a Technology Maturation Effort (TME)) with the expeditious delivery of a schedule driven integration and fielding process (referred to as a Release).</p> <p>These efforts may include, but are not limited to: Cryptographic Core Module (CCM), MTS-B Integration, Ground Control Station (GCS), Internet Protocol (IP) Migration, Synthetic Aperture Radar (SAR) Development, Extended Range, Station 1 &amp; 7, Enablers Development, Multi Transit Ops, weapons integration, and testing on MQ-9 platform for capabilities such as rockets, missiles, bombs, guns and direct energy weapons, as well as software development required to support new capabilities. MQ-9 PoR and AFSOC will cost share during development, where appropriate, on joint efforts that are required by both programs to support the new capabilities.</p> <p><b>FY 2022 Plans:</b> Continue developing and integrating the software and data to update the MQ-9 Block 5 UAS capabilities including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Resolution of DMS issues</li> <li>• Cryptographic Core Module (CCM)</li> <li>• Expeditionary Line of Sight (E-LoS) System</li> <li>• System supportability analysis</li> <li>• Evaluation of design code software</li> </ul> <p><b>FY 2023 Plans:</b> Release 1 and Release 2 Development is complete.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>		4.102	1.680
			0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675246 / MQ-9 Development and Fielding	

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
Release 1 and Release 2 Development is complete.			
Accomplishments/Planned Programs Subtotals	4.144	1.680	0.000

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

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 04 Line Item PRDTB1: MQ-9	338.120	3.288	17.041	-	17.041	-	-	-	-	0.000	358.449
• APAF 06 Line Item PRDTB1: MQ-9 Spares	47.396	28.182	14.778	-	14.778	-	-	-	-	0.000	90.356
• APAF 05 Line Item PRDTB2: MQ-9 Mods	155.011	144.287	64.370	-	64.370	64.778	12.240	12.077	28.961	0.000	481.724
• APAF 07 Line Item PRDTB1: MQ-9	26.585	26.596	7.074	-	7.074	0.000	0.000	0.000	-	0.000	60.255

## Remarks

## D. Acquisition Strategy

The MQ-9 Reaper system will be acquired via sole-source contracts with General Atomics Aeronautical Systems Inc. (GA-ASI), L3Comm, and Raytheon as the prime contractors. GA-ASI is the prime contractor for aircraft and ground control stations. GA-Mission Systems (GA-MS) is the prime contractor for Lynx SAR. L3Comm is the prime contractor for the Predator Satellite Link. Raytheon is the prime contractor for the MTS-B EO/IR sensor system. Management of development and fielding of new capabilities will be through an acquisition strategy that combines the rigor of an event driven development process (referred to as a Technology Maturation Effort (TME)) with the expeditious 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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205219F / MQ-9 UAV	<b>Project (Number/Name)</b> 675246 / MQ-9 Development and Fielding
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Ground Control Station (GCS) Development	SS/CPFF	GA-ASI : Poway, CA	0.000	0.042	Mar 2021	-		-		-		-	0.000	0.042	-
Release1 and Release 2	SS/CPFF	GA-ASI : Poway, CA	0.000	1.945	Mar 2021	1.680	Jun 2022	-		-		-	0.000	3.625	-
<b>Subtotal</b>			0.000	1.987		1.680		-		-		-	0.000	3.667	N/A

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Other Government Costs	Various	Various : Various	0.000	2.157	Apr 2021	0.000	Apr 2022	-		-		-	0.000	2.157	119.924
<b>Subtotal</b>			0.000	2.157		0.000		-		-		-	0.000	2.157	N/A

			Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			0.000	4.144	1.680	-	-	-	0.000	5.824	N/A

**Remarks**

PMA costs are included in Other Government Costs.

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0205219F / MQ-9 UAV

Project (Number/Name)

675246 / MQ-9 Development and Fielding

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>MQ-9 ACAT IC Development</b>																												
Ground Control Station (GCS) Development																												
MTS-B Updates (Electro-Optical/Infrared (EO/IR) Sensor)																												
Operator Simulator																												
Release 1 & Release 2																												
Test Support																												
Communications																												
MQ-9 Technology Insertion																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675246 / MQ-9 Development and Fielding	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>MQ-9 ACAT IC Development</b>				
Ground Control Station (GCS) Development	1	2021	4	2021
MTS-B Updates (Electro-Optical/Infrared (EO/IR) Sensor)	1	2021	1	2021
Operator Simulator	1	2021	4	2021
Release 1 & Release 2	1	2021	4	2022
Test Support	1	2021	4	2021
Communications	1	2021	4	2021
MQ-9 Technology Insertion	1	2021	4	2021

### Note

PMA costs are included in Other Government Costs.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675247: Squadron Operations Centers (SOC)	0.000	0.000	0.251	0.268	0.000	0.268	0.277	0.257	0.293	0.300	1.053	2.699
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 2021	FY 2022	FY 2023
<b>Title:</b> Squadron Operations Center	0.000	0.251	0.268
<b>Description:</b> 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.			
<b>FY 2022 Plans:</b> Necessary for Developmental/Operational Testing of DT/OT SOC which is required to develop and test new technologies to remain up to date with technological and platform advancements.			
<b>FY 2023 Plans:</b> Necessary for Developmental/Operational Testing of DT/OT SOC which is required to develop and test new technologies to remain up to date with technological and platform advancements.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205219F / MQ-9 UAV	<b>Project (Number/Name)</b> 675247 / Squadron Operations Centers (SOC)	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Funding is stable for sustainment requirements for the DT/OT SOC.			
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	0.251	0.268

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 837300: <i>Base Communications Infrastructure</i>	82.160	70.370	6.401	-	6.401	0.000	0.000	0.000	-	0.000	158.931

**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.

**D. Acquisition Strategy**

AFLCMC/WII manages the SOC Program for ACC, AFSOC, and ANG through organic development at the 577 SWES, and hardware/software procurement utilizing the installation contractor.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV				Project (Number/Name) 675247 / Squadron Operations Centers (SOC)					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
RPA SOC Support	TBD	NTEK : TBD	0.000	-		0.251	Mar 2022	0.268	Mar 2023	-		0.268	1.053	1.572	-
Subtotal			0.000	-		0.251		0.268		-		0.268	1.053	1.572	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	-		0.251		0.268		-		0.268	1.053	1.572	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
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 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 2023 Air Force		Date: April 2022
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
DT/OT SOC Development , Testing, Installation and Maintenance				
DT/OT SOC	2	2022	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675249: MQ-9 Upgrade	0.000	74.473	38.863	36.873	0.000	36.873	0.000	0.000	0.000	0.000	35.161	185.370
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 01 November 2019, capabilities may include, but are not limited to, efforts to reduce system configurations; enable battlespace integration; implement open architecture; enable 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; build open architecture; improve cybersecurity resilience; improve reliability and maintainability; increase lethality; improve the human machine interface to enhance the user experience; and improve readiness.

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.

MQ-9 Program of Record (PoR) and Air Force Special Operations Command (AFSOC) will cost share on joint efforts that are required by both programs to support the new capabilities.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> MQ-9 Upgrade	68.944	35.966	36.673
<b>Description:</b> 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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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205219F / MQ-9 UAV	<b>Project (Number/Name)</b> 675249 / MQ-9 Upgrade	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<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>MQ-9 PoR and AFSOC will cost share development, where appropriate, on joint efforts that are required by both programs to support the new capabilities.</p> <p><b>FY 2022 Plans:</b> Continue TME developing upgrade capabilities in conjunction with the CCL to include, but not limited to:</p> <ul style="list-style-type: none"> <li>• Unified Tactical Situational Awareness</li> <li>• Design, development, and integration of Moving Target Indicator (MTI) capability on medium altitude air vehicles</li> <li>• Automated Takeoff and Landing Capability (ATLC)</li> <li>• Weapons usability improvements (i.e., auto-lockout, JAGM, and four rail)</li> <li>• Reconnaissance, targeting, and technology improvements in MTS-B, Synthetic Aperture Radar, sensors, sensor upgrades, and GPS</li> <li>• System corrections, technology upgrades within the GCS, Unmanned Aerial Vehicle communications, and ground support (i.e., batteries, engine, BE-CDL, and Beyond Line of Sight (BLOS))</li> <li>• Expansion of theater capabilities with Mode 5</li> <li>• MTS-B High-Definition Short Wave Infrared/Pulse Repetition Frequency, two-color laser system, inertial measurement unit/autoloader</li> <li>• Secure communications</li> <li>• Improvements to system security and the ability to self-protect through Ku or GPS jamming, data encryption, and IFF</li> <li>• Link-16 (Airborne Mission Networking) capability</li> <li>• Gorgon Stare</li> </ul> <p><b>FY 2023 Plans:</b> 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"> <li>• Secure communications</li> </ul>			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV		Project (Number/Name) 675249 / MQ-9 Upgrade	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>Improvements to system security and the ability to self-protect through Ku or GPS jamming, data encryption, and IFF</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased for inflation</p>					
<p><b>Title:</b> Operator Simulator</p> <p><b>Description:</b> 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><b>FY 2022 Plans:</b> Continue implementing updates to keep the operator simulator current with the aircraft and GCSs.</p> <p><b>FY 2023 Plans:</b> Continue implementing updates to keep the operator simulator current with the aircraft and GCSs.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased as operator simulator development efforts ramp down.</p>			2.140	1.100	0.100
<p><b>Title:</b> Test Support</p> <p><b>Description:</b> 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&amp;M upgrades.</p> <p><b>FY 2022 Plans:</b> Continue providing government agencies support for MQ-9 testing to include continued acceptance testing of weapon system hardware and software IAW with contract standards, developmental testing of new capabilities, and R&amp;M improvements.</p> <p><b>FY 2023 Plans:</b> Continue implementing updates to keep the operator simulator current with the aircraft and GCSs.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased as test support efforts ramp down.</p>			2.225	1.697	0.100
<p><b>Title:</b> Communications</p> <p><b>Description:</b> 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).</p>			1.164	0.100	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0205219F / MQ-9 UAV				<b>Project (Number/Name)</b> 675249 / MQ-9 Upgrade				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>										<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>FY 2022 Plans:</b> MQ-9 Upgrade communications capabilities development will continue.												
<b>FY 2023 Plans:</b> MQ-9 Upgrade communications capabilities development is complete.												
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> MQ-9 Upgrade communications capabilities development is complete.												
<b>Accomplishments/Planned Programs Subtotals</b>										74.473	38.863	36.873
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
			<u><b>FY 2023</b></u>	<u><b>FY 2023</b></u>	<u><b>FY 2023</b></u>						<u><b>Cost To</b></u>	
<u><b>Line Item</b></u>	<u><b>FY 2021</b></u>	<u><b>FY 2022</b></u>	<u><b>Base</b></u>	<u><b>OCO</b></u>	<u><b>Total</b></u>	<u><b>FY 2024</b></u>	<u><b>FY 2025</b></u>	<u><b>FY 2026</b></u>	<u><b>FY 2027</b></u>	<u><b>Complete</b></u>	<u><b>Total Cost</b></u>	
• APAF 06 PRDTB1: MQ-9 UAV	47.396	28.182	14.778	-	14.778	-	-	-	-	0.000	90.356	
• APAF 05 PRDTB2: MQ-9 Mods	155.011	144.287	64.370	-	64.370	64.778	12.240	12.077	28.961	0.000	481.724	
<b>Remarks</b>												
PMA costs are included in Other Government Costs.												
<b>D. Acquisition Strategy</b>												
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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV				Project (Number/Name) 675249 / MQ-9 Upgrade					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
MQ-9 Upgrade	SS/CPFF	GA-ASI : Poway, CA	0.000	66.970	Jan 2021	35.966	Jan 2022	36.673	Jan 2023	-		36.673	35.161	174.770	-
Operator Simulator	MIPR	Various : Huntsville, AL	0.000	2.140	Apr 2021	1.100	Jan 2022	0.100	Jan 2023	-		0.100	0.000	3.340	-
Communications	SS/CPFF	GA-ASI : Poway, CA	0.000	1.164		0.100		0.000		-		0.000	0.000	1.264	-
Subtotal			0.000	70.274		37.166		36.773		-		36.773	35.161	179.374	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test Support	Various	Various : Various	0.000	2.225	Nov 2020	1.697	Nov 2021	0.100	Nov 2022	-		0.100	0.000	4.022	-
Subtotal			0.000	2.225		1.697		0.100		-		0.100	0.000	4.022	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Other Government Costs	Various	Various : Various	0.000	1.974	May 2021	-		-		-		-	0.000	1.974	-
Subtotal			0.000	1.974		-		-		-		-	0.000	1.974	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	74.473		38.863		36.873		-		36.873	35.161	185.370	N/A
Remarks PMA costs are included in Other Government Costs.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV						Project (Number/Name) 675249 / MQ-9 Upgrade			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 2023 Air Force		Date: April 2022
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	2021	4	2023
Operator Simulator	1	2021	4	2023
Test Support	1	2021	4	2023
Communications	1	2021	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 0205671F I Joint Counter RCIED Electronic Warfare							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	4.080	3.111	1.747	0.000	1.747	3.286	3.346	3.418	3.494	0.000	22.482
674518: JCREW VEHICLE INTEGRATION	-	4.080	3.111	1.747	0.000	1.747	3.286	3.346	3.418	3.494	0.000	22.482
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, Explosive Ordinance Disposal dismounted and Entry Control Point operations. Includes integration of the devices into currently fielded systems.

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 0605831F. In FY21, \$0 was expended for civilian pay expenses in this program element, and in FY22, \$0 is forecasted for civilian pay expenses in this program element.

The FY 2022 funding request was reduced by \$0.632 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><u>B. Program Change Summary (\$ in Millions)</u></b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023 Base</u></b>	<b><u>FY 2023 OCO</u></b>	<b><u>FY 2023 Total</u></b>
Previous President's Budget	4.080	3.111	0.000	0.000	0.000
Current President's Budget	4.080	3.111	1.747	0.000	1.747
Total Adjustments	0.000	0.000	1.747	0.000	1.747
• 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	1.747	0.000	1.747

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022							
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									
Change Summary Explanation The funding was changed from Base to OCO funds											
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total					
Title: JCREW Vehicle Integration		4.080	3.111	1.747	0.000	1.747					
Description: Program funds Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) Mounted, Dismounted, and Fixed systems.											
FY 2022 Plans: Program funds Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) Mounted, Dismounted, and Fixed systems.											
SAF/FM directed shift of tech insert dollars from OCO to baseline ISO worldwide capability provider											
FY 2023 Base Plans: Program funds Counter Radio-Controlled Improvised Explosive Device Electronic Warfare (CREW) Mounted, Dismounted, and Fixed systems.											
FY 2023 OCO Plans: No associated OCO funds for this requirement programmed in PE.											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to a 0.632M reduction to the FY 2022 funding request to account for the availability of prior year execution balances.											
Accomplishments/Planned Programs Subtotals		4.080	3.111	1.747	0.000	1.747					
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 04 Line Item 845100: Engineering and EOD Equipment	-	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 dismounted and Entry Control Point operations. Includes software update integration into currently fielded systems.											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
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	
E. Acquisition Strategy n/a		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0205671F / Joint Counter RCIED Electronic Warfare						<b>Project (Number/Name)</b> 674518 / JCREW VEHICLE INTEGRATION			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Engineering Services	C/CPFF	NAVSEA PMS-408 : Washington, DC	-	4.080	Nov 2020	3.111	Nov 2021	1.747	Nov 2022	0.000		1.747	Continuing	Continuing	-
<b>Subtotal</b>			-	4.080		3.111		1.747		0.000		1.747	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	4.080		3.111		1.747		0.000		1.747	Continuing	Continuing	N/A
<b>Remarks</b> 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 2023 Air Force			Date: April 2022		
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		

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
J CREW Integration																												
JCREW Vehicle Integration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
J CREW Integration				
JCREW Vehicle Integration	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207040F I Multi-Platform Electronic Warfare Equipment							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	36.607	23.195	0.000	23.195	21.986	0.000	0.000	0.000	0.000	81.788
670400: SPECTRUM WARFARE ATTACK CAPABILITY	-	0.000	36.607	23.195	0.000	23.195	21.986	0.000	0.000	0.000	0.000	81.788
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 pods have diminishing manufacturing sources and require advanced capabilities. The AKCS program will develop a prototype electronic warfare system for 4th/5th generation aircraft that improves threat detection techniques, incorporates open system architecture, and advances reprogramming capabilities. Funds are required to leverage existing combat pod components and develop a relevant electronic warfare system supporting fighter and attack platforms.

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 \$0.0M was expended for civilian pay expenses in this program element, and in FY22 \$0.0M is forecasted for civilian pay expenses in this program element.

The total cost of the AKCS Middle Tier of Acquisition effort is \$89.2 million, including RDT&E and procurement of prototype units. The AKCS program is fully funded across the Future Years Defense Program.

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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207040F I Multi-Platform Electronic Warfare Equipment				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	0.000	36.607	0.000	0.000	0.000	
Current President's Budget	0.000	36.607	23.195	0.000	23.195	
Total Adjustments	0.000	0.000	23.195	0.000	23.195	
• 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	23.195	0.000	23.195	
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 FY 2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Spectrum Warfare Attack Capability				0.000	36.607	23.195
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 2022 Plans: Initiate Angry Kitten Combat System (AKCS) prototype development efforts that leverage existing aircraft pod hardware/software capabilities and develops a robust, advanced electronic warfare system for select aircraft platforms.						
FY 2023 Plans: Continue advancing the initial AKCS electronic warfare prototype system through design reviews/updates, lab testing, aircraft integration, and flight testing.						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to the program completing initial development efforts.						
Accomplishments/Planned Programs Subtotals				0.000	36.607	23.195

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0207040F <i>I Multi-Platform Electronic Warfare Equipment</i>						
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
			<u>FY 2023</u>	<u>FY 2023</u>	<u>FY 2023</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Complete</u>	<u>Total Cost</u>
• APAF 07 000075: <i>Other Production Charges</i>	-	7.421	-	-	-	-	-	-	-	0.000	7.421
<b>Remarks</b>											
<b>E. Acquisition Strategy</b>											
<p>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 an advanced prototype electronic warfare system 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.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207040F / Multi-Platform Electronic Warfare Equipment				Project (Number/Name) 670400 / SPECTRUM WARFARE ATTACK CAPABILITY					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
OA Software	SS/CPFF	GTRI : Atlanta, GA	-	-		5.000	Apr 2022	2.000	Dec 2022	-		2.000	Continuing	Continuing	-
AI/ML Cognitive EA	SS/CPFF	AFRL/DTIC : Dayton, OH	-	-		15.950	Apr 2022	4.945	Dec 2022	-		4.945	Continuing	Continuing	-
EW Testbed	SS/CPFF	AFRL : Dayton, OH	-	-		10.000	Apr 2022	10.000	Dec 2022	-		10.000	Continuing	Continuing	-
Subtotal			-	-		30.950		16.945		-		16.945	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AC&SI Support	SS/CPFF	HII : Dayton, OH	-	-		2.800	Jun 2022	2.300	Jun 2023	-		2.300	Continuing	Continuing	-
Subtotal			-	-		2.800		2.300		-		2.300	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
System Testing	SS/CPFF	GTRI : Atlanta, GA	-	-		1.510	Apr 2022	2.000	Dec 2022	-		2.000	Continuing	Continuing	-
Subtotal			-	-		1.510		2.000		-		2.000	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS Support/Travel	SS/CPFF	PE Systems : Fairfax, VA	-	-		1.347	Apr 2022	1.950	Feb 2023	-		1.950	Continuing	Continuing	-
Subtotal			-	-		1.347		1.950		-		1.950	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force										Date: April 2022					
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207040F / Multi-Platform Electronic Warfare Equipment				Project (Number/Name) 670400 / SPECTRUM WARFARE ATTACK CAPABILITY						
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		36.607		23.195		-		23.195	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force																<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7								<b>R-1 Program Element (Number/Name)</b> PE 0207040F / <i>Multi-Platform Electronic Warfare Equipment</i>								<b>Project (Number/Name)</b> 670400 / <i>SPECTRUM WARFARE ATTACK CAPABILITY</i>			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>AKCS Increment 1</b>																												
Development																												
Test/Experiments																												
<b>AKCS Increment 2</b>																												
Development																												
Test/Experiments																												
<b>AKCS Increment 3</b>																												
Development																												
Test/Experiments																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207040F / Multi-Platform Electronic Warfare Equipment	Project (Number/Name) 670400 / SPECTRUM WARFARE ATTACK CAPABILITY	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>AKCS Increment 1</b>				
Development	1	2021	4	2021
Test/Experiments	4	2021	2	2022
<b>AKCS Increment 2</b>				
Development	4	2021	1	2023
Test/Experiments	1	2023	1	2024
<b>AKCS Increment 3</b>				
Development	4	2022	1	2025
Test/Experiments	1	2025	3	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207131F I A-10 Squadrons							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	24.274	34.224	72.393	0.000	72.393	70.027	16.551	0.000	0.000	0.000	217.469
674809: A-10 Squadrons	-	24.274	34.224	72.393	0.000	72.393	70.027	16.551	0.000	0.000	0.000	217.469
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.

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 and 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 well into the 2030s.

The RDT&E funds provide A-10 Developmental and Operational Testing ensuring all added capability meets safety and airworthiness criteria. Full Mission Trainers (FMT's) Data Management Switch (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. RDT&E funds also provide for the implementation of requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

Program upgrades 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 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 0605831F. In FY2021 \$0.000M was expended for civilian pay expenses in this program element, and in FY2022 \$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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0207131F I A-10 Squadrons			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	24.490	39.224	0.000	0.000	0.000
Current President's Budget	24.274	34.224	72.393	0.000	72.393
Total Adjustments	-0.216	-5.000	72.393	0.000	72.393
• 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	0.000	0.000			
• SBIR/STTR Transfer	-0.216	0.000			
• Other Adjustments	0.000	0.000	72.393	0.000	72.393
Change Summary Explanation					
FY22 Congressional reduction of -\$5M for OFP delays.					
The FY2022 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.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: SDB-I	0.000	0.000	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 January 2023.					
FY 2022 Plans: N/A					
FY 2023 Base Plans:					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207131F I A-10 Squadrons				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A						
FY 2023 OCO Plans:						
N/A						
FY 2022 to FY 2023 Increase/Decrease Statement:						
N/A						
<p><b>Title:</b> Operational Flight Program (OFP) Development</p> <p><b>Description:</b> M-Series and Software Capability Upgrade (SCU) programs 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>Permit timely integration of new precision weapons, advanced 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&amp;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><b>FY 2022 Plans:</b> Includes but is not limited to the continuation of Suite 11 development while moving to an Agile Acquisition position to deliver EPICS (major software development or group of several small software developments) in shorter span to meet mission requirements.</p> <p><b>FY 2023 Base Plans:</b></p>		20.274	13.284	22.500	0.000	22.500

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Includes but is not limited to the continuation of agile OFP Software development and integration for fielding. Delivering Epics (major software development or group of several small software developments) in shorter span to meet mission requirements.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increase will continue the development and testing of OFP software.						
<b>Title:</b> ARC-210 Gen 6  <b>Description:</b> The ARC-210 Gen 6 and MUOS Capable HPA/LNA 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 Mobile User Objective System (MUOS) capability. The SATURN algorithm is also required for continued A-10 Combat Search and Rescue (CSAR) as well as Close Air Support with theater forces. The older Generation 4 radio does not currently have any of these capabilities.  <b>FY 2022 Plans:</b> 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. 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.  <b>FY 2023 Base Plans:</b> 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 for Increment 3. 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. The printing of updated technical order will also be accomplished.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>		4.000	1.755	0.785	0.000	0.785

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207131F I A-10 Squadrons				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funding decreased due to transition of ARC-210 to procurement.						
<p><b>Title:</b> Central Interface Control System (CICS)</p> <p><b>Description:</b> 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&amp;E effort encompasses software and hardware development, Software Integration Laboratory (SIL) test stand, support equipment and software, cyber security testing.</p> <p>The Operational Flight Program will need to be rewritten in a modular, containerized format so that it is easily modified, repaired and upgraded.</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> <p>Testing will be a major component of the RDT&amp;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&amp;E funds will be used to design a sustainable, repairable and supportable system for the A-10 out to 2040. RDT&amp;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><b>FY 2022 Plans:</b> Includes but is not limited to the development of CICS unit to support additional MODs mandated for the A-10.</p> <p><b>FY 2023 Base Plans:</b></p>		0.000	19.185	49.108	0.000	49.108

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022							
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>			<b>R-1 Program Element (Number/Name)</b> PE 0207131F / A-10 Squadrons								
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>											
			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>				
Includes but is not limited to the development of 10 prototypes and software development											
<b>FY 2023 OCO Plans:</b> N/A											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased to support development of prototypes.											
<b>Accomplishments/Planned Programs Subtotals</b>			24.274	34.224	72.393	0.000	72.393				
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 Line Item A01000: A-10 Squadrons, PE 0207131F	135.793	85.249	83.972	-	83.972	85.148	80.456	52.058	-	0.000	522.676
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> 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. A-10 CICS software development in conjunction with the 309th SWEG. Phase 1 delivery of 10 prototypes and integration; phase II low rate initial production; and phase 3 will be a competitive contract for full rate production.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons				Project (Number/Name) 674809 / A-10 Squadrons					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
OFP Development 1st Qtr FY21 (309 SMXG)	PO	309 SMXG : Hill AFB, UT	-	6.200	Nov 2020	-		-		-		-	0.000	6.200	-
OFP Development 2nd Qtr FY21 (309 SMXG)	PO	309 SMXG : Hill AFB, UT	-	1.536	Jan 2021	-		-		-		-	0.000	1.536	-
OFP Development 3rd Qtr FY21 (309 SMXG)	PO	309 SMXG : Hill AFB, UT	-	1.536	Apr 2021	-		-		-		-	0.000	1.536	-
OFP Development 4th Qtr FY21 (309 SMXG)	PO	309 SMXG : Hill AFB, UT	-	1.536	Jun 2021	-		-		-		-	0.000	1.536	-
OFP Development 1st Qtr Fy22 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	0.000		6.022	Oct 2021	-		-		-	0.000	6.022	-
OFP Development 2nd Qtr FY22 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	0.000		1.142	Jan 2022	-		-		-	0.000	1.142	-
OFP Development 3rd Qtr FY22 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	0.000		1.142	Apr 2022	-		-		-	0.000	1.142	-
OFP Development 4th Qtr FY22 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	0.000		1.142	Jun 2022	-		-		-	0.000	1.142	-
OFP Development 1st Qtr FY23 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		-		6.900	Oct 2022	-		6.900	0.000	6.900	-
OFP Development 2nd Qtr FY23 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		-		1.536	Jan 2023	-		1.536	0.000	1.536	-
OFP Development 3rd Qtr FY23 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		-		1.534	Apr 2023	-		1.534	0.000	1.534	-
OFP Development 4th Qtr FY23 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		-		1.530	Jul 2023	-		1.530	0.000	1.530	-
OFP Development 1st Qtr FY24 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		-		-		-		-	0.000	0.000	-
OFP Development 2nd Qtr FY24 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		-		-		-		-	0.000	0.000	-
OFP Development 3rd Qtr FY24 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		-		-		-		-	0.000	0.000	-
OFP Development 4th Qtr FY24 (309 SWEG)	PO	309 SWEG : Hill AFB, UT	-	-		-		-		-		-	0.000	0.000	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons				Project (Number/Name) 674809 / A-10 Squadrons					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
CICS Development Contract	C/FFP	TBD : TBD	-	-		17.785	Mar 2022	31.443	Oct 2022	-		31.443	0.000	49.228	-
CICS Prototype Development contract	C/FFP	TBD : TBD	-	-		-		16.265	Jan 2023	-		16.265	Continuing	Continuing	-
Subtotal			-	10.808		27.233		59.208		-		59.208	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Support/Direct Cite Authority	C/CPAF	Not specified. : TBD	-	0.000		1.400	Oct 2021	1.400	Oct 2022	-		1.400	0.000	2.800	-
USAF (Multiple)	Various	Various : Various	-	5.690		1.000	Jul 2022	1.037		-		1.037	0.000	7.727	-
Subtotal			-	5.690		2.400		2.437		-		2.437	0.000	10.527	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	C/CPAF	Not specified. : TBD	-	0.000		-		-		-		-	0.000	0.000	-
USAF (OFP)	Various	Various : Various	-	3.300	Oct 2020	0.891	Oct 2021	3.300	Oct 2022	-		3.300	0.000	7.491	-
Subtotal			-	3.300		0.891		3.300		-		3.300	0.000	7.491	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Management Services	C/CPAF	Not specified. : TBD	-	0.000		-		-		-		-	0.000	0.000	-
PMA	Various	Various : Various	-	4.476		3.700		7.448		-		7.448	0.000	15.624	-
Subtotal			-	4.476		3.700		7.448		-		7.448	0.000	15.624	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207131F / A-10 Squadrons					Project (Number/Name) 674809 / A-10 Squadrons				
	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	24.274		34.224		72.393		-		72.393	Continuing	Continuing	N/A	

Remarks

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207131F / A-10 Squadrons	<b>Project (Number/Name)</b> 674809 / A-10 Squadrons
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>OFP</b>																												
Suite 10 Fields FY2021 Qtr 3																												
ARC - 210 Crypto Mandate																												
OFP 11 FTRR FY2021 Qtr 4																												
OFP 11 Fields FY2023 Qtr 2																												
OFP 12 FTRR FY2023 Qtr 2																												
OFP 12 Fields FY2024 Qtr 2																												
OFP 13 FTRR FY2024 Qtr 2																												
OFP 13 fields FY 2025 Qtr 2																												
OFP 14 FTRR FY2023 Qtr 4																												
<b>CICS</b>																												
CICS																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0207131F / A-10 Squadrons		<b>Project (Number/Name)</b> 674809 / A-10 Squadrons

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>OFP</b>				
Suite 10 Fields FY2021 Qtr 3	3	2021	3	2021
ARC - 210 Crypto Mandate	1	2021	4	2024
OFP 11 FTRR FY2021 Qtr 4	4	2021	3	2022
OFP 11 Fields FY2023 Qtr 2	2	2023	2	2023
OFP 12 FTRR FY2023 Qtr 2	2	2023	1	2024
OFP 12 Fields FY2024 Qtr 2	2	2024	2	2024
OFP 13 FTRR FY2024 Qtr 2	2	2024	1	2025
OFP 13 fields FY 2025 Qtr 2	2	2025	2	2025
OFP 14 FTRR FY2023 Qtr 4	2	2026	4	2026
<b>CICS</b>				
CICS	3	2022	1	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207133F I F-16 Squadrons							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	197.641	225.573	244.696	0.000	244.696	183.185	183.635	133.425	136.391	Continuing	Continuing
672671: F-16 Squadrons	-	197.641	225.573	244.696	0.000	244.696	183.185	183.635	133.425	136.391	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program, BA 7, PE 0207133F, project 672671, Multifunctional Information Distribution System Joint Tactical Radio System (MIDS-JTRS), is a new start.

**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 45% 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 over 26 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; 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; 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 capability additions, addresses cyber-security, includes Non-Recurring Engineering (NRE), design, development, integration, and ground/ flight test for fielding; 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; 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; an 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; 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; Hybrid Flight Control Computer (HFLCC) Auto Ground Collision Avoidance System (AGCAS) development and integration prevents most controlled flight into terrain

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207133F / <i>F-16 Squadrons</i>
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(CFIT) accidents using terrain database and prediction algorithms for aircraft trajectory recovery and executes an automated fly-up maneuver to avoid collision; Advanced Identification Friend or Foe (AIFF-Mode5) on F-16 aircraft provides improved positive identification for Air Traffic Control reporting, combat targeting, and fratricide prevention; 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/SIU) issues with other on board transmitters. 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 F-16 operationally viable beyond 2046. IVEWS has been separated to an additional Cost Category to continue development and now has a separate mod line, IVEWS P-3A Mod 633035. IVEWS has been 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 F-16 EW Suite (F-16IVEWS) Middle Tier of Acquisition effort is \$656.46 million, including RDT&E and procurement of prototype units. F-16 EW Suite (F-16IVEWS) 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.

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 4.023M was expended for civilian pay expenses in this program element, and in FY22 5.919M 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	202.498	224.573	0.000	0.000	0.000
Current President's Budget	197.641	225.573	244.696	0.000	244.696
Total Adjustments	-4.857	1.000	244.696	0.000	244.696
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	1.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-4.448	0.000			
• Other Adjustments	-0.409	0.000	244.696	0.000	244.696

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207133F / F-16 Squadrons		
<b>Change Summary Explanation</b> 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.  FY21 SBIR/STTR Transfer: -4.448M reduction for SBIR FY21 Other Adjustments: -0.409M for Apr 21 UPAD FY22 Congressional Add: +1.000M(+5.000M lithium battery replacement; -4.000M DRWR)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<b>Title:</b> OFP Updates on all F-16 aircraft  <b>Description:</b> OFP versions are updated continually to integrate new weapons, targeting pods, and improved avionics. Increment 1 OFP is comprised of four separate OFPs (2 x pre-block called "SCU" and 2 x post-block called "M-Series"). FY23 development would focus on M-series only to enable the design and coding of software via an agile incremental cadence of 1-2 years on post-block F-16s. 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.  <b>FY 2022 Plans:</b> Develop and Field Increment 1 capability while maintaining and upgrading portions of the SIL. Plan and develop requirements for Increment 1.  <b>FY 2023 Plans:</b> 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 Inc2 and runs FY24 through FY27.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to phasing of program requirements.		81.329	74.666	89.889
<b>Title:</b> Flight Test		13.335	12.410	18.118

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207133F / <i>F-16 Squadrons</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> The F-16's test fleet of 44 aircraft encompasses Developmental Test and Evaluation (DT&amp;E) at Edwards AFB, combined Development Test/Operational Test (DT/OT) at Eglin AFB and OT at Nellis AFB, and the Air National Guard Air Force Reserve Command Test Center (AATC) including Force Development Evaluation (FDE).</p> <p><b>FY 2022 Plans:</b> Increase support of DT&amp;E infrastructure to account for growing test requirements from new modification programs. Modification of additional DT/OT test aircraft with new hardware to support Increment 1 OFPs for FY2023 DT/OT testing. Initiate combined DT/OT flight test supporting the upgraded MMC and programmable display generator hardware programs along with new communication suite improvements, and support out-of-cycle regression testing.</p> <p><b>FY 2023 Plans:</b> Increase support of DT&amp;E infrastructure to account for growing test requirements from new modification programs. Modification of additional DT/OT test aircraft with new hardware to support Increment 1 OFPs for FY2023 DT/OT testing. Initiate combined DT/OT flight test supporting the upgraded MMC and programmable display generator hardware programs along with new communication suite improvements, and support out-of-cycle regression testing.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to cost estimate/phasing of program requirements.</p>				
<p><b>Title:</b> EMD HW/Advanced Capabilities Improvements</p> <p><b>Description:</b> 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.</p> <p><b>FY 2022 Plans:</b> Development of Lithium Battery replacement for F-16 Hydrazine EPU</p> <p><b>FY 2023 Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease due to congressional add only funding this requirement for 1 year.</p>		0.000	5.000	0.000
<b>Title:</b> Modular Mission Computer (MMC) / Programmable Display Generator (PDG) Upgrade on F-16 aircraft		12.402	4.145	1.274

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022		
<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		<b>R-1 Program Element (Number/Name)</b> PE 0207133F I F-16 Squadrons		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> The MMC upgrade on the F-16 post-block aircraft, (Blk 40, 42, 50, 52) resolves shortfalls in mission computer memory and throughput. 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), 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><b>FY 2022 Plans:</b> Continue development activities of the MMC Upgrade, PDG Upgrade, and associated HSDN through design, development, integration, and delivery of test assets for SIL and flight test in support of fielding with Increment 1 OFPs.</p> <p><b>FY 2023 Plans:</b> Continue development activities of the MMC Upgrade, PDG Upgrade, and associated HSDN through design, development, integration, and delivery of test assets for SIL and flight test in support of fielding with Increment 1 OFPs.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease due to phasing of program requirements.</p>				
<p><b>Title:</b> Simulator Trainers Program (STP)</p> <p><b>Description:</b> 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</p>		9.569	7.851	15.768

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207133F / <i>F-16 Squadrons</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> 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.  <b>FY 2022 Plans:</b> 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.  <b>FY 2023 Plans:</b> 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.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to phasing of OFP program requirements. Significant hardware purchases are planned in FY23 to ensure compatibility with latest F-16 configuration.		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> AIFF Mode 5  <b>Description:</b> 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 funding request 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.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b>		11.176	0.000	16.354

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207133F / <i>F-16 Squadrons</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Continue development funded in FY21, and occurring throughout FY22, during Critical Design Review III.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to phasing of program requirements based on updated costs.				
<b>Title:</b> AESA Radar  <b>Description:</b> This is a continuation of the Active Electronically Scanned Array (AESA) Radar congressional add funding line in FY16 and FY17. 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 (OFP) 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.  <b>FY 2022 Plans:</b> Continue Phase III development and test efforts for full CDD radar capabilities. Support initial fielding of Phase III radars. <b>FY 2023 Plans:</b> Continue Phase III development and test efforts for full CDD radar capabilities. Support initial fielding of Phase III radars. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease due to phasing of program requirements.		26.617	30.063	29.598
<b>Title:</b> Comm Suite Radio Upgrade Aircraft  <b>Description:</b> 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).  <b>FY 2022 Plans:</b> N/A <b>FY 2023 Plans:</b> N/A		1.835	0.000	0.000
<b>Title:</b> Digital Radar Warning Receiver  <b>Description:</b> 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 (NDS) by overhauling the non-digital/legacy F-16 Radar Warning Receiver migrating to digital radar		41.378	81.315	0.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207133F / <i>F-16 Squadrons</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
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.				
<b>FY 2022 Plans:</b> Continue development efforts to complete remaining Group A & B designs. Update/Finalize Blk 30/32C, 40C, 42C & 50/52C baseline configurations (Engineering & Technical Orders/Time Compliance Technical Orders) with Blk 40C, 42C & 50/52C kit-proofs. Begin fielding on Block 30/32C's, complete kit-proofs on Block 42C, 40C and 52C in that order. Finalize Blk 30/32C, 40C, 42C & 50/52C baseline configurations (Engineering & Technical Orders/Time Compliance Technical Orders) with Blk 40C, 42C & 50/52C kit-proofs.				
<b>FY 2023 Plans:</b> N/A				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease due to the development and integration program.				
<b>Title:</b> Integrated Viper Electronic Warfare Suite (IVEWS)		0.000	0.000	63.224
<b>Description:</b> 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 meet the NDS requirement of operating in current and future contested environments.				
<b>FY 2022 Plans:</b> Continue development efforts including Non-Recurring Engineering (NRE) activities, design, integration, demonstrations, and System Integration Lab (SIL) and Developmental and Operational (DT/OT) testing.				
<b>FY 2023 Plans:</b>				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207133F / <i>F-16 Squadrons</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
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.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to phasing of program requirements like Flight Test and Integration.				
<b>Title:</b> Multifunctional Information Distribution System Joint Tactical Radio System (MIDS-JTRS)		0.000	0.000	0.157
<b>Description:</b> 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 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.				
<b>FY 2022 Plans:</b> N/A				
<b>FY 2023 Plans:</b> 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.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to phasing of program requirements.				
<b>Title:</b> M Code		0.000	10.123	10.314
<b>Description:</b> 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.				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207133F I F-16 Squadrons							
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2021	FY 2022	FY 2023
FY 2022 Plans: Development activities for design, integration, deliver test assets for SIL and flight test.												
FY 2023 Plans: Development activities for design, integration, deliver test assets for SIL and flight test.												
FY 2022 to FY 2023 Increase/Decrease Statement: Increase based on phasing of requirements.												
Accomplishments/Planned Programs Subtotals										197.641	225.573	244.696
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• APAF 05 Line Item F01600: F-16 Aircraft Modifications	622.593	613.166	627.634	-	627.634	555.681	626.656	302.846	-	Continuing	Continuing	
• APAF 07 Line Item F0160P: F-16 Post Production Support	14.163	10.456	8.946	-	8.946	9.406	10.055	10.266	-	Continuing	Continuing	
• APAF 06 Line Item F01600: F-16 Initial Spares	21.486	40.980	17.293	-	17.293	20.737	21.276	21.607	-	Continuing	Continuing	
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.												
The upgraded 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. The PDG Upgrade 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.												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0207133F I F-16 Squadrons	
<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>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.</p> <p>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, Falcon 2020, and Mode 5 IDIQ.</p> <p>DRWR is organically being integrated on the F-16 by F-16 System Program Office (AFLCMC/WWM) and the Electronic Warfare and Avionics (EW&amp;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).</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).</p> <p>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>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). Contracts will be award to Harness IDIQ, Bracket IDIQ, Falcon 2020, and SAASM/EGI IDIQ for integration onto the F-16.</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>		

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207133F / F-16 Squadrons	<b>Project (Number/Name)</b> 672671 / F-16 Squadrons
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not Specified/TBD : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
OFP Updates on F-16 aircraft	Various	309th SMG : Hill AFB, UT	-	68.716	Oct 2020	57.157	Oct 2021	71.168	Oct 2022	-		71.168	Continuing	Continuing	-
MMC Upgrade / Display Generator Upgrade	Various	Various : Various	-	12.402	Nov 2020	4.145	Nov 2021	1.274	Nov 2022	-		1.274	Continuing	Continuing	-
Simulator Trainers	Various	Various : Various	-	9.569	Nov 2020	7.851	Nov 2021	15.768	Nov 2022	-		15.768	Continuing	Continuing	-
AIFF Mode 5	Various	Various : Various	-	11.176	Aug 2021	-		16.354	Nov 2022	-		16.354	Continuing	Continuing	-
AESA Radars	Various	Various : Various	-	26.617	Nov 2020	29.933	Nov 2021	29.467	Nov 2022	-		29.467	Continuing	Continuing	-
Digital Radar Warning Receiver	Various	Various : Various	-	41.378	Jun 2021	80.237	Mar 2022	-		-		-	Continuing	Continuing	-
IVEWS	Various	Various : Various	-	0.000	Jun 2021	0.000	Mar 2022	62.146	Mar 2023	-		62.146	Continuing	Continuing	-
Comm Suite Radio Upgrade	Various	Various : Various	-	1.835	Jan 2021	-		-		-		-	Continuing	Continuing	-
MIDS JTRS	Various	Various : Various	-	-		-		0.157	Nov 2022	-		0.157	Continuing	Continuing	-
EMD HW/Advanced Capabilities Improvements	Various	Various : Various	-	-		5.000		-		-		-	Continuing	Continuing	-
M Code	Various	Various : Various	-	-		10.123	Jan 2022	10.314	Jan 2023	-		10.314	Continuing	Continuing	-
<b>Subtotal</b>			-	171.693		194.446		206.648		-		206.648	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Authority	Reqn	Various : Various	-	3.563	Oct 2020	7.127	Oct 2021	7.400	Oct 2022	-		7.400	Continuing	Continuing	-
<b>Subtotal</b>			-	3.563		7.127		7.400		-		7.400	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207133F / F-16 Squadrons				Project (Number/Name) 672671 / F-16 Squadrons					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	C/CPAF	Not Specified/TBD : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
Flight Tests	Various	Various : Various	-	13.335	Jan 2021	12.410	Jan 2022	18.118	Jan 2023	-		18.118	Continuing	Continuing	-
Subtotal			-	13.335		12.410		18.118		-		18.118	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Management Services	C/CPAF	Not Specified/TBD : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
Program Mgmt Administrative (PMA) Support	Various	Various : Various	-	9.050	Dec 2020	11.590	Dec 2021	12.530	Dec 2022	-		12.530	Continuing	Continuing	-
Subtotal			-	9.050		11.590		12.530		-		12.530	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	197.641		225.573		244.696		-		244.696	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207133F / <i>F-16 Squadrons</i>	<b>Project (Number/Name)</b> 672671 / <i>F-16 Squadrons</i>
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>F-16 Development Efforts</i></b>																												
Communication Suite Upgrade Pre-block Fielding																												
AESA Radar OFP Capability Development																												
SCU 11 OFP Fielding																												
Digital Radar Warning Receiver Fielding Recommendation																												
M7.3/8.03 OFP Fielding																												
M8.1 OFP Fielding																												
M8.2 OFP Fielding																												
M Code Fielding																												
M Code TVI Milestone																												
MIDS-JTRS Terminal Firmware Upgrade Testing																												
AIFF Mode 5 Fielding																												
AIFF Mode 5 Flight Test - 2 Asset Remain A/C																												
IVEWS Flight Test Start																												
IVEWS Fielding Recommendation																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207133F / <i>F-16 Squadrons</i>	<b>Project (Number/Name)</b> 672671 / <i>F-16 Squadrons</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>F-16 Development Efforts</i></b>				
Communication Suite Upgrade Pre-block Fielding	1	2022	1	2026
AESA Radar OFP Capability Development	1	2021	4	2026
SCU 11 OFP Fielding	1	2021	2	2023
Digital Radar Warning Receiver Fielding Recommendation	2	2022	2	2022
M7.3/8.03 OFP Fielding	1	2021	4	2022
M8.1 OFP Fielding	1	2021	4	2024
M8.2 OFP Fielding	1	2024	3	2026
M Code Fielding	1	2026	4	2027
M Code TVI Milestone	1	2024	1	2024
MIDS-JTRS Terminal Firmware Upgrade Testing	1	2023	1	2023
AIFF Mode 5 Fielding	1	2024	1	2026
AIFF Mode 5 Flight Test - 2 Asset Remain A/C	4	2023	2	2024
IVEWS Flight Test Start	1	2023	4	2024
IVEWS Fielding Recommendation	4	2024	4	2024

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207134F / <i>F-15E Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	230.299	239.616	213.272	0.000	213.272	51.969	41.609	41.627	31.306	Continuing	Continuing
676020: <i>F-15 Modernization</i>	0.000	230.299	239.616	213.272	0.000	213.272	51.969	41.609	41.627	31.306	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 aircraft and F-15E aircraft (avionics, armament, airframe, and engines) are critical to maintaining combat viability (lethality, survivability, and supportability) in support of the 2022 National Defense Strategy. With the 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 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-15E 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 0605831F. In FY21 \$4.15M was expended for civilian pay expenses in this program element, and in FY22 \$4.265M 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207134F / <i>F-15E Squadrons</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023 Base</u></b>	<b><u>FY 2023 OCO</u></b>	<b><u>FY 2023 Total</u></b>
Previous President's Budget	288.381	239.616	0.000	0.000	0.000
Current President's Budget	230.299	239.616	213.272	0.000	213.272
Total Adjustments	-58.082	0.000	213.272	0.000	213.272
• 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	-58.082	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	213.272	0.000	213.272

**Change Summary Explanation**

FY2021 reductions on reprogramming packages FY21\_16PA and FY22\_05 PA.

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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
676020: F-15 Modernization	0.000	230.299	239.616	213.272	0.000	213.272	51.969	41.609	41.627	31.306	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) 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. 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 both the F-15E and F-15C.

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 is transitioning 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-15C/D/E 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-15C/D/E aircraft the ability to communicate on the Mobile User Objective System (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 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.

Modern high resolution Digital Color Displays will replace the current antiquated monochrome displays. These upgraded displays enable accurate distinction and identification of targets, decrease risk of fratricide/missed targeting, and enable full utilization of radar capability that significantly enhances situational awareness. Without new displays like the DCD program, F-15E will continue to operate with inadequate displays unable to take advantage of modernized radar and sensor capabilities to identify and engage targets. Without hi-res, color displays, F-15E aircrew operate with higher workloads and situational awareness limitations, which increase the risk of mission failure, aircraft loss, and fratricide caused by display targeting inaccuracies and threat depiction/Combat ID limitations.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization		
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).					
GPS M-Code will provide enhanced PNT capabilities and improved resistance to existing and emerging threats to GPS such as jamming and spoofing.					
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 0605831F. In FY21 \$4.15M was expended for civilian pay expenses in this program element, and in FY22 \$4.265M is forecasted for civilian pay expenses in this program element.					
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023
Title: Operational Flight Program (OFP) Development Efforts			73.471	94.053	118.400
Description: Provides OFP program software and hardware updates to integrate new capabilities on all F-15 aircraft. This includes technical and acquisition related studies.					
FY 2022 Plans: Continue Suite development and integration of major line items, such as Data Transfer Module (DTM) II, Passive Attack Display (PAD), Eagle Passive/Active Warning Survivability System (EPAWSS), Multi-functional Information Distribution System (MIDS) - Joint Tactical Radio System (JTRS) MIDS-JTRS, implementing B61-12, F-15 EX, IRST (Infrared Search and track), etc.; all on the new Advanced Display Core Processor (ADCP) II mission computer. Continuation of radar updates being delivered along with continuation of organic software support and Special Projects development efforts and maintenance of developmental labs. Continuation of funding support for all F-15 trainers and ongoing Problem Report (PR) and Deficiency Report (DR) fixes. Continue work on Future OFP's and award the Continuous Development & Integration (CD&I) contract to take advantage of industries cutting edge knowledge and provide greater flexibility and resilience to the F-15. Perform technical and acquisition related studies to ensure F-15 lethality and survivability beyond 2040. Continue integration efforts to ensure system wide acceptance of new hardware/software and desired capabilities. Continue to support Program Management Activities in support of the OFP's and the F-15.					
FY 2023 Plans: Continue Suite development and integration of major line items, such as Data Transfer Module (DTM) II, Passive Attack Display (PAD), Eagle Passive/Active Warning Survivability System (EPAWSS), Multi-functional Information Distribution System (MIDS) - Joint Tactical Radio System (JTRS) MIDS-JTRS, implementing B61-12LEP, F-15 EX, IRST (Infrared Search and track); all on the new Advanced Display Core Processor (ADCP) II mission computer. Continuation of radar updates being delivered along with continuation of organic software support and Special Projects development efforts and maintenance of developmental labs. Continuation of funding support for all F-15 trainers and ongoing Problem Report (PR) and Deficiency Report (DR) fixes. Continue work on Future OFP's and award the Continuous Development & Integration (CD&I) contract to take advantage of industries cutting edge knowledge and provide greater flexibility and resilience to the F-15. Perform technical and acquisition related studies to ensure F-15 lethality and survivability beyond 2040. Continue integration efforts to ensure system wide acceptance of new					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
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 2021	FY 2022	FY 2023
hardware/software and desired capabilities. Continue to support Program Management Activities in support of the OFP's and the F-15.				
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increase driven by S9.2 completion activities and the ramp up of the CD&I agile development program.				
Title: Flight Test		30.811	20.063	20.065
Description: Flight Test Support improvements and sustainment. Baselined 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.				
FY 2022 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.				
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.				
FY 2022 to FY 2023 Increase/Decrease Statement: Nominal increase that maintains flight test activities				
Title: F-15 Radar Enhancements		57.958	71.166	10.000
Description: Improvements to F-15 Radar Enhancements (EP). This includes technical and acquisition related studies.				
FY 2022 Plans: Continue implementation of EP/Electronic Warfare (EW) into OFP's. Continue Special Projects testing support. Continue EP/ EW and Combat ID candidate risk reduction 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				

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
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 2021	FY 2022	FY 2023
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.					
FY 2023 Plans: Continue implementation of EP/Electronic Warfare (EW) into OFF's. Continue Special Projects testing support. Continue EP/EW and Combat ID candidate risk reduction 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.					
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decrease driven by reduced efforts as a result of higher Air Force priorities.					
Title: F-15 Infrared Search and Track (IRST)			14.945	22.323	27.000
Description: The Infrared Search and Track (IRST) system provides F-15C/D/E/EX's 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, air-to-ground targeting, provides a passive infrared sensor system that searches for and detects infrared radiation, and provides the aircraft mission computer track file data on infrared 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.					
FY 2022 Plans: Continue integration of the Infrared Search and Track (IRST) system into 9.2 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.					
FY 2023 Plans: Continue integration of the Infrared Search and Track (IRST) system into 9.2 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.					
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increase driven by requirement to align funds to completion of 9.2 OFP.					
Title: Mobile User Objective System (MUOS)/Second Generation Anti-jam Tactical UHF Radio for NATO(SATURN)			29.093	11.660	-

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022			
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 2021	FY 2022	FY 2023	
<p><b>Description:</b> Description: To enable F-15C/D/E's with MUOS/SATURN capability to replace the current UHF Follow-On (UFP) satellite system, the Have Quick II, and comply with the NSA Lease Key mandate dates.</p> <p><b>FY 2022 Plans:</b> Continue MUOS ESIL testing/development activities under the Suite 9.2 program.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decrease due to entering final stages of development and testing for S9.2 integration of the MUOS program.</p>					
<p><b>Title:</b> F-15 Multifunctional Information Distribution System - Joint Tactical Radio System (MIDS JTRS)</p> <p><b>Description:</b> This upgrade integrates and installs a new Link 16 system on the F-15C &amp; F-15E 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.</p> <p><b>FY 2022 Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>		8.784	0.000	-	
<p><b>Title:</b> F-15 Digital Color Displays</p> <p><b>Description:</b> 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.</p> <p><b>FY 2022 Plans:</b> Continue risk reduction activities for group A hardware design, including technical and acquisition-related studies into all hardware and software changes needed to enable high-speed data transfer from weapons stations to the ADCP II, and high definition imagery on the upgraded displays and video recorder. Continue design of test facility upgrades and funding of software design and development activities with the Continuous Development &amp; Integration (CD&amp;I) effort in support of upgraded display capability integration. Fund EMD proposal development activities, to include competitively selecting a vendor for the Group B LRUs, and conduct strategy and document development and updating in support of an FY23 MS B decision. Begin test planning activities in support of DCD Phase 1 and Phase 2 lab, development, and operational testing, to include system security assessments.</p> <p><b>FY 2023 Plans:</b></p>		3.470	19.964	4.381	

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
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 2021	FY 2022	FY 2023
Award EMD contract for continued Group A and Group B development, including continuing studies to identify opportunities for reducing program schedule and/or DCD lifecycle costs. Procure long-lead hardware items for test articles. Continue design and integration of test and training equipment and facilities. Continue funding CD&I software development, integration, and test activities in support of DCD Group A and Group B hardware integration. Continue planning for lab, development, and operational testing, to include system security assessments.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decrease driven by reduced efforts as a result of higher Air Force priorities.				
<b>Title:</b> F-15E Data Transfer Module II  <b>Description:</b> 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.  <b>FY 2022 Plans:</b> Integration with S9.2 continues.  <b>FY 2023 Plans:</b> This funding will enable completing DRs and updates resulting from the FCA/PCA/MRA and VAL/VER activities  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to completing DRs and updates resulting from the FCA/PCA/MRA and VAL/VER activities.		11.767	0.387	1.821
<b>Title:</b> GPS M-Code / R-EGI  <b>Description:</b> 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 PNT and cyber capabilities. Expand Government-owned engineering and design to provide a truly modular solution.  <b>FY 2022 Plans:</b> Analyze and examine R-EGI white paper results accomplished through collaboration with EX platform. Consultation with leadership and ACC regarding development of requirements documents. Coordinate with EX platform and IPT to determine form factor and quantity needed for E model and EX model aircraft. Explore ability to capitalize on existing PNT IDIQ contracts to improve schedule.  <b>FY 2023 Plans:</b>		-	0.000	31.605

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207134F / <i>F-15E Squadrons</i>	<b>Project (Number/Name)</b> 676020 / <i>F-15 Modernization</i>	

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Initiate Delivery Order on PNT IDIQ contract to reduce time to field solution. Discuss and review delta hardware and software components and requirements from analogous Government owned solutions. Mature capabilities and review designs to validate proposed solution meets requirements.			
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> GPS M-Code is an FY23 New start. No funding required for FY22.			
<b>Accomplishments/Planned Programs Subtotals</b>	230.299	239.616	213.272

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 01 F015E0: <i>F-15EX</i>	-	-	-	-	-	-	-	-	-	0.000	0.000
• APAF 05 F015EX: <i>F-15EX</i>	1,403.347	1,346.022	-	-	-	-	-	-	-	Continuing	Continuing
• RDTE 07 0207146F: <i>F-15EX</i>	159.761	-	-	-	-	-	-	-	-	0.000	159.761
• APAF 05 Line Item F01500: <i>F-15 Modification of In-</i>	203.910	234.340	183.813	-	183.813	157.480	60.196	187.722	28.952	Continuing	Continuing
<i>Service Aircraft, PEs 0207130,</i>											
<i>0207134, 0207445, 0809731</i>											
• APAF 06 Line Item 000999: <i>Initial Spares/Repair Parts (BP16)</i>	48.440	20.515	21.306	-	21.306	20.611	-	-	-	Continuing	Continuing
• APAF 07 Line Item F0150P: <i>F-15 Post Production Support</i>	2.632	2.324	2.679	-	2.679	-	-	-	-	Continuing	Continuing
• APAF 07 PE 0207040F: <i>Multi-</i>	-	-	-	-	-	-	-	-	-	0.000	0.000
<i>Platform Electronic Warfare</i>											
<i>Equipment BPAC 190000</i>											

**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 2023 Air Force** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207134F / F-15E Squadrons	<b>Project (Number/Name)</b> 676020 / F-15 Modernization
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
OFP Suite 8/9/CD&I Development and Test	SS/ Various	Boeing : St. Louis, MO	0.000	70.365	Jun 2021	89.786	Jun 2022	114.805	Jun 2023	-		114.805	Continuing	Continuing	-
F-15 Radar Enhancement	SS/ Various	Boeing : St Louis, MO	0.000	54.853	Aug 2021	69.838	Aug 2022	10.000	Aug 2023	-		10.000	Continuing	Continuing	-
F-15 Infrared Search and Track	SS/ Various	Boeing : St Louis, MO	0.000	13.945	Feb 2021	20.323	Feb 2022	25.000	Feb 2023	-		25.000	Continuing	Continuing	-
Multifunctional Information Distribution System-Joint Technical Radio System (MIDS-JTRS)	SS/ Various	Boeing : St. Louis, MO	0.000	8.784	Feb 2021	-		-		-		-	Continuing	Continuing	-
Service Life Extension Program (SLEP) Wing Replacement	TBD	Not specified. : NV	0.000	-		-		-		-		-	0.000	0.000	-
Cabin Pressure Indicator	TBD	TBD : Various	0.000	-		-		-		-		-	0.000	0.000	-
Mobile User Objective System (MUOS) /Second Generation Anti-jam Tactical UHF Radio for NATO (SATURN)	C/CPAF	Boeing : St. Louis	0.000	28.709	Oct 2021	11.660		-		-		-	Continuing	Continuing	-
F-15E Digital Color Display	TBD	TBD : TBD	0.000	3.470	Oct 2020	19.964	Sep 2022	4.381	Sep 2023	-		4.381	Continuing	Continuing	-
F-15E Data Transfer Module II	TBD	TBD : TBD	0.000	11.767	Jan 2021	0.387	Jan 2022	1.821		-		1.821	Continuing	Continuing	-
ALQ-128a	TBD	TBD : TBD	0.000	-		-		-		-		-	0.000	0.000	-
JASSM ER	TBD	TBD : TBD	0.000	-		-		-		-		-	0.000	0.000	-
GPS M-Code	TBD	TBD : TBD	0.000	-		-		29.605	Dec 2022	-		29.605	0.000	29.605	-
<b>Subtotal</b>			0.000	191.893		211.958		185.612		-		185.612	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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons				Project (Number/Name) 676020 / F-15 Modernization					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
Boeing (Contractor Test Support)	SS/CPFF	Boeing : St. Louis, MO	0.000	30.811	Aug 2021	20.063	Aug 2022	20.065	Aug 2023	-		20.065	Continuing	Continuing	-
Subtotal			0.000	30.811		20.063		20.065		-		20.065	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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Management Services	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
Program Mgt Support Costs	Various	Various : Various	0.000	7.595	Sep 2021	7.595	Sep 2022	7.595	Sep 2023	-		7.595	Continuing	Continuing	-
Subtotal			0.000	7.595		7.595		7.595		-		7.595	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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	230.299		239.616		213.272		-		213.272	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0207134F / <i>F-15E Squadrons</i>		
			<b>Project (Number/Name)</b> 676020 / <i>F-15 Modernization</i>		

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>F-15</b>																												
OFP Continuous Development																												
OFP Integration and Test																												
OFP Suite 9 Fielding																												
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 Technical Radio System (MIDS-JTRS) Development																												
Mobile User Objective System (MUOS) Second Generation Anti-jam Tactical UUF Radio for NATO (SATURN) Study																												
Digital Color Display (formerly Advanced Crew Station)																												
Data Transfer Module II																												
GPS M-Code																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207134F / F-15E Squadrons	Project (Number/Name) 676020 / F-15 Modernization	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>F-15</b>				
OFP Continuous Development	4	2022	1	2027
OFP Integration and Test	3	2021	4	2026
OFP Suite 9 Fielding	1	2021	4	2021
OFP Suite 9.2 Fielding	4	2023	4	2024
OFP CD&I Development	4	2022	1	2027
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)	1	2021	3	2026
Infrared Search and Track Integration and Test	1	2021	4	2023
Multifunctional Information Distribution System-Joint Technical Radio System (MIDS-JTRS) Development	1	2021	2	2021
Mobile User Objective System (MUOS) Second Generation Anti-jam Tactical UUF Radio for NATO (SATURN) Study	1	2021	4	2021
Digital Color Display (formerly Advanced Crew Station)	2	2021	4	2024
Data Transfer Module II	2	2021	4	2022
GPS M-Code	2	2023	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207136F I Manned Destructive Suppression							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	14.462	15.855	16.695	0.000	16.695	17.037	17.356	17.721	18.115	Continuing	Continuing
674595: F-16 HARM Targeting Sys	-	14.462	15.855	16.695	0.000	16.695	17.037	17.356	17.721	18.115	Continuing	Continuing
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.

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 elements 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 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207136F I Manned Destructive Suppression				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	14.933	15.855	0.000	0.000	0.000	
Current President's Budget	14.462	15.855	16.695	0.000	16.695	
Total Adjustments	-0.471	0.000	16.695	0.000	16.695	
• 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	-0.471	0.000				
• Other Adjustments	0.000	0.000	16.695	0.000	16.695	
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 FY 2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: P3I R7 Software Upgrade (SWUP)				13.761	14.055	14.595
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 (OFP) releases. These releases improve the capability of the pod in an evolving threat environment.						
FY 2022 Plans:						
Continue SWUP 3 fielding activities and SWUP 4 risk reduction, iterative software development, and preparation for SWUP 4 flight testing. Mission support (i.e., program management for administrative and technical support) will continue.						
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.						
FY 2022 to FY 2023 Increase/Decrease Statement:						
Funding increased due to normal inflation expectations.						
Title: Flight Test				0.701	0.900	1.200

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207136F <i>I Manned Destructive Suppression</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> 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><b>FY 2022 Plans:</b> Government flight test operations will continue for SWUP 3 and SWUP 4 activities. This funding also includes baselining requirements from actual test data during recent flight testing.</p> <p><b>FY 2023 Plans:</b> 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.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to an increase in the number of expected flight tests related to the A9B Circuit Card Development.</p>				
<p><b>Title:</b> Mission Planning</p> <p><b>Description:</b> 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. Mission planning is a continuation of FY21 activity.</p> <p><b>FY 2022 Plans:</b> Continue mission planning in support of future SWUP 3, 4, and other future SWUP requirements and upgrades.</p> <p><b>FY 2023 Plans:</b> Continue mission planning in support of future SWUP 4 efforts and other future SWUP requirements.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>		0.000	0.900	0.900
<b>Accomplishments/Planned Programs Subtotals</b>		14.462	15.855	16.695
<b>D. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0207136F I Manned Destructive Suppression	
<p><b>E. Acquisition Strategy</b></p> <p>The HTS R7 Software Update Program (SWUP) is underway to keep the HTS pod capable in a growing threat environment. The SWUP 3 Engineering &amp; 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. SWUP 3 includes 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.</p> <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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207136F / Manned Destructive Suppression				Project (Number/Name) 674595 / F-16 HARM Targeting Sys					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	-	12.419	Jul 2021	12.282	Nov 2021	12.445	Nov 2022	-		12.445	Continuing	Continuing	-
JMPS	SS/CPIF	Multiple : Multiple	-	0.000		0.900	May 2022	0.900	May 2023	-		0.900	Continuing	Continuing	-
Subtotal			-	12.419		13.182		13.345		-		13.345	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	-	0.701	Nov 2020	0.900	Nov 2021	1.200	Nov 2022	-		1.200	Continuing	Continuing	-
Subtotal			-	0.701		0.900		1.200		-		1.200	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	-	1.342	Dec 2020	1.773	Apr 2022	2.150	Feb 2023	-		2.150	Continuing	Continuing	-
Subtotal			-	1.342		1.773		2.150		-		2.150	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	14.462		15.855		16.695		-		16.695	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0207136F / <i>Manned Destructive Suppression</i>		<b>Project (Number/Name)</b> 674595 / <i>F-16 HARM Targeting Sys</i>	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Manned Destructive Suppression</i></b>																												
SWUP 3 Risk Reduction																												
SWUP 3 Build A																												
SWUP 3 Build B																												
SWUP 4 Risk Reduction																												
SWUP 4 Bridge																												
SWUP 4 Builds A, B, and C																												
Future SWUP Risk Reduction																												
COTS Hardware																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207136F / <i>Manned Destructive Suppression</i>	<b>Project (Number/Name)</b> 674595 / <i>F-16 HARM Targeting Sys</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Manned Destructive Suppression</i></b>				
SWUP 3 Risk Reduction	1	2021	3	2021
SWUP 3 Build A	1	2021	1	2021
SWUP 3 Build B	1	2021	2	2022
SWUP 4 Risk Reduction	1	2021	2	2022
SWUP 4 Bridge	4	2021	1	2022
SWUP 4 Builds A, B, and C	1	2022	1	2025
Future SWUP Risk Reduction	2	2024	1	2025
COTS Hardware	1	2021	3	2021

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207138F / <i>F-22A Squadrons</i>
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<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	0.000	642.138	647.296	559.709	0.000	559.709	566.247	541.382	543.214	528.745	Continuing	Continuing
674785: <i>F-22</i>	0.000	485.953	647.224	559.709	0.000	559.709	566.247	541.382	543.214	528.745	Continuing	Continuing
674788: <i>F-22 Tactical Mandates</i>	0.000	156.185	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

**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 the highly contested operational environment, as well as homeland and cruise missile defense into the 2040s. To remain effective in its mission, the program is continuing planned, incremental modernization development that enhances 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.

Determined attempts to deny US air superiority from peer threats within the Indo-Pacific region have increased the need for investments and activities to build forces that are lethal, resilient, ready, and postured to respond quickly and effectively against aggression. The F-22 Raptor is a key component of these efforts and necessary for increasing joint force lethality and maintaining a credible deterrent in theater.

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 an annual delivery cadence for capabilities as they mature.

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.

The total cost of the F-22 Rapid Prototyping Middle Tier of Acquisition effort is \$1,716.9M, including RDT&E and procurement of prototype units. F-22 Rapid Prototyping is fully funded across the Future Years Defense Program.

The total cost of the F-22 Rapid Fielding Middle Tier of Acquisition effort is \$371.9M, including RDT&E and procurement of prototype units. F-22 Rapid Fielding 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 program funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 2.493M was expended for civilian pay expenses in this program element, and in FY22 6.114M is forecasted for civilian pay expenses in this program element.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207138F / <i>F-22A 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><u>B. Program Change Summary (\$ in Millions)</u></b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023 Base</u></b>	<b><u>FY 2023 OCO</u></b>	<b><u>FY 2023 Total</u></b>
Previous President's Budget	663.825	647.296	0.000	0.000	0.000
Current President's Budget	642.138	647.296	559.709	0.000	559.709
Total Adjustments	-21.687	0.000	559.709	0.000	559.709
• 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	-21.687	0.000			
• Other Adjustments	0.000	0.000	559.709	0.000	559.709

**Change Summary Explanation**

FY21 SBIR/STTR reduction of \$21.687M.

The FY 2022 President's Budget submittal did not reflect FY23 through FY26 funding. Therefore, an explanation of the change between the two budget positions for FY23 cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons				Project (Number/Name) 674785 / F-22			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674785: F-22	0.000	485.953	647.224	559.709	0.000	559.709	566.247	541.382	543.214	528.745	Continuing	Continuing
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 the highly contested operational environment, as well as homeland and cruise missile defense into the 2040s. To remain effective in its mission, the program is continuing planned, incremental modernization development that enhances 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.

Determined attempts to deny US air superiority from peer threats within the Indo-Pacific region have increased the need for investments and activities to build forces that are lethal, resilient, ready, and postured to respond quickly and effectively against aggression. The F-22 Raptor is a key component of these efforts and necessary for increasing joint force lethality and maintaining a credible deterrent in theater.

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 an annual delivery cadence for capabilities as they mature.

Actual and planned execution within Communication Systems and Sensor Systems for FY21 and FY22 will differ from totals shown in each Major Thrust due to balancing program funding at the BPAC level. The Sensor System Major Thrust executed \$266.9M of FY21 funds in BPAC 674785; Communication Systems executed \$159.3M of FY21 funds in BPAC 674788. All funding for Communication Systems in FY22 and beyond will be executed in BPAC 674785.

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 elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 \$2.493M was expended for civilian pay expenses in this program element, and in FY22 \$6.114M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Infrastructure	168.327	214.124	218.296	0.000	218.296
<b>Description:</b> This major thrust is comprised of: Combined Test Force (CTF), Laboratory Test and Operations (LTO), Operational Software Development, F-22 Small Projects, and Reliability and Maintainability Program (RAMP) projects.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons		Project (Number/Name) 674785 / F-22		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>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 sixteen (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 performance deficiencies early before they are more difficult and costly to resolve. It also maintains six installed production engines and two spares. 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, 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 and Maintainability Program provides for solution identification and integration of modifications to improve reliability, availability and maintainability for F-22 test aircraft, located at Edwards AFB and the sixteen (16) F-22 labs. RAMP includes modifications to address corrosion, reduce maintenance hours, increase safety, and provide urgent response requirements to the F-22 CTF.</p> <p>F-22 Infrastructure efforts utilize 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>						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons		Project (Number/Name) 674785 / F-22		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Program mission support costs are included in this major thrust.						
<b>FY 2022 Plans:</b> Provide support to the System Integration Labs (SILs) for faster testing and assessment of F-22 enhancements. 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. Update critical systems to include technology refresh and laboratory improvements required to support new aircraft configurations and capabilities. Continued development of F-22 In-a-Box / JSE.						
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) development integration, cyber security, engine enhancements, crypto, dynamic SAR, GFE, PT, and EW enhancements.						
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.						
<b>FY 2023 Base Plans:</b> 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, and adds QRIP development, and Fox Tablet integration.						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons		Project (Number/Name) 674785 / F-22		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: Increase of \$4.172M from FY22 to FY23 supports the improvement of throughput and performance of F-22 labs, reduces risk to flight test, and accelerates delivery of the capability pipeline.						
Title: Advanced Technology Development (ATD)		38.648	59.627	61.080	0.000	61.080
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.						
The F-22 program attempts to maximize efficiency by utilizing technology transfer both to the Next Generation Air Dominance (NGAD) portfolio, and from the NGAD portfolio based on emerging threats, AF priorities, and development pipeline capacity. Incorporating NGAD developed technologies will include developing, integrating, and testing capabilities on the F-22 weapon system.						
FY 2022 Plans: Continue technology maturation and risk reduction projects in support of various classified F-22 development efforts. Continue technology maturation and acquisition planning for the F-22 Sensor Systems program. Additionally, continue to mature the Low Drag Pylon and Tank capabilities as part of its risk reduction activities.						
FY 2023 Base Plans:						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons		Project (Number/Name) 674785 / F-22		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continue technology maturation and risk reduction projects in support of various F-22 development efforts. Additionally, continue to mature the Low Drag Pylon and Tank capabilities as part of its risk reduction activities. <b>FY 2023 OCO Plans:</b> N/A <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase of \$1.453M from FY22 to FY23 reflects the continuation of advanced technology development projects for the F-22 Raptor.						
<b>Title:</b> Sensor Systems  <b>Description:</b> As part of the F-22 Rapid Prototyping Middle Tier Acquisition (MTA) program, previously known as the Capability Pipeline, 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 to provide the F-22 with an asymmetric sensing advantage against potential adversaries while continuing to deliver on its unmatched maneuverability.  The F-22 Sensor System programs utilize 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.  <b>FY 2022 Plans:</b> Continue Sensor Enhancements software and hardware development for future fleet release. Continue purchase of test assets, continue development environment standup, lab/system/airframe integration, and logistics planning. Continue technology maturation and risk reduction efforts for multiple development activities.  <b>FY 2023 Base Plans:</b> 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.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>		269.978	238.704	160.200	0.000	160.200

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons		Project (Number/Name) 674785 / F-22		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Decrease of \$78.504M from FY22 to FY23 attributable to the completion of test asset purchases.						
<p><b>Title:</b> Navigation Systems</p> <p><b>Description:</b> 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 Precision, Navigation and Timing (PNT) capabilities, particularly in Global Positioning System (GPS) degraded environments. As part of the F-22 Rapid Prototyping Middle Tier Acquisition (MTA) program, previously known as the Capability Pipeline, 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 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>F-22 Navigation Systems 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 matured capabilities.</p> <p><b>FY 2022 Plans:</b> Continue with CRPA hardware &amp; system software development, providing test units to labs to begin platform integration. Integrate additional software for backwards compatibility of EGI-M and CRPA with legacy systems. Begin Developmental and Operational testing of Legacy Support Software. Continue refinement of EGI-M hardware and development of software products necessary for future integration to the platform.</p> <p><b>FY 2023 Base Plans:</b> 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><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease of \$5.609M from FY22 to FY23 reflects the continuance of the CRPA EMD contract.</p>		9.000	24.212	18.603	0.000	18.603
<p><b>Title:</b> Communication Systems</p> <p><b>Description:</b> As part of the F-22 Rapid Prototyping Middle Tier Acquisition (MTA) program, previously known as the Capability Pipeline, Communication Systems consists of software and hardware development, test, and</p>		0.000	110.557	79.530	0.000	79.530

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons		Project (Number/Name) 674785 / F-22		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
certifications necessary to field systems and capabilities for combat with a joint force. Including Link 16 Transmit, tactical Mode 5 Identify Friend or Foe (IFF) Challenge and Reply, Second Generation Anti-Jam UHF Radio for NATO (SATURN), and updating Tactical Secure Voice Cryptographic Interoperability Specification (TSVCIS).  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.  The SATURN radio will align F-22 UHF voice and data security requirements with several NATO allied Standardization Agreements and also with U.S. Procurement Specifications. This major thrust also covers F-22 program activities required to update Tactical Secure Voice Cryptographic Interoperability Specification (TSVCIS) 3.1 to version 3.1.1, a key component of Cryptographic Modernization Planning as directed by CJCSI-6510.02D and to align with guidance from the National Cryptographic Solution Management Office (NSCMO), August 2020.  The Communication Systems major thrust utilizes 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 cadence approach as capabilities mature.  <b>FY 2022 Plans:</b> Continue software development for additional Link 16 and Mode 5 IFF Reply capabilities for fielding with subsequent releases. Mode 5 IFF Challenge capabilities will continue development and system lab test of hardware and software.  <b>FY 2023 Base Plans:</b> 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. Begin development of SATURN radio hardware and software. Begin development of TSVCIS software updates.  <b>FY 2023 OCO Plans:</b>						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons		Project (Number/Name) 674785 / F-22	
B. Accomplishments/Planned Programs (\$ in Millions)					
N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: Decrease of \$31.027M from FY22 to FY23 reflects the planned completion of hardware development for initial release of Mode 5 and Link 16 in FY23.					
Title: Low Drag Tanks and Pylons  Description: The F-22 Low Drag Tank and Pylon (LDTP) capability is critical to maintaining Air Superiority in the joint fight and combating emerging threats. Due to the advancement of adversary technologies in detection and emergence of fighter, cargo, and refueling platforms increasing engagement ranges, it is critical to future mission execution and success to provide the Raptor with an increased range capability while maintaining own-ship survivability.  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 reduce drag, 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.  LDTP risk reduction activities are captured under the Advanced Technology Development (ATD) major thrust. Documentation of the development and integration components as part of the Engineering, Manufacturing, and Development (EMD) program will be captured under the LDTP major thrust.  FY 2022 Plans: Continue technology maturation and perform risk reduction tasks to support software integration, flight testing, and fielding. These tasks are captured within the ATD major thrust for FY22. The primary focus of this effort will be to accomplish tasks to include, but not limited to; procurement of test assets, flight test program/matrix development, software and hardware integration.  FY 2023 Base Plans: 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.  FY 2023 OCO Plans:		0.000	0.000	22.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022				
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons				Project (Number/Name) 674785 / F-22				
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A													
FY 2022 to FY 2023 Increase/Decrease Statement: Increase of \$22.000M from FY22 to FY23 reflects the transition from risk reduction activities captured under the ATD major thrust to the beginning of EMD in FY23.													
Accomplishments/Planned Programs Subtotals									485.953	647.224	559.709	0.000	559.709
C. Other Program Funding Summary (\$ in Millions)													
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost		
• APAF 05 Line Item F02200: F-22A Squadrons, PE 0207138F*	405.095	450.907	812.258	-	812.258	868.138	873.971	850.569	894.880	Continuing	Continuing		
• APAF 05 F2232B: Increment 3.2b	1.289	-	-	-	-	-	-	-	-	0.000	1.289		
• RDTE 07 PE 0207138F: F-22 Tactical Mandates	156.185	0.072	-	-	-	-	-	-	-	Continuing	Continuing		
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) only.													
**F-22 Increment 3.2B, APAF/PE 0207138F includes funding for associated Increment 3.2B BPs 11 (Aircraft Modifications) and 16 (Initial Spares) only.													
***F-22 Tactical Mandates, RDT&E/PE 0207138F, includes funding for F-22A Tactical Mandates modernization and development BPAC 674788. Communication Systems major thrust is captured under BPAC 674785 beginning in FY22 as a result of the BPAC consolidation.													
D. Acquisition Strategy													
In conjunction with the Raptor Enhancement Development & Integration II (REDI II) Indefinite Delivery/Indefinite Quantity (ID/IQ) ordering contract, the new Advanced Raptor Enhancement and Sustainment (ARES) ID/IQ will begin to be utilized in FY22 as well. The ARES contract is a follow-on to the REDI II contract. Both ID/IQ contracts maximize flexibility to start, stop, accelerate and decelerate projects as required and ARES provides maximum flexibility to manage various modernization projects. 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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons				Project (Number/Name) 674785 / F-22					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	165.834	Oct 2020	208.010	Oct 2021	212.443	Oct 2022	-		212.443	Continuing	Continuing	-
Advanced Technology Development	Various	Various : Various	0.000	38.648	Nov 2020	59.627	Nov 2021	61.080	Nov 2022	-		61.080	Continuing	Continuing	-
Sensor Systems	SS/ Various	Lockheed Martin : Fort Worth, TX	0.000	269.978	Apr 2021	238.704	Feb 2022	160.200	Nov 2022	-		160.200	Continuing	Continuing	-
Navigation Systems	SS/ Various	Lockheed Martin : Fort Worth, TX	0.000	9.000	Oct 2020	24.212	Oct 2021	18.603	Nov 2022	-		18.603	Continuing	Continuing	-
Communication Systems	SS/ Various	Lockheed Martin : Fort Worth, TX	0.000	-		110.557	Oct 2021	79.530	Nov 2022	-		79.530	Continuing	Continuing	-
Low Drag Tanks and Pylons	SS/CPIF	Lockheed Martin : Fort Worth, TX	0.000	-		-		22.000	Mar 2023	-		22.000	Continuing	Continuing	-
Subtotal			0.000	483.460		641.110		553.856		-		553.856	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	2.493	Oct 2020	6.114	Oct 2021	5.853	Oct 2022	-		5.853	0.000	14.460	-
Subtotal			0.000	2.493		6.114		5.853		-		5.853	0.000	14.460	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	485.953		647.224		559.709		-		559.709	Continuing	Continuing	N/A
Remarks FY21 and prior execution under Communication Systems is captured in BPAC 674788 F-22 Tactical Mandates exhibits.															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0207138F / F-22A Squadrons

Project (Number/Name)

674785 / F-22

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>F-22 Squadrons</b>																												
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 1 (initial Link 16 Transmit & IFF Reply capability) Development, Integration, & Test																												
Communication Systems - Release 1 CAF Installs																												
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																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																				Date: April 2022								
Appropriation/Budget Activity										R-1 Program Element (Number/Name)								Project (Number/Name)										
3600 / 7										PE 0207138F / F-22A Squadrons								674785 / F-22										
	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 - Release 4 CAF Installs	<div></div>																											
Low Drag Tanks and Pylons - Milestone Decision Authority Technical Demonstration	<div></div>																											
Low Drag Tanks and Pylons - DT/OT	<div></div>																											

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207138F / <i>F-22A Squadrons</i>	<b>Project (Number/Name)</b> 674785 / <i>F-22</i>	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>F-22 Squadrons</i></b>				
Advanced Technology Development Demonstrations	1	2021	4	2027
Advanced Technology Development Studies & Analysis	1	2021	4	2027
Navigation Systems CRPA Development, Integration, and Test	1	2021	4	2024
Navigation Systems EGI-M Development, Integration, and Test	1	2021	4	2026
Sensor Systems - Technical Demo/Group B Production Decision	4	2022	4	2022
Sensor Systems - DT/OT	3	2023	3	2025
Sensor Systems - Fleet Authorization	4	2025	4	2025
Sensor Systems - RAA	1	2026	1	2026
Communication Systems - Release 1 (initial Link 16 Transmit & IFF Reply capability) Development, Integration, & Test	1	2021	4	2021
Communication Systems - Release 1 CAF Installs	1	2022	1	2025
Communication Systems - Release 2 (additional Link 16 capability) Development, Integration, & Test	1	2021	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	2021	4	2025
Communication Systems - Release 4 CAF Installs	1	2025	4	2027
Low Drag Tanks and Pylons - Milestone Decision Authority Technical Demonstration	4	2023	4	2023
Low Drag Tanks and Pylons - DT/OT	3	2023	4	2024

**Note**

FY21 and prior execution under Communication Systems is captured in BPAC 674788 F-22 Tactical Mandates exhibits.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons				Project (Number/Name) 674788 / F-22 Tactical Mandates			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674788: F-22 Tactical Mandates	0.000	156.185	0.072	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This project has been consolidated into Budget Program Activity Code (BPAC) 674785 F-22A Squadrons starting in FY22. This facilitates budget execution by aligning all F-22 modernization efforts under the same BPAC and eliminates references to F-22 Tactical Mandates beyond FY21. The following is unchanged from the FY22PB and remains for reference to current year and prior year budget activity.

This project focuses on delivering Link 16 and Mode 5 Identification Friend or Foe (IFF) capabilities to the F-22 Raptor.

Link 16 will deliver Link 16 Transmit and enhance existing receive capabilities. Link 16 capabilities will be enabled by Open System Architecture (OSA) and enables 5th generation F-22 fighter aircraft to transmit tactical information through datalink to the 5th generation F-35 (a.k.a. 5th-to-5th), as well as to 4th generation aircraft (a.k.a. 5th-to-4th). Transmitting tactical data to other aircraft types via datalink is a top Air Force priority. With Link 16 Transmit, the F-22's superior 5th Generation sensor suite will critically support the situational awareness of all participants in the operational environment. Mode 5 IFF will deliver IFF Challenge and Reply capabilities. Mode 5 IFF is a Joint Requirements Oversight Council-mandated Blue Force identification capability that improves Raptor survivability and reduces fratricide risk DoD-wide. Mode 5 IFF brings significantly enhanced combat identification in both quality and security. All capabilities will be fielded on the F-22 Block 30/35 combat coded F-22 fleet.

The F-22's Link 16 and Mode 5 IFF development programs utilize 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.

Actual and planned execution within Communication Systems and Sensor Systems for FY21 and FY22 will differ from totals shown in each Major Thrust due to balancing program funding at the BPAC level. The Sensor System Major Thrust executed \$266.9M of FY21 funds in BPAC 674785; Communication Systems executed \$159.3M of FY21 funds in BPAC 674788. All funding for Communication Systems in FY22 and FY23 will be executed in BPAC 674785.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Communication Systems	156.185	0.072	0.000	0.000	0.000
<b>Description:</b> As part of the F-22 Rapid Prototyping Middle Tier Acquisition (MTA) program, previously known as the Capability Pipeline, Link 16 and Mode 5 IFF consists of software and hardware development necessary to field both the Link 16 Transmit capability, and tactical Mode 5 IFF Challenge and Reply on the F-22. Link 16 Transmit will be accomplished via an Open System Architecture (OSA) integrated with F-22 legacy avionics.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0207138F / F-22A Squadrons		<b>Project (Number/Name)</b> 674788 / F-22 Tactical Mandates

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>The OSA implementation will provide a pathway to more competitive and open F-22 modernization. Mode 5 IFF provides an opportunity to incorporate other updates to Link 16 capabilities into the Raptor. This major thrust includes mission support requirements for the F-22 Program Office including, but not limited to: travel, computer costs, cost estimating data, strategic analysis and support, systems engineering process management and other miscellaneous contract support. The F-22 Link 16 and Mode 5 IFF product lines utilize 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 cadence approach as capabilities mature.</p> <p><b>FY 2022 Plans:</b> This project has been consolidated into BPAC 674785 F-22 Squadrons. FY22 plans for Communication Systems can be found in the F-22 Squadrons R-2A exhibit.</p> <p><b>FY 2023 Base Plans:</b> This project has been consolidated into BPAC 674785 F-22 Squadrons. FY23 plans for Communication Systems can be found in the F-22 Squadrons R-2A exhibit.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	156.185	0.072	0.000	0.000	0.000

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

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• RDTE 07 PE 0207138F: F-22A Squadrons*	485.953	647.224	559.709	-	559.709	566.247	541.382	543.214	528.745	Continuing	Continuing
• APAF 05 Line Item F02200: F-22A Squadrons, PE 0207138F**	405.095	450.907	812.258	-	812.258	868.138	873.971	850.569	894.880	Continuing	Continuing
• APAF 05 Line Item F2232B: F-22A Increment 3.2B, PE 0207138F****	1.289	-	-	-	-	-	-	-	-	0.000	1.289

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207138F / <i>F-22A Squadrons</i>	<b>Project (Number/Name)</b> 674788 / <i>F-22 Tactical Mandates</i>	

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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**Remarks**

NOTES:

\*F-22 Squadrons, RDT&E/PE 0207138F, includes funding for F-22A Squadrons modernization and development BPAC 674785. Communication Systems major thrust is captured under BPAC 674785 beginning in FY22 as a result of the BPAC consolidation.

\*\*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) only.

\*\*\*\*F-22 Squadrons, APAF/PE 0207138F/F2232B, includes funding for F-22 Increment 3.2B BPs 11 (Aircraft Modifications) and 16 (Initial Spares) only.

**D. Acquisition Strategy**

In conjunction with the Raptor Enhancement Development & Integration II (REDI II) Indefinite Delivery/Indefinite Quantity (ID/IQ) ordering contract, the new Advanced Raptor Enhancement and Sustainment (ARES) ID/IQ will begin to be utilized in FY22 as well. The ARES contract is a follow-on to the REDI II contract. Both ID/IQ contracts maximize flexibility to start, stop, accelerate and decelerate projects as required and ARES provides maximum flexibility to manage various modernization projects. 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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0207138F / F-22A Squadrons						<b>Project (Number/Name)</b> 674788 / F-22 Tactical Mandates			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Communication Systems	SS/ Various	Lockheed Martin : Ft Worth, TX	0.000	156.185	Oct 2020	0.072	Nov 2021	0.000		-		0.000	Continuing	Continuing	-
<b>Subtotal</b>			0.000	156.185		0.072		0.000		-		0.000	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			0.000	156.185		0.072		0.000		-		0.000	Continuing	Continuing	N/A
<b>Remarks</b> Execution under Communication Systems is captured in BPAC 674785 F-22 Squadrons exhibits beginning in FY22.															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0207138F / F-22A Squadrons

Project (Number/Name)

674788 / F-22 Tactical Mandates

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>F-22 TACTICAL MANDATES</b>																												
Release 1 (initial Link 16 Transmit & IFF Reply capability) Development, Integration, & Test																												
Release 1 Combat Air Force (CAF) Installs																												
Release 2 (additional Link 16 capability) Development, Integration, & Test																												
Release 3 (additional Link 16 & IFF Reply capability) Development, Integration, & Test																												
Release 4 (Mode 5 IFF Challenge) Development, Integration, & Test																												
Release 4 CAF Installs																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207138F / F-22A Squadrons	Project (Number/Name) 674788 / F-22 Tactical Mandates	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>F-22 TACTICAL MANDATES</b>				
Release 1 (initial Link 16 Transmit & IFF Reply capability) Development, Integration, & Test	1	2021	4	2021
Release 1 Combat Air Force (CAF) Installs	1	2022	1	2025
Release 2 (additional Link 16 capability) Development, Integration, & Test	1	2021	4	2022
Release 3 (additional Link 16 & IFF Reply capability) Development, Integration, & Test	1	2022	4	2023
Release 4 (Mode 5 IFF Challenge) Development, Integration, & Test	1	2021	4	2025
Release 4 CAF Installs	1	2025	4	2027

### Note

Execution under Communication Systems is captured in BPAC 674785 F-22 Squadrons exhibits beginning in FY22.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207142F I F-35 Squadrons							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	104.264	69.365	70.730	0.000	70.730	58.879	55.676	57.857	58.940	Continuing	Continuing
675346: F-35	0.000	3.090	4.890	29.091	0.000	29.091	37.779	34.230	36.184	36.969	Continuing	Continuing
675349: HPSI	0.000	12.770	19.659	20.746	0.000	20.746	0.000	0.000	0.000	0.000	0.000	53.175
676011: JSF DUAL CAPABLE AIRCRAFT	0.000	88.404	44.816	20.893	0.000	20.893	21.100	21.446	21.673	21.971	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, United States Navy, United States Marine Corps and International Partners countries. There are three variants: the F-35A Conventional Takeoff and Landing variant; the F-35B Short Take Off and Vertical Landing variant; and the F-35C Aircraft Carrier suitable variant. Maximum commonality among the variants, consistent with National Disclosure Policy, will minimize total air system life cycle costs.												
Beginning in FY 2020, Continuous Capability Development & Delivery (C2D2) efforts designated as Block 4 that are not USAF-unique (US Service and International Partner common requirements) are requested in PE 0604840F. Remaining funding in PE 0207142F supports USAF-unique on-going User Information Data Exchange Service (UIDES), SEEK EAGLE, Hybrid Product Support Integrator (HPSI) and Dual Capable Aircraft (DCA) requirements. These continuing efforts are not new starts.												
JSF C2D2 efforts provide incremental warfighting capability improvements to maintain joint air dominance against evolving threats. Requirements designated as Block 4 include a robust weapons integration portfolio and provide new opportunities for International Partners to assess, integrate, and field unique capabilities based on global sovereign requirements. The 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 certification needed by Jan 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 JSF 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; full integration efforts pending Service decisions. This is not a new start effort.												
The Air Force SEEK EAGLE Office (AFSEO) is the AF organization chartered to perform the compatibility mission and manage the compatibility enterprise. 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 has supported Flight Test Instrumentation (FTI) wiring and weapons integration tasks related to SEEK EAGLE requests. These tasks												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0207142F I F-35 Squadrons	
include, but are not limited to, envelope expansion, mixed loads testing, adding additional stores and F-35A specific risk reduction efforts and studies. This is not a new start effort.		
<p>The Quick Reaction Instrumentation Package (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 FY 2023, the 59 TES will produce and install 20 QRIP data recording devices on as many F-35A aircraft and will produce/install approximately 20 QRIP devices annually thereafter. Also in FY 2023, the Knowledge Management (KM) system for CSFD ingest and storage will be procured and deployed at Nellis AFB, Hill AFB, and RAF Lakenheath. A team of eight contractors at each base are required to sustain QRIP associated hardware and software. In FY 2025, KM will be deployed at Tyndall AFB. Meanwhile, the 59 TES will continue studying means to increase the operational viability of CSFD. This is not a new start effort. Cost share funding for this effort is also in PE0604840F while the F-35A Air Force unique costs are located in this PE.</p> <p>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 only will fund 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. This is not a new start effort.</p> <p>USAF F-35 User Information Data Exchange Service (UIDES) provides for Air Force development of a F-35 Autonomic Logistics Information System (ALIS) - UIDES that supports current and future Information Exchange Requirement (IER) data transfer capability from the F-35 ALIS into data reports and configurable tables to receive, store and integrate F-35 operations, maintenance, training and financial data within existing Air Force enterprise views and systems to support the growing fleet of AF F-35 aircraft, the ability to feed F-35 training and operations data to ALIS, and support modification of an enhanced data sharing capability (ability to consume increased volume and variety of ALIS IER data) to support operations planning, pilot and maintainer training, and depot data configuration and integration requirements. Activities also include studies and analysis to support both current program/project planning and execution and future program/project planning. The ALIS UIDES efforts are scheduled to ramp down in FY22 until the new Operational Data Integrated Network (ODIN) baseline is ready. This is not a new start effort.</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 FY21 \$7.204M was expended for civilian pay expenses in this program element, and in FY22 \$5.649M 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207142F / <i>F-35 Squadrons</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	114.621	69.365	0.000	0.000	0.000
Current President's Budget	104.264	69.365	70.730	0.000	70.730
Total Adjustments	-10.357	0.000	70.730	0.000	70.730
• 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	-7.000	0.000			
• SBIR/STTR Transfer	-3.357	0.000			
• Other Adjustments	0.000	0.000	70.730	0.000	70.730

**Change Summary Explanation**

FY21 adjustments of -\$3.357M for Small Business Innovative Research (SBIR) and -\$7M reprogramming for C2D2.

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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675346: F-35	0.000	3.090	4.890	29.091	0.000	29.091	37.779	34.230	36.184	36.969	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

Total cost, including International partner contributions, USN, USMC, and USAF funding: FY 2019 \$1,062.771M; FY 2020 USAF only \$11.850M; FY 2021 USAF only \$3.090M. Other ongoing efforts previously included in this PE continue in PE 0604840F.

F-35 C2D2 Includes:

PE 0207142F BPAC 675346

PE 0604840F BPAC 675346

FY13: USN PE 0604800N Project Unit 2261

FY14: USN PE 0604800N Project Unit 9999

FY15-18: USN PE 0604810N Project Unit 2936

FY19: USN PE 0604840N Project Unit 2936

FY13: USMC PE 0604800M Project Unit 2262

FY14: USMC PE 0604800M Project Unit 9999

FY15-18: USMC PE 0604810M Project Unit 2935

FY19: USMC PE 0604840M Project Unit 3410

International Partner Contributions

## A. Mission Description and Budget Item Justification

USAF F-35 User Information Data Exchange Service (UIDES) provides for Air Force development of a F-35 Autonomic Logistics Information System (ALIS) - UIDES that supports current and future Information Exchange Requirement (IER) data transfer capability from the F-35 ALIS into data reports and configurable tables to receive, store and integrate F-35 operations, maintenance, training and financial data within existing Air Force enterprise views and systems to support the growing fleet of AF F-35 aircraft, the ability to feed F-35 training and operations data to ALIS, and support modification of an enhanced data sharing capability (ability to consume increased volume and variety of ALIS IER data) to support operations planning, pilot and maintainer training, and depot data configuration and integration requirements.

The Air Force SEEK EAGLE Office (AFSEO) is the AF organization chartered to perform the compatibility mission and manage the compatibility enterprise. AFSEO delivers warfighting capability through aircraft/store compatibility testing and evaluation and provides accurate combat weapon delivery and mission planning software. Beginning in FY 2020, the USAF has 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 Quick Reaction Instrumentation Package (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

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022				
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35				
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.							
SEEK EAGLE, QRIP, nor UIDES effort is a new start. QRIP is an on-going effort from PE 060480F and the PE 0207142F amount is unique to Air Force RDT&E F-35 Squadrons costs.							
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Autonomic Logistics Information System (ALIS) User Information Data Exchange Service (UIDES)			0.000	2.596	0.000	0.000	0.000
Description: Beginning in FY 2020, the USAF unique ALIS User Information Data Exchange Service (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 current and future Information Exchange Requirement (IER) data transfer capability from the F-35 ALIS into data reports and configurable tables to receive, store and integrate F-35 operations, maintenance, training and financial data within existing Air Force enterprise views and systems to support the growing fleet of AF F-35 aircraft, the ability to feed F-35 training and operations data to ALIS, and support modification of an enhanced data sharing capability (ability to consume increased volume and variety of ALIS IER data) to support operations planning, pilot and maintainer training, and depot data configuration and integration requirements. Activities also include studies and analysis to support both current program/project planning and execution and future program/project planning.							
FY 2022 Plans: Ramp down ALIS UIDES efforts.							
FY 2023 Base Plans: Postpone ALIS UIDES efforts until the new ODIN baseline is ready.							
FY 2023 OCO Plans: N/A							
FY 2022 to FY 2023 Increase/Decrease Statement: The decrease from FY 2022 to FY 2023 is due to a ramp down of ALIS UIDES efforts which are postponed until the new ODIN baseline is ready.							
Title: Air Force SEEK EAGLE Office and Low Observable Sustainability Over Time			3.090	2.294	4.591	0.000	4.591
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							

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons		Project (Number/Name) 675346 / F-35		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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).  Beginning in FY 2020, the USAF has supported Flight Test Instrumentation (FTI) wiring and weapons integration tasks related to Air Force SEEK EAGLE Office (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.  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 throughout three hundred percent.  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, position information to direct their radar.  <b>FY 2022 Plans:</b> USAF only funding will continue supporting SEEK EAGLE requests by providing FTI wiring and supporting weapons integration tasks initiated in FY21, in addition to emergent SEEK EAGLE tasks.  <b>FY 2023 Base Plans:</b> USAF only funding will continue supporting SEEK EAGLE requests by providing FTI wiring and supporting weapons integration tasks initiated in FY21, 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.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207142F / F-35 Squadrons		<b>Project (Number/Name)</b> 675346 / F-35		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Increase due to Test & Evaluation capacity for SEEK EAGLE and LOSOT efforts.					
<b>Title:</b> Quick Reaction Instrumentation Package (QRIP) <b>Description:</b> 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 FY23, the 59 TES will produce and install 20 QRIP data recording devices on as many F-35A aircraft and will produce/install approximately 20 QRIP devices annually thereafter. Also in FY23, the Knowledge Management (KM) system for CSFD ingest and storage will be procured and deployed at Nellis AFB, Hill AFB, and RAF Lakenheath. A team of eight contractors at each base are required to sustain QRIP associated hardware and software. In FY25, KM will be deployed at Tyndall AFB. Meanwhile, the 59 TES will continue studying means to increase the operational viability of CSFD.  <b>FY 2022 Plans:</b> N/A <b>FY 2023 Base Plans:</b> In FY23, the 59 TES will produce and install 20 QRIP data recording devices on as many F-35A aircraft and will produce/install approximately 20 QRIP devices annually thereafter. Also in FY23, the Knowledge Management (KM) system for CSFD ingest and storage will be procured and deployed at Nellis AFB, Hill AFB, and RAF Lakenheath. <b>FY 2023 OCO Plans:</b> N/A <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to operational requirement for 5th generation aircraft flight data and to expand enterprise test capacity. Cost share funding for this effort is also in PE 0604840F while the F-35A Air Force unique costs are located in this PE.	0.000	0.000	24.500	0.000	24.500
<b>Accomplishments/Planned Programs Subtotals</b>	3.090	4.890	29.091	0.000	29.091

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675346 / F-35	

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</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>	684.931	1,105.404	1,014.708	-	1,014.708	808.922	687.032	667.090	684.853	Continuing	Continuing
• RDTE 07 PE 0207142F 6011: <i>Dual Capable Aircraft (DCA), BPAC 676011</i>	88.404	44.816	20.893	-	20.893	21.100	21.446	21.673	21.971	Continuing	Continuing
• RDTE 07 PE 0604840N 2936: <i>F-35C Continuous Capability Development and Delivery (CV)</i>	377.005	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTE 07 PE 0604840M 3410: <i>F-35B Continuous Capability Development and Delivery (STOVL)</i>	370.431	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTE 07 International: <i>International Continuous Capability Development and Delivery</i>	264.799	358.159	346.820	-	346.820	306.563	265.912	215.209	193.862	Continuing	Continuing

**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.

PE 0207142F common Block 4 requirements moved in FY20 to PE 0604840F to separate USAF unique requirements.

Block 4 Planning and System Engineering, Technology Refresh 3 (TR-3), Infrastructure and Support Costs, and Autonomic Logistic Information System (ALIS) Development continues in PE 0604840F beginning in FY20.

**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-3, RDT&E Project Cost Analysis: PB 2023 Air Force										Date: April 2022					
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
3600 / 7						PE 0207142F / F-35 Squadrons				675346 / F-35					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
USAF SEEK EAGLE and LOSOT	Various	Various : Various	0.000	3.090	Mar 2021	2.294	Mar 2022	1.484	Mar 2023	-		1.484	0.000	6.868	-
USAF UIDES	MIPR	Various : Various	0.000	0.000	Feb 2021	2.596	Feb 2022	0.000		-		0.000	0.000	2.596	-
USAF F-35A QRIP	Various	Various : Various	0.000	0.000		0.000		27.607	Dec 2022	-		27.607	0.000	27.607	-
Subtotal			0.000	3.090		4.890		29.091		-		29.091	0.000	37.071	N/A
Remarks															
Cost Category Item Removed due to realignment to BPAC 675346, PE 0604840F or no longer funding in FYDP															
Support															
NAWC Paxutent River															
NAWC China Lake															
IPT Development Support															
Technical Development Support															
JRE Development Support															
ALIS DevOps Development															
ALIS Next Development															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	3.090		4.890		29.091		-		29.091	0.000	37.071	N/A
Remarks															
Subtotals and totals may not add due to rounding.															
F-35 C2D2 Includes:															
PE 0207142F BPAC 675346 - ends FY19															
USAF PE 0604840F BPAC 675346 - begins FY20															
FY13: USN PE 0604800N Project Unit 2261															
FY14: USN PE 0604800N Project Unit 9999															
FY15-18: USN PE 0604810N Project Unit 2936															
FY19: USN PE 0604840N Project Unit 2936															
FY13: USMC PE 0604800M Project Unit 2262															
FY14: USMC PE 0604800M Project Unit 9999															
FY15-18: USMC PE 0604810M Project Unit 2935															
FY19: USMC PE 0604840M Project Unit 3410															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons			Project (Number/Name) 675346 / F-35			
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
International Partner Contributions										

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022	
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)	
3600 / 7					PE 0207142F / F-35 Squadrons					675346 / F-35	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>F-35 SEEK EAGLE and LOSOT</b>																												
Ongoing support activities																												
<b>F-35 UIDES</b>																												
Ongoing support activities																												
<b>F-35A QRIP</b>																												
Ongoing support activities																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022	
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons		Project (Number/Name) 675346 / F-35

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>F-35 SEEK EAGLE and LOSOT</b>				
Ongoing support activities	1	2021	4	2027
<b>F-35 UIDES</b>				
Ongoing support activities	1	2022	4	2022
<b>F-35A QRIP</b>				
Ongoing support activities	1	2023	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675349: HPSI	0.000	12.770	19.659	20.746	0.000	20.746	0.000	0.000	0.000	0.000	0.000	53.175
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The F-35 Hybrid Product Support Integrator's (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 only will fund 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.

Funding for HPSI was previously programmed in PE 0207142F, Project 675346. This is not a new start.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Management Services	12.770	19.659	20.746	-	20.746
<b>Description:</b> This funding provides for the transition of the F-35 HPSI from multiple locations to Wright-Patterson Air Force Base (AFB). The funding supports HPSI AFLCMC civilian pay, contractor support and travel.					
<b>FY 2022 Plans:</b> The HPSI organization will continue to transition to Wright-Patterson AFB. This funding provides for HPSI AFLCMC civilian pay, contractor support and travel.					
<b>FY 2023 Base Plans:</b> The HPSI organization will continue to transition to Wright-Patterson AFB. This funding provides for HPSI AFLCMC civilian pay, contractor support and travel.					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> No significant changes.					
<b>Accomplishments/Planned Programs Subtotals</b>	12.770	19.659	20.746	-	20.746

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

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675349 / HPSI
<b>C. Other Program Funding Summary (\$ in Millions)</b>		
<b>Remarks</b> HPSI is an effort supporting F-35, 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.		
<b>D. Acquisition Strategy</b> The HPSI will deliver enduring, global support for fielded F-35s, integrating sustainment support across the supply chain, maintenance sustainment engineering, logistics, information technology and training.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons				Project (Number/Name) 675349 / HPSI					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AFLCMC Civilian Pay	Allot	AFLCMC : TBD	0.000	8.030	Oct 2020	12.939	Oct 2021	13.568		-		13.568	0.000	34.537	-
Other Core Contractor Support	Various	Various : TBD	0.000	4.700	Oct 2020	6.235	Oct 2021	6.465		-		6.465	0.000	17.400	-
Travel	Various	Various : TBD	0.000	0.040	Oct 2020	0.485	Oct 2021	0.713		-		0.713	0.000	1.238	-
Subtotal			0.000	12.770		19.659		20.746		-		20.746	0.000	53.175	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	12.770		19.659		20.746		-		20.746	0.000	53.175	N/A
Remarks															
Prior years reflect no funding because funding for HPSI in prior years was programmed under PE 0207142F, Project 675346.															
Cost Category Item "Management Services" was removed due to no funding from FY19 and beyond.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)									
3600 / 7					PE 0207142F / F-35 Squadrons					675349 / HPSI									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons	Project (Number/Name) 675349 / HPSI

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Hybrid Product Support Integrator				
Management Support Activities	1	2021	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
676011: JSF DUAL CAPABLE AIRCRAFT	0.000	88.404	44.816	20.893	0.000	20.893	21.100	21.446	21.673	21.971	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

F-35 C2D2 Includes:

USAF PE 0207142F BPAC 675346 - ends FY19  
 USAF PE 0604840F BPAC 675346 - begins FY20  
 FY13: USN PE 0604800N Project Unit 2261  
 FY14: USN PE 0604800N Project Unit 9999  
 FY15-18: USN PE 0604810N Project Unit 2936  
 FY19: USN PE 0604840N Project Unit 2936  
 FY13: USMC PE 0604800M Project Unit 2262  
 FY14: USMC PE 0604800M Project Unit 9999  
 FY15-18: USMC PE 0604810M Project Unit 2935  
 FY19: USMC PE 0604840M Project Unit 3410  
 International Partner Contributions

**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.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Dual Capable Aircraft (DCA) (F-35 JSF)	88.404	44.816	20.893	-	20.893
<b>Description:</b> 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.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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 2022 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 Drawing (EICD) documentation for the initial Technical Refresh - 3 (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 comprise 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, the capability is considered MFR (Military Flight Release) complete and ready for graduation certification events ramp up in FY2022. Initiate AMAC on a production aircraft as well as AMAC graduation event on production aircraft. Initiate interim operational plan data documents, and complete the interim aircraft nuclear safety analysis report.						
FY 2023 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 Preliminary 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 Lot 14 F-35As, that contain additional DCA hardware and software, as well as Lot 15 F-35As which comprise a major hardware upgrade, TR-3. Continue initial TR-3 nuclear certification hardware and software development and testing by the prime contractor, Lockheed Martin. Initiate TR-3 dry run AMAC on Developmental Test aircraft and initiate interim operational plan data documents, and complete the interim aircraft nuclear safety analysis report.						
FY 2022 to FY 2023 Increase/Decrease Statement: Decrease from FY22 to FY23 due to Lot 13 DCA Testing Completion.						
Accomplishments/Planned Programs Subtotals		88.404	44.816	20.893	-	20.893

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207142F / F-35 Squadrons	<b>Project (Number/Name)</b> 676011 / JSF DUAL CAPABLE AIRCRAFT
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 07 PE 0207142F 5346: JSF Follow on Modernization, BPAC 675346	3.090	4.890	29.091	-	29.091	37.779	34.230	36.184	36.969	Continuing	Continuing
• RDTE 07 PE 0604840F: F-35A Continuous Capability Development and Delivery	684.931	1,105.404	1,014.708	-	1,014.708	808.922	687.032	667.090	684.853	Continuing	Continuing
• RDTE 07 PE 0604840N 2936: F-35C Continuous Capability Development and Delivery (CV)	377.005	481.962	-	-	-	-	-	-	-	Continuing	Continuing
• RDTE 07 PE 0604840M 3410: F-35B Continuous Capability Development and Delivery (STOVL)	370.431	515.746	-	-	-	-	-	-	-	Continuing	Continuing
• RDTE 07 International: International Continuous Capability Development and Delivery	264.799	358.159	346.820	-	346.820	306.563	265.912	215.209	193.862	Continuing	Continuing

**Remarks**

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.

**D. Acquisition Strategy**

The DCA effort will leverage contracting vehicles for the overall Block 4 F-35 C2D2 effort. 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-3, RDT&E Project Cost Analysis: PB 2023 Air Force** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207142F / F-35 Squadrons	<b>Project (Number/Name)</b> 676011 / JSF DUAL CAPABLE AIRCRAFT
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Block 4 Phase 2.3 - DCA to DT Complete	SS/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	32.577	Feb 2021	5.000	Feb 2022	2.000	Mar 2023	-		2.000	Continuing	Continuing	-
DCA Prime PW Propulsion	SS/CPFF	Pratt Whitney - East : Hartford, CT	0.000	-		2.000	Feb 2022	0.100	Mar 2023	-		0.100	0.000	2.100	-
DCA TE Prime LM DT AC Viability	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	-		2.000	Dec 2021	1.000	Dec 2022	-		1.000	Continuing	Continuing	-
DCA TE Prime LM Developmental Foundation Contract	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	5.000	Dec 2020	3.000	Dec 2021	1.000	Dec 2022	-		1.000	Continuing	Continuing	-
Delta Certification	SS/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	14.000	Mar 2021	5.050	Mar 2022	2.000	Mar 2023	-		2.000	Continuing	Continuing	-
SEI&T	SS/CPAF	Not specified : TBD	0.000	-		1.563	Oct 2021	1.500	Oct 2022	-		1.500	0.000	3.063	-
<b>Subtotal</b>			0.000	51.577		18.613		7.600		-		7.600	Continuing	Continuing	N/A

**Remarks**

Added DCA Prime PW Propulsion, DCA TE Prime LM DT AC Viability, and DCA TE Prime LM Developmental Foundation Contract - Broke out from Delta Certification and Test and Evaluation Edwards & OGC to account for DCA's cost share of Block 4 Prime Contracts.

Added SEI&T - Broke out from Delta Certification to account for DCA's cost share of SEI&T Contract.

Cost Category Removed:  
 Product Development - No funding in FYDP  
 Block 4 Phase 1 - DCA Requirements Decomposition - Item completed and no funding in FYDP  
 Block 4 Phase 2.1- DCA to PDR - Completion in FY19, no funding in FYDP  
 Prior Year - no longer funded in FYDP - No funding in FYDP  
 Prior Year - Block 4 Realignment - No funding in FYDP

Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
B61-12/F-35 Certification	Various	Various : TBD	0.000	18.591	Feb 2021	12.988	Feb 2022	1.500	Feb 2023	-		1.500	Continuing	Continuing	-
B61-12 AUR/Tail-kit Program Office	MIPR	AUR/TKA SPO : Kirtland/Eglin AFB, NM	0.000	3.800	Mar 2021	2.000	Mar 2022	1.000	Mar 2023	-		1.000	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons				Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AFNWC/AFSEC Support	MIPR	Various : TBD	0.000	4.000	Feb 2021	3.801	Feb 2022	8.929	Feb 2023	-		8.929	Continuing	Continuing	-
Subtotal			0.000	26.391		18.789		11.429		-		11.429	Continuing	Continuing	N/A
Remarks Cost Category Removed: Support - No funding in FYDP Prior Year - no longer funded in FYDP - No funding in FYDP															
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation Edwards & OGC	MIPR	Testing : Edwards, CA	0.000	4.000	Feb 2021	2.000	Dec 2021	0.250	Dec 2022	-		0.250	Continuing	Continuing	-
Air Force SEEK EAGLE Office (Combat Weapons Delivery Software)	MIPR	Testing : Eglin, FL	0.000	1.000	Feb 2021	2.000	Feb 2022	0.100	Feb 2023	-		0.100	Continuing	Continuing	-
Subtotal			0.000	5.000		4.000		0.350		-		0.350	Continuing	Continuing	N/A
Remarks Test and Evaluation Edwards was renamed to Test and Evaluation Edwards & OGC to reflect OGC cost and not include DTV Prime Contract.  Cost Category Removed: Prior Year - no longer funded in FYDP - No funding in FYDP															
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Management Services	C/CPAF	Not specified. : TBD	0.000	5.436	Feb 2021	3.000	Mar 2022	1.000	Mar 2023	-		1.000	Continuing	Continuing	-
AFLCMC Civilian Pay	Allot	Not specified. : TBD	0.000	0.000		0.314	Oct 2021	0.314	Oct 2022	-		0.314	Continuing	Continuing	-
Travel	Various	Not specified. : TBD	0.000	0.000		0.100	Oct 2021	0.200	Oct 2022	-		0.200	Continuing	Continuing	-
Subtotal			0.000	5.436		3.414		1.514		-		1.514	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force										Date: April 2022				
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207142F / F-35 Squadrons				Project (Number/Name) 676011 / JSF DUAL CAPABLE AIRCRAFT					
		Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		0.000	88.404		44.816		20.893		-		20.893	Continuing	Continuing	N/A
Remarks														
F-35 C2D2 Includes: USAF PE 0207142F BPAC 675346 - ends FY19 USAF PE 0604840F BPAC 675346 - begins FY20 FY13: USN PE 0604800N Project Unit 2261 FY14: USN PE 0604800N Project Unit 9999 FY15-18: USN PE 0604810N Project Unit 2936 FY19: USN PE 0604840N Project Unit 2936 FY13: USMC PE 0604800M Project Unit 2262 FY14: USMC PE 0604800M Project Unit 9999 FY15-18: USMC PE 0604810M Project Unit 2935 FY19: USMC PE 0604840M Project Unit 3410 International Partner Contributions														

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022		
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 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207142F / <i>F-35 Squadrons</i>	<b>Project (Number/Name)</b> 676011 / <i>JSF DUAL CAPABLE AIRCRAFT</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>676011: JSF Dual Capable Aircraft</b>				
Nuclear Certification - NNSA & B61-12 AUR/TKA SPO	1	2021	4	2027
Phase 1 (Nuclear Certification Tasks) Requirements Decomposition	1	2021	4	2021
Phase 2.1 (Nuclear Certification Tasks) DCA to Preliminary Design Review (PDR)	1	2021	4	2022
Phase 2.3 (Nuclear Certification Tasks) DCA to DT Complete	1	2021	4	2024
Delta Certification of Hardware/Software Upgrades/DT Prime Contractor Support/ SEI&T	1	2021	4	2027

**Note**

Schedule details reflect fiscal years

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207146F / F-15EX							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	79.866	107.126	83.830	0.000	83.830	0.000	0.000	0.000	0.000	0.000	270.822
670131: F-15EX	-	79.866	107.126	83.830	0.000	83.830	0.000	0.000	0.000	0.000	0.000	270.822
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 average F-15C/D is 38 years old and approaching the end of its safe service life; the oldest F-15C was delivered in 1979. Readiness goals are unachievable due to continuous structural inspections, time-consuming repairs, and on-going modernization efforts.

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.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver F-15EX 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 FY 2021 \$5.779M was expended and in FY 2022 \$8.412M was forecasted for civilian pay expenses in this program element.

The total cost of the F-15EX Middle Tier of Acquisition effort is \$2,762.3 million, including RDT&E and procurement of prototype units. F-15EX 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.

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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207146F I F-15EX				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	159.470	118.126	0.000	0.000	0.000	
Current President's Budget	79.866	107.126	83.830	0.000	83.830	
Total Adjustments	-79.604	-11.000	83.830	0.000	83.830	
• Congressional General Reductions	0.000	-11.000				
• 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	-74.000	0.000				
• SBIR/STTR Transfer	-5.604	0.000				
• Other Adjustments	0.000	0.000	83.830	0.000	83.830	
Change Summary Explanation						
FY 2021 reprogramming of -\$74M on Above Threshold Reprogramming FY21-11 PA OMNIBUS						
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 FY 2023 cannot be made in a relevant manner.						
FY 2022 funding decrease of 11.000M due to Congressional reduction for prior year carryover.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: F-15EX				79.866	107.126	83.830
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 2022 Plans:						
Continue OFP 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						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207146F / F-15EX		

  

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
technology insertion opportunities, and fulfill Federal Aviation Administration (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness. Providing program support to manage and execute F-15EX efforts.			
<b>FY 2023 Plans:</b> Continue OFP 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 and mission effectiveness. Providing program support to manage and execute F-15EX efforts.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY 2023 funding decrease due to a reduction for higher AF priorities.			
<b>Accomplishments/Planned Programs Subtotals</b>	79.866	107.126	83.830

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 F015EX: F-15EX	1,367.147	1,252.359	2,686.348	-	2,686.348	2,697.957	-	-	-	0.000	8,003.811
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> 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 OFP, taking appropriate credit for previous USAF and FMS testing. In addition to the integration of existing USAF-only subsystems and F-15 OFP 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.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207146F / F-15EX				Project (Number/Name) 670131 / F-15EX					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
F-15EX	Various	Various : Various	-	67.887	Jul 2021	87.962	Apr 2022	60.275	Mar 2023	-		60.275	0.000	216.124	-
Subtotal			-	67.887		87.962		60.275		-		60.275	0.000	216.124	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Flight Test	Various	Eglin : Various	-	4.600	Jan 2021	8.364	May 2022	12.567	Mar 2023	-		12.567	0.000	25.531	-
Subtotal			-	4.600		8.364		12.567		-		12.567	0.000	25.531	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AFLCMC Civ Pay	Various	AFLCMC CIV PAY : WPAFB & Robins AFBs	-	5.779	Oct 2020	9.400	Oct 2021	9.588	Oct 2022	-		9.588	0.000	24.767	-
Program Management Administration	Various	Various : Various	-	1.600	Oct 2020	1.400	Oct 2021	1.400	Oct 2022	-		1.400	0.000	4.400	-
Subtotal			-	7.379		10.800		10.988		-		10.988	0.000	29.167	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	79.866		107.126		83.830		-		83.830	0.000	270.822	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207146F / F-15EX			Project (Number/Name) 670131 / F-15EX				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>F-15EX</b>																												
F-15EX Non-Recurring Engineering (NRE) and Integration																												
F-15EX Major Defense Acquisition Program (MDAP) Transition Point (MTP)																												
F-15EX Initial Operational Test & Evaluation (IOT&E)																												
F-15EX Required Assets Available (RAA)/ Initial Operating Capability (IOC)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207146F / F-15EX	Project (Number/Name) 670131 / F-15EX

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>F-15EX</b>				
F-15EX Non-Recurring Engineering (NRE) and Integration	2	2021	4	2023
F-15EX Major Defense Acquisition Program (MDAP) Transition Point (MTP)	3	2022	3	2022
F-15EX Initial Operational Test & Evaluation (IOT&E)	1	2022	3	2023
F-15EX Required Assets Available (RAA)/Initial Operating Capability (IOC)	4	2023	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207161F I Tactical AIM Missiles							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	233.677	18.779	32.974	34.536	0.000	34.536	43.079	34.667	15.963	16.318	0.000	429.993
674132: AIM-9 Product Improvement	233.677	18.779	32.974	34.536	0.000	34.536	43.079	34.667	15.963	16.318	0.000	429.993
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 442												
A. Mission Description and Budget Item Justification												
<p>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 threats identified in Defense Planning Guidance and the Air Force Strategic Master Plan.</p>												
<p>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. The first Full Rate Production Lot contract was awarded in September 2015. This budget line will continue technical refresh of critical obsolete components, implement cost reduction initiatives, improve insensitive munitions performance, correct deficiencies, and increase capabilities through software enhancements, and conduct testing to ensure platform integration onto threshold US Air Force aircraft.</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, or 0606398F. In FY21 \$0 were expended for civilian pay expenses in this program element, and in FY22 \$0 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207161F I Tactical AIM Missiles				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	19.382	32.974	0.000	0.000	0.000	
Current President's Budget	18.779	32.974	34.536	0.000	34.536	
Total Adjustments	-0.603	0.000	34.536	0.000	34.536	
• 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	-0.603	0.000				
• Other Adjustments	0.000	0.000	34.536	0.000	34.536	
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: AIM- 9X Product Development				18.218	31.174	32.736
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, implement cost reduction initiatives, and comply with the Insensitive Munitions (IM) requirements. 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 2022 Plans:						
Complete the AIM-9X SIP III Phase 2 hardware (IMU/dome/processor) Engineering Change Proposal. Continue SIP III v10.4 software development and test. Continue SIP IV hardware and software risk reduction activities to facilitate follow-on capability and obsolescence mitigation; and begin software development efforts to support future v9.X and v10.X software releases. The AIM-9X SIP-IV contract will be awarded in FY22 to address hardware and technological obsolescence in several missile sub-systems in order to maintain required performance against increasingly challenging threat platforms. Software will be developed to facilitate the use of the updated hardware. In particular, FY22 SIP-IV RDT&E funding will focus on the development of an						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development						R-1 Program Element (Number/Name) PE 0207161F I Tactical AIM Missiles						
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2021	FY 2022	FY 2023
advanced sensor replacement and electronic unit upgrades to address hardware obsolesce and processing improvement for the missile guidance system												
FY 2023 Plans: Continue AIM-9X SIP III v10.4 software development and test. Continue v9.5 and v10.5 software development efforts, to support required performance against increasingly challenging threat platforms. Continue AIM-9X SIP-IV hardware development of an advanced sensor and Electronics Unit. Hold Preliminary Design Review (PDR) for the SIP IV hardware. Begin v11.5 to expand on the updated SIP IV hardware.												
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to the ramp up of SIP IV development efforts.												
Title: AIM-9X, Test and Evaluation										0.561	1.800	1.800
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 Operation Flight Software.												
FY 2022 Plans: Continue SIP-III hardware testing to include verification of the Phase II Hardware (Inertial Measurement Unit/dome/processor) as well as v10.4 software. Start SIP IV effort testing of follow-on v9.5 software.												
FY 2023 Plans: Complete v10.4 software flight test. Continue v9.5 software development test and start Integrated Test (IT).												
FY 2022 to FY 2023 Increase/Decrease Statement: No Change from prior year.												
Accomplishments/Planned Programs Subtotals										18.779	32.974	34.536
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• MPAF 02 Line Item M09HAI: Sidewinder (AIM-9X)	119.769	102.507	111.855	-	111.855	95.102	106.064	126.730	128.778	1,078.859	1,869.664	
• MPAF 04 Line Item 000999: Replen Spares, USAF	5.906	5.937	4.641	-	4.641	6.420	6.534	6.613	6.720	0.000	42.771	
• MPAF 04 Line Item 000999 (2)...: Inital Spares, USAF	1.861	2.659	2.801	-	2.801	2.023	2.060	2.084	2.117	36.589	52.194	

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207161F I Tactical AIM Missiles						
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• RDTE 07 PE 0207161N: Tactical AIM Missile	5.715	23.881	29.236	-	29.236	33.470	25.818	12.458	12.622	0.000	143.200
• WPN Line Item 2209: Sidewinder	104.502	78.606	63.288	-	63.288	79.930	87.960	110.521	111.778	1,220.730	1,857.315
Remarks											
E. Acquisition Strategy											
Milestone C decision for LRIP was held June 24, 2011. The program received USN Initial Operational Capability (IOC) in March 2015 and Full Rate Production (FRP) Approval in August 2015. The Air Force achieved IOC in September 2016. In February 2019, the Acquisition Program Baseline for SAF was revised to increase total missile procurements and extend missile procurements through 2035. The program awarded FRP-7 in June 2021. The SIP IV is a cost plus fixed fee contract with a planned award in FY22.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
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>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software/OFP Upgrade/Hdw Development	SS/CPFF	RMD : Tucson, AZ	170.919	16.417	Oct 2020	29.100	Oct 2021	30.662	Oct 2022	-		30.662	75.149	322.247	325.836
Flight Termination System	MIPR	NAWC WD : China Lake, CA	4.034	-		-		0.000	Feb 2023	-		0.000	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	6.104	1.300	Feb 2021	1.600	Feb 2022	1.600	Feb 2023	-		1.600	8.200	18.804	-
Aircraft Integration	SS/CPFF	Boeing : St. Louis, MO	1.038	0.200	May 2021	0.100	May 2022	0.100	May 2023	-		0.100	0.400	1.838	2.624
Subtotal			194.538	17.917		30.800		32.362		-		32.362	83.749	359.366	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DT&E/OT&E	PO	Eglin AFB : Eglin, FL	28.623	0.432	Jan 2021	1.500	Jan 2022	1.500	Jan 2023	-		1.500	23.582	55.637	-
IT/OT Support F-15	SS/CPAF	RMD : Tuscon, AZ	0.641	0.129	May 2021	0.300	May 2022	0.300	May 2023	-		0.300	1.200	2.570	3.370
Subtotal			29.264	0.561		1.800		1.800		-		1.800	24.782	58.207	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PMA	Various	Eglin AFB : Eglin, FL	9.875	0.301	Jan 2021	0.374	Jan 2022	0.374	Jan 2023	-		0.374	1.496	12.420	7.285
Subtotal			9.875	0.301		0.374		0.374		-		0.374	1.496	12.420	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			233.677	18.779		32.974		34.536		-		34.536	110.027	429.993	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
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>			
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0207161F / Tactical AIM Missiles

Project (Number/Name)

674132 / AIM-9 Product Improvement

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>AIM-9X Block II Tech Refresh (SIP III): Software</b>																												
Phase II Hardware (IMU, Dome, Processor)																												
Phase II Hardware Cut in: Engineering Change Proposal																												
Software v9.4 Improvements: Software v9.4 Release																												
Operational Flight Software v9.5																												
Operational Flight Software v9.5 Release																												
Software v10.4 Rehost: Development Testing (DT-D2)																												
Software v10.4 Rehost: Software v10.4 Release																												
<b>AIM-9X Block II Tech Refresh (SIP IV)</b>																												
Hardware and Software Obsolescence																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207161F / <i>Tactical AIM Missiles</i>	<b>Project (Number/Name)</b> 674132 / <i>AIM-9 Product Improvement</i>	

**Schedule Details**

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
<b><i>AIM-9X Block II Tech Refresh (SIP III): Software</i></b>				
Phase II Hardware (IMU, Dome, Processor)	1	2021	3	2022
Phase II Hardware Cut in: Engineering Change Proposal	3	2022	3	2022
Software v9.4 Improvements: Software v9.4 Release	4	2021	4	2021
Operational Flight Software v9.5	1	2021	3	2023
Operational Flight Software v9.5 Release	4	2023	4	2023
Software v10.4 Rehost: Development Testing (DT-D2)	1	2021	1	2023
Software v10.4 Rehost: Software v10.4 Release	3	2023	3	2023
<b><i>AIM-9X Block II Tech Refresh (SIP IV)</i></b>				
Hardware and Software Obsolescence	1	2022	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207163F I Advanced Medium Range Air-to-Air Missile (AMRAAM)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	709.648	50.074	51.288	52.704	0.000	52.704	33.557	53.724	51.403	52.547	127.764	1,182.709
673777: AMRAAM	709.648	50.074	51.288	52.704	0.000	52.704	33.557	53.724	51.403	52.547	127.764	1,182.709
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 185												
A. Mission Description and Budget Item Justification												
<p>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.</p> <p>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.</p> <p>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.</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, or 0606398F. In FY21 \$0 were expended for civilian pay expenses in this program element, and in FY22 \$0 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity		R-1 Program Element (Number/Name)				
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0207163F I Advanced Medium Range Air-to-Air Missile (AMRAAM)				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	51.705	51.288	0.000	0.000	0.000	
Current President's Budget	50.074	51.288	52.704	0.000	52.704	
Total Adjustments	-1.631	0.000	52.704	0.000	52.704	
• 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	-1.628	0.000				
• Other Adjustments	-0.003	0.000	52.704	0.000	52.704	
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: System Improvement Program (SIP)				26.614	26.193	28.264
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-120C3-C7 Counter Emergent Threat (CET) software will maintain inventory viability by addressing emerging electronic attack threats. Candidate Selection Process (CSP) analyzes warfighter priority deficiencies and enhancements to feed risk reduction efforts and future SIP efforts.						
FY 2022 Plans:						
Deliver the SIP 3 software upgrade to the field. Complete FCAs and flight test requirements. Field CET tactical software. Continue SIP 3F software builds and begin flight test. Begin SIP 4 development efforts for the AIM-120D3 (F3R) configuration. Begin SIP-3 Tape 2.						
FY 2023 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207163F <i>I Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Complete SIP 3F FCA and flight test requirements. Field SIP 3F with F3R hardware to maximize missile performance. Continue CSP. Continue SIP 4 development and complete Minimum Viable Product (MVP) milestone demonstrating software maturity. Continue SIP-3 Tape 2.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to increase in SIP 3 Tape 2 and SIP 4 Dev efforts.				
<b>Title:</b> Test and Evaluation  <b>Description:</b> Provides support to flight test efforts; develops test resources and equipment necessary to complete test events; provides contractor field team support personnel and services.  <b>FY 2022 Plans:</b> Continue to develop and procure test resources required to meet test requirements and provide support personnel to complete AIM-120 test events.  <b>FY 2023 Plans:</b> Continue to develop and procure test resources required to meet test requirements and provide support personnel to complete AIM-120 test events.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to SIP 3F Test.		19.289	20.148	20.549
<b>Title:</b> Aircraft Integration  <b>Description:</b> Supports the integration of AIM-120 on multiple aircraft platforms as AIM-120 software/hardware is updated and as aircraft OFPs are updated.  <b>FY 2022 Plans:</b> Continue integration and testing of AIM-120 on multiple aircraft platforms.  <b>FY 2023 Plans:</b> Continue integration and testing of AIM-120 on multiple aircraft platforms.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to reduction in Aircraft Integration requirement.		4.171	4.947	3.891
<b>Accomplishments/Planned Programs Subtotals</b>		50.074	51.288	52.704

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207163F I Advanced Medium Range Air-to-Air Missile (AMRAAM)						
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• MPAF 02 Line Item MAMRA0: Missile Procurement, Air Force	306.023	214.002	320.056	-	320.056	231.473	330.822	462.367	306.098	1,040.926	3,211.767
• MPAF 04 Line Item 000999: Initial Spares/Repair Parts	2.404	3.003	3.165	-	3.165	2.273	2.314	2.343	2.381	0.000	17.883
• MPAF 04 Line Item 000999 Replen: Replen Spares/Repair Parts	0.868	0.873	0.925	-	0.925	0.945	0.963	0.974	0.990	0.000	6.538
• MPAF 02 Line Item 2206: Weapons Procurement, Navy	204.251	0.000	335.900	-	335.900	285.401	269.078	85.545	84.685	207.024	1,471.884
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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207163F / Advanced Medium Range Air-to-Air Missile (AMRAAM)				Project (Number/Name) 673777 / AMRAAM					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
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	234.112	22.878	Jun 2021	23.548	Jun 2022	25.452	Jun 2023	-		25.452	116.369	422.359	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	18.288	4.171	May 2021	4.947	May 2022	3.891	May 2023	-		3.891	29.506	60.803	73.378
Subtotal			454.249	27.049		28.495		29.343		-		29.343	145.875	685.011	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Various	Various : Various	91.363	5.544	Jan 2021	7.285	Jan 2022	8.911	Jan 2023	-		8.911	56.862	169.965	35.169
Test Support	SS/CPFF	Raytheon : Various	144.906	13.745	Jan 2021	12.863	Jan 2022	11.638	Jan 2023	-		11.638	91.679	274.831	292.585
Subtotal			236.269	19.289		20.148		20.549		-		20.549	148.541	444.796	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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Various	Various : Various	19.130	3.736	Jan 2021	2.645	Jan 2022	2.812	Jan 2023	-		2.812	24.579	52.902	0.000
Subtotal			19.130	3.736		2.645		2.812		-		2.812	24.579	52.902	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022						
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207163F / Advanced Medium Range Air-to-Air Missile (AMRAAM)					Project (Number/Name) 673777 / AMRAAM							
					Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals					709.648	50.074		51.288		52.704		-		52.704	318.995	1,182.709	N/A

Remarks

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0207163F / Advanced Medium Range Air-to-Air Missile (AMRAAM)

## Project (Number/Name)

673777 / AMRAAM

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>AMRAAM Development Program</b>																												
AIM-120C CET Development																												
AIM-120C CET Test																												
AIM-120C CET FCA																												
AIM-120C CET IOC																												
AIM-120D SIP-3 EMD																												
AIM-120D SIP-3 Test																												
AIM-120D SIP-3 FCA																												
AIM-120D SIP-3 IOC																												
AIM-120D SIP-3 Tape 2 Development																												
AIM-120D SIP-3 Tape 2 Test																												
AIM-120D SIP-3 Tape 2 FCA																												
AIM-120D SIP-3 Tape 2 IOC																												
AIM-120D3 SIP-3F Development																												
AIM-120D3 SIP-3F Test																												
AIM-120D3 SIP-3F FCA																												
AIM-120D3 SIP-3F IOC																												
AIM-120D3 SIP-4 Risk Reduction																												
AIM-120D3 SIP-4 Development																												
AIM-120D3 SIP-4 Test																												
AIM-120D3 SIP-4 FCA																												
AIM-120D3 SIP-4 IOC																												
AIM-120D3 SIP-5 Development																												
AIM-120D3 SIP-5 Test																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																							Date: April 2022														
Appropriation/Budget Activity										R-1 Program Element (Number/Name)										Project (Number/Name)																	
3600 / 7										PE 0207163F / Advanced Medium Range Air-to-Air Missile (AMRAAM)										673777 / AMRAAM																	
										FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
										1	2	3	4	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-120D3 SIP-6 Development																																					

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0207163F / Advanced Medium Range Air-to-Air Missile (AMRAAM)

Project (Number/Name)

673777 / AMRAAM

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>AMRAAM Development Program</b>				
AIM-120C CET Development	1	2021	3	2022
AIM-120C CET Test	1	2022	2	2022
AIM-120C CET FCA	2	2022	2	2022
AIM-120C CET IOC	3	2022	3	2022
AIM-120D SIP-3 EMD	1	2021	2	2022
AIM-120D SIP-3 Test	2	2021	2	2022
AIM-120D SIP-3 FCA	3	2021	3	2021
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	1	2025	1	2025
AIM-120D3 SIP-3F Development	1	2021	3	2023
AIM-120D3 SIP-3F Test	4	2021	3	2023
AIM-120D3 SIP-3F FCA	2	2023	2	2023
AIM-120D3 SIP-3F IOC	3	2023	3	2023
AIM-120D3 SIP-4 Risk Reduction	1	2021	4	2021
AIM-120D3 SIP-4 Development	1	2022	3	2025
AIM-120D3 SIP-4 Test	2	2024	3	2025
AIM-120D3 SIP-4 FCA	1	2025	1	2025
AIM-120D3 SIP-4 IOC	3	2025	3	2025

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207163F / Advanced Medium Range Air-to-Air Missile (AMRAAM)	Project (Number/Name) 673777 / AMRAAM

	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
AIM-120D3 SIP-5 Development	2	2024	4	2026
AIM-120D3 SIP-5 Test	4	2026	4	2026
AIM-120D3 SIP-6 Development	4	2026	4	2027

### Note

Actual Dates:

AIM-120D SIP-3 EMD began 05 Sep 2017

AIM-120D3 SIP-5 Development ends 4QFY27

AIM-120D3 SIP-5 Test ends 4QFY27

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 0207227F I Combat Rescue - Pararescue							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.668	0.852	0.863	0.000	0.863	0.724	0.738	0.754	0.771	Continuing	Continuing
675352: Guardian Angel RDT&E	-	0.668	0.852	0.863	0.000	0.863	0.724	0.738	0.754	0.771	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 AFD 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.

Funds will be used to obtain significant improvements in operational capability and develop items within the GA FoS to include but not limited to: Sound Navigation and Ranging (SONAR), Maritime Recovery, Ground Mobility, Technical Recovery, Oxygen Systems, Medical Monitoring, Aerial Insertion, Information Management (including Preservation of the Force and Family (POTFF) Tracking System), and include GA requirements in the Battlefield Air Operations Kit. 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 soldier 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 PY \$503M was expended for civilian pay expenses in this program element, and in CY \$0.542M 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207227F I Combat Rescue - Pararescue				
B. Program Change Summary (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		0.668	0.852	0.000	0.000	0.000
Current President's Budget		0.668	0.852	0.863	0.000	0.863
Total Adjustments		0.000	0.000	0.863	0.000	0.863
• 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	0.863	0.000	0.863
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Guardian Angel Family of Systems (FoS)				0.668	0.852	0.863
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 2022 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 oxygen system testing for parachutist oxygen system.						
-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.						
-work with AFRL (711 HPW) to determine if additional funding is required to mature the Preservation of the Force and Family (POTFF) Tracking System.						
- meet with AFRL periodically to monitor ongoing RDT&E efforts and determine the best use of such funds.						
FY 2023 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0207227F I <i>Combat Rescue - Pararescue</i>						
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>		
<ul style="list-style-type: none"> <li>-Will continue to complete studies, strategic planning, and development activities for increased capability.</li> <li>-Will continue necessary software upgrades to Special Warfare Assault Kit (SWAK) information management system.</li> <li>-Will conduct oxygen system testing for parachutist oxygen system.</li> <li>-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.</li> <li>-Will work with AFRL (711 HPW) to determine if additional funding is required to mature the Preservation of the Force and Family (POTFF) Tracking System.</li> <li>-Will meet with AFRL periodically to monitor ongoing RDT&amp;E efforts and determine the best use of such funds.</li> </ul>											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increased due to family of systems contract awards and necessary civilian pay expenses.											
<b>Accomplishments/Planned Programs Subtotals</b>							0.668	0.852	0.863		
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 04 Line Item 842990: <i>Items Less than \$5M (Safety)</i>	22.695	23.169	23.509	-	23.509	23.932	24.370	-	-	Continuing	Continuing
• OPAF 02 Line Item 823230: <i>Security and Tactical Vehicles</i>	0.205	0.281	0.287	-	0.287	0.292	0.298	-	-	Continuing	Continuing
• WPN test: <i>test</i>	-	-	-	-	-	-	-	-	-	0.000	0.000
<b>Remarks</b>											
<b>E. Acquisition Strategy</b>											
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-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207227F / Combat Rescue - Pararesc ue				Project (Number/Name) 675352 / Guardian Angel RDT&E					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
GA Family Of Systems	Various	Various : Various	-	0.618	Apr 2021	0.802	Apr 2022	0.803	Apr 2023	-		0.803	Continuing	Continuing	-
Human Performance Organization Support (POTFF)	Various	Various : Various	-	0.050	Feb 2021	0.050	Apr 2022	0.060	Apr 2023	-		0.060	Continuing	Continuing	-
Subtotal			-	0.668		0.852		0.863		-		0.863	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.668		0.852		0.863		-		0.863	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0207227F / Combat Rescue - Pararescue					675352 / Guardian Angel RDT&E			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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																												
BAO Kit (G) Software																												
Test Support																												
GA Equipment Upgrades																												
Human Performance Organization Support (POTFF)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207227F / Combat Rescue - Pararescue	Project (Number/Name) 675352 / Guardian Angel RDT&E	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Events By Sub Project				
BAO Kit (G) Software	1	2021	4	2027
Test Support	1	2021	2	2027
GA Equipment Upgrades	2	2021	2	2027
Human Performance Organization Support (POTFF)	2	2021	1	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207247F I AF TENCAP							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	21.605	23.685	23.309	0.000	23.309	25.691	23.828	24.330	24.872	Continuing	Continuing
670001: Air Force TENCAP	-	21.605	23.685	23.309	0.000	23.309	25.691	23.828	24.330	24.872	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 Joint All-Domain Command and Control prototyping efforts into a single Common Operational Picture. AF TENCAP projects also support acceleration of capability development for USINDOPACOM operational plans.

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 PY22 \$00.000M was expended for civilian pay expenses in this program element, and in CY23 \$00.000M 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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207247F I AF TENCAP			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	18.820	23.685	0.000	0.000	0.000
Current President's Budget	21.605	23.685	23.309	0.000	23.309
Total Adjustments	2.785	0.000	23.309	0.000	23.309
• 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	2.785	0.000	23.309	0.000	23.309
Change Summary Explanation					
FY2021: The correct amount for FY2021 is 21.605M. There was an error in the XML database when data transferred from PRCP to IDECS incorrectly putting the FY21 amount at 18.820. Based on the approved FY2021 PB, the TENCAP PE was distributed the correct value of 21.605M.					
FY2023: The FY2022 President's Budget submittal did not reflect FY2023 through FY2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Exploitation Applications	14.932	12.935	10.809	0.000	10.809
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, the application of combat effects; Battlespace Awareness and Command and Control; and support to Special Operations Forces, Personnel Recovery and Close Air Support. Activities also influence the design and operation of future space, cyber, national and global ISR, and NTISR systems for tactical users.					
FY 2022 Plans: - Continues to rapidly prototype projects and focus warfighter support and resource allocation based on AF TENCAP mission/investment areas					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207247F I AF TENCAP				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>- Continues focused efforts to increase Air Domain Awareness and Command and Control; support to Special Operations Forces; and support to ISR and Combat Applications to meet Air Force and Joint Warfighter requirements.</p> <p><b>FY 2023 Base Plans:</b></p> <p>- 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 support to ISR and Combat Applications to meet Air Force and Joint Warfighter requirements.</p> <p><b>FY 2023 OCO Plans:</b></p> <p>None.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>Funding decrease to account for the availability of prior year execution balances.</p>						
<p><b>Title:</b> Talon CRESTONE</p> <p><b>Description:</b> TALON CRESTONE provides C-UAS capability in support of CENTCOM JUONS 558 &amp; 576. Capability will be employed from CENTCOM airborne platforms and payloads will be controlled via a remote central server. This effort leverages existing National &amp; Tactical technology and networks focused on the highest priority threats in CENTCOM. Initial fielding by Fall 2021.</p> <p><b>FY 2022 Plans:</b></p> <p>Talon CRESTONE begins transition activities to support handoff of the C-UAS capability to the program of record in support of CENTCOM JUONS 558 &amp; 576. Funding will bridge transition to Program of Record and support critical integration and test within CENTCOM theater of operations.</p> <p><b>FY 2023 Base Plans:</b></p> <p>Talon CRESTONE will continue transition activities of the C-UAS capability to the program of record in support of CENTCOM JUONS 558 &amp; 576. Funding will acquire additional payloads and continue support of critical integration and test within CENTCOM theater of operations, as well as support transition to Special Signals Branch (AFLCMC/WIN).</p> <p><b>FY 2023 OCO Plans:</b></p>		2.850	3.000	7.000	0.000	7.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207247F I AF TENCAP				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
None.						
FY 2022 to FY 2023 Increase/Decrease Statement: Talon CRESTONE will acquire additional payloads and support critical integration and test within CENTCOM theater of operations.						
Title: Talon POWDERHORN		0.123	2.000	0.500	0.000	0.500
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 integration into THRESHER Program of Record (All Domain Awareness tool).						
FY 2022 Plans: - 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.						
FY 2023 Base Plans: - Talon POWDERHORN will continue 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.  - 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.						
FY 2023 OCO Plans: None.						
FY 2022 to FY 2023 Increase/Decrease Statement:						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207247F I AF TENCAP				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Talon POWDERHORN will complete major development tasks and start transition activities associated with moving developed capabilities into associated programs of record.						
<p><b>Title:</b> Talon 6A</p> <p><b>Description:</b> Talon 6A is a technology prototype to design, build, demonstrate a long-range passive ionospheric modeling research system to examine wide-area operational surveillance and assess airborne platform survivability. Effort will leverage National and Allied technologies.</p> <p><b>FY 2022 Plans:</b> Completes rapid prototype development of ionospheric system at site 1. Will start transition activities to provide an initial operational capability. Begin planning activities for installation at site 2. Will continue to examine wide-area operational surveillance and assess airborne platform survivability in partnership with National and Allied partners.</p> <p><b>FY 2023 Base Plans:</b> Will continue transition activities of ionospheric system at site 1 and begin site preparation and development of second system at site 2. Work with National and Allied partners to integrate separate sites into prototype network. Continue IOC activities at completed sites.</p> <p><b>FY 2023 OCO Plans:</b> None.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Will continue transition activities at site 1 and begin development activities at site 2.</p>		2.000	0.750	1.000	0.000	1.000
<p><b>Title:</b> Talon PHOENIX</p> <p><b>Description:</b> Talon PHOENIX is an effort to develop distributed SAP mission planning for 5th Generation and beyond.</p> <p><b>FY 2022 Plans:</b> Continues to develop distributed SAP mission planning for 5th Generation communities and begin prototype testing capabilities.</p> <p><b>FY 2023 Base Plans:</b></p>		1.700	5.000	4.000	0.000	4.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>			<b>R-1 Program Element (Number/Name)</b> PE 0207247F I AF TENCAP		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>
Will continue development of distributed SAP mission planning for 5th Generation communities. Demonstrate capability through prototype testing events and begin transition of capability to appropriate programs of record.  <b>FY 2023 OCO Plans:</b> None.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Transition of project from development into test and delivery of demonstrated capabilities.					<b>FY 2023 OCO</b>
<b>Accomplishments/Planned Programs Subtotals</b>			21.605	23.685	23.309
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b> N/A  <b>E. Acquisition Strategy</b> 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-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP				Project (Number/Name) 670001 / Air Force TENCAP					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Exploitation Applications	Various	Various : Various	-	12.806	Nov 2020	10.342	Nov 2021	7.959	Nov 2022	-		7.959	Continuing	Continuing	-
Talon CRESTONE	C/CPAF	Sandia Nat'l Labs : Various	-	2.850	Apr 2021	3.000	Nov 2021	7.000	Nov 2022	-		7.000	Continuing	Continuing	-
Talon POWDERHORN	Various	KBR-Wyle : Various	-	0.123	Nov 2020	2.000	Nov 2021	0.500	Nov 2022	-		0.500	Continuing	Continuing	-
Talon 6A	Various	KBR-Wyle : Various	-	2.000	Nov 2020	0.750	Nov 2021	1.000	Nov 2022	-		1.000	Continuing	Continuing	-
Talon PHOENIX	Various	Various : Various	-	1.700	Dec 2020	5.000	Dec 2021	4.000	Nov 2022	-		4.000	Continuing	Continuing	-
Subtotal			-	19.479		21.092		20.459		-		20.459	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Oversight (PMA)	Various	Various : Various	-	2.126	Nov 2020	2.593	Nov 2021	2.850	Nov 2022	-		2.850	Continuing	Continuing	-
Subtotal			-	2.126		2.593		2.850		-		2.850	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	21.605		23.685		23.309		-		23.309	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0207247F / AF <i>TENCAP</i>		
			<b>Project (Number/Name)</b> 670001 / Air Force <i>TENCAP</i>		

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>AF TENCAP Projects</i></b>																												
FY 2020 Exploitation Applications Developed, Evaluated, and Released																												
FY 2021 Exploitation Applications Developed, Evaluated, and Released																												
FY 2022 Exploitation Applications Developed, Evaluated, and Released																												
FY 2023 Exploitation Applications Developed, Evaluated, and Released																												
Talon CRESTONE																												
Talon POWEDERHON																												
Talon 6A																												
Talon PHOENIX																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207247F / AF TENCAP	Project (Number/Name) 670001 / Air Force TENCAP	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>AF TENCAP Projects</b>				
FY 2020 Exploitation Applications Developed, Evaluated, and Released	1	2021	3	2021
FY 2021 Exploitation Applications Developed, Evaluated, and Released	1	2021	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
Talon CRESTONE	1	2021	2	2024
Talon POWEDERHON	1	2021	4	2024
Talon 6A	1	2021	4	2025
Talon PHOENIX	1	2021	4	2023

### 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 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207249F I Precision Attack Systems Procurement							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	8.983	12.083	12.722	0.000	12.722	12.982	13.226	13.504	13.804	Continuing	Continuing
675347: Advanced Targeting Pod	-	8.983	12.083	12.722	0.000	12.722	12.982	13.226	13.504	13.804	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 program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. 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 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	9.244	12.083	0.000	0.000	0.000
Current President's Budget	8.983	12.083	12.722	0.000	12.722
Total Adjustments	-0.261	0.000	12.722	0.000	12.722
• 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	-0.261	0.000			
• Other Adjustments	0.000	0.000	12.722	0.000	12.722

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207249F I Precision Attack Systems Procurement		
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 FY 2023 cannot be made in a relevant manner.				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
Title: Advanced Targeting Pod - Sensor Enhancement (ATP-SE) Requirements  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.  FY 2022 Plans: Continue developing sensor enhancement improvements on the targeting pods via aircraft integration updates and design modifications.  FY 2023 Plans: N/A  FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to program transitioning to a new major thrust titled: Advanced Targeting Pod-Technical Insertion.		8.983	12.083	0.000
Title: Advanced Targeting Pod-Technical Insertion (ATP-TI) Increment 1  Description: ATP-TI is not a new start and serves as a continuation effort of the ATP-SE program. Efforts include upgrading the Sniper and LITENING precision target pods, testing, and aircraft integration.  FY 2022 Plans: FY22 plans documented in the major thrust titled, Advanced Targeting Pod - Sensor Enhancement.  FY 2023 Plans: Accomplish ATP Operational Flight Program (OFP) requirements, and further technology improvements, requirements definition, studies, analysis and assessments.  FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to pod integration with aircraft OFP updates.		-	0.000	12.722
Accomplishments/Planned Programs Subtotals		8.983	12.083	12.722

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development				R-1 Program Element (Number/Name) PE 0207249F I Precision Attack Systems Procurement								
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• APAF 05 Line Item 057: Other Aircraft, Precision Attack Systems Modifications	47.447	14.818	9.476	-	9.476	53.374	54.351	55.243	56.439	Continuing	Continuing	
• APAF 06 Line Item 000999: Initial Spares/Repair Parts	0.253	3.425	2.292	-	2.292	3.659	3.725	3.786	3.869	Continuing	Continuing	
Remarks												
E. Acquisition Strategy												
The Advanced Targeting Pod (ATP) acquisition strategy consists several development contracts that use a firm-fixed pricing approach.												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207249F / Precision Attack Systems Procurement				Project (Number/Name) 675347 / Advanced Targeting Pod					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ATP: OFP, Technology Improvement, Tech Analysis, Studies & Assessments	C/FFP	NGC, LM, AFRL : AFRL, WPAFB	-	8.899	Jan 2021	12.003	Oct 2021	12.642	Oct 2022	-		12.642	Continuing	Continuing	-
Subtotal			-	8.899		12.003		12.642		-		12.642	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ATP: Risk Reduction	C/FFP	Multiple : Various	-	0.084	Nov 2020	0.080	Nov 2021	0.080	Nov 2022	-		0.080	Continuing	Continuing	-
Subtotal			-	0.084		0.080		0.080		-		0.080	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	8.983		12.083		12.722		-		12.722	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0207249F / Precision Attack Systems Procurement					675347 / Advanced Targeting Pod			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207249F / Precision Attack Systems Procurement	Project (Number/Name) 675347 / Advanced Targeting Pod

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>ATP-SE</b>				
FY21 OFP Integration	2	2021	2	2022
FY22 OFP Integration	2	2022	2	2023
<b>ATP-TI</b>				
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 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207253F I Compass Call							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	15.228	91.266	49.054	0.000	49.054	87.991	81.747	130.615	119.848	Continuing	Continuing
674804: Compass Call	-	15.228	91.266	49.054	0.000	49.054	87.991	81.747	130.615	119.848	Continuing	Continuing
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 adversary's use of the electromagnetic battlespace and is a key active component in the information battlespace and prosecution of Overseas Contingency Operations (OCO). 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.

The Compass Call system was fielded in 1983 and employs an incremental development and fielding strategy that puts capability into the warfighter's hands as soon as practical and ensures each iteration of the weapon system is effective against the highest priority threats such as military and commercial communications, command and control operations, and new/emerging sensors. Due to the rapid advances in electronic attack techniques and technology, Compass Call was designed to be adaptable and must continuously modernize and evolve to keep pace with adversary tactics and emerging technologies. Development funding is required to perform trade studies, accomplish system upgrades and associated test activities, and develop and test Quick Reaction Capabilities (QRCs). The EC-130H Baseline 2 (BL2) configuration and the EC-130H mid-Baseline 2 (MBL2) enhancements are the latest in a line of fielded mission system upgrades to the EC-130H.

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 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. The EC-37B program is highly concurrent with developmental and procurement activities occurring in parallel.

The current Compass Call program of record as of end Q2 FY2022 includes the following resources: seven (7) Primary Mission Aircraft Inventory (PMAI), Combat Support coded (CA) EC-130H aircraft, one (1) Backup Aircraft Inventory (BAI), Training coded (TF) TC-130H trainer aircraft, one (1) EC-130H Weapon System Trainer (WST, flight deck simulator), and two (2) Compass Call Mission Crew Simulators (CCMCS). Seven (7) EC-130H aircraft have been divested between FY2018 and FY2022. One (1) EC-130H aircraft will retire in Q4 FY2023. One (1) more EC-130H is due to retire in Q1 FY2024. Due to the age of the EC-130H fleet (average is 47 years) the re-hosting of the Prime Mission Equipment (PME) is crucial to ensuring the survival of this critical capability.

EC-37B BL3 updates existing, fielded MBL2 capabilities, while significantly increasing operating altitude and standoff distances through re-host onto a new airframe. Incremental low band capability has been added to BL3 through the extension of an existing frequency band. BL4 transitions the software baseline to an agile software framework, implements System-Wide Open Reconfigurable Dynamic Architecture (SWORD-A) to enable rapid integration of new capabilities offering increased target capacity, and addresses diminishing manufacturing sources (DMS).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207253F I Compass Call
<p>RDT&amp;E efforts concentrate on BL4 development and test activities, maturation of AEA technologies, and trade studies for future Baselines. Activities encompassed within the PME upgrade may include, but are not limited to: aircraft system integration, assembly, test and checkout, mission system upgrades, external communications upgrades, obsolescence resolution, software development, systems engineering, test and evaluation, flight test, training systems, training events, support equipment, and Program Support Costs (PSC).</p> <p>Specific mission system developmental activities include studies and analyses for future capabilities and baselines; maturation of higher Technology Readiness Level (TRL) technologies for future insertion; QRC application development for integration onto the Compass Call Software Defined Radio (SDR) capability; power expansion; transmit and receive development; size, weight, power and cooling (SWAP-C) reductions; implementation of obsolescence and DMS/vanishing vendor items (VVI) that drive developmental redesign of impacted hardware; transition of Compass Call PME to open architecture complaint standards; and continued migration of the Compass Call Operating System (CCOS) to an agile software construct.</p> <p>Compass Call 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>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 0.0M was expended for civilian pay expenses in this program element, and in FY2023 0.0M 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>		
B. Program Change Summary (\$ in Millions)		
	FY 2021	FY 2022
Previous President's Budget	15.825	91.266
Current President's Budget	15.228	91.266
Total Adjustments	-0.597	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	-0.017	0.000
• SBIR/STTR Transfer	-0.580	0.000
• Other Adjustments	0.000	0.000
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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207253F I Compass Call				
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.						
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Baseline Upgrade Development		15.228	91.266	49.054	0.000	49.054
Description: Supports development of new PME baseline (BL), other subsystem, and platform upgrades in order to ensure Compass Call capabilities remain ahead of emerging adversary tactics and technologies.						
FY 2022 Plans: Continues PME development, integration, and test on an upgraded platform and associated simulators, address PME anomalies as required, and begin future baseline development activities. Specific efforts may include but are not limited to the following: <ul style="list-style-type: none"><li>• Expanding frequency coverage</li><li>• Advanced Military &amp; Commercial Communications Offensive capabilities</li><li>• Emerging and Modern Targets</li><li>• Platform integration for future capabilities</li><li>• Updates to PME infrastructure</li><li>• Platform upgrades and associated non-recurring engineering</li><li>• Studies and analysis for current/future baseline development planning</li><li>• Open Mission System Architecture for rapid capability integration</li><li>• Training system/simulator upgrades</li><li>• Software Defined Receiver/Transmit</li><li>• Containerized agile software development/implementation</li><li>• QRCs</li><li>• PME Integration and Testing</li><li>• Hardware prototyping and integration analysis</li><li>• Testing activities</li><li>• External communications upgrades</li><li>• Program Support Costs, advisory &amp; assistance service, and systems engineering support</li></ul>						
FY 2023 Base Plans: Will continue PME development, integration, and test on an upgraded platform and associated simulators, address PME anomalies as required, and begin future baseline development activities.						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force							Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development				R-1 Program Element (Number/Name) PE 0207253F I Compass Call							
C. Accomplishments/Planned Programs (\$ in Millions)							FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Specific efforts may include but are not limited to the following:</p> <ul style="list-style-type: none"><li>• Expanding frequency coverage</li><li>• Advanced Military &amp; Commercial Communications Offensive capabilities</li><li>• Emerging and Modern Targets</li><li>• Platform integration for future capabilities</li><li>• Updates to PME infrastructure</li><li>• Platform upgrades and associated non-recurring engineering</li><li>• Studies and analysis for current/future baseline development planning</li><li>• Open Mission System Architecture for rapid capability integration</li><li>• Training system/simulator upgrades</li><li>• Software Defined Receiver/Transmit</li><li>• Containerized agile software development/implementation</li><li>• Software applications and QRCs</li><li>• PME Integration and Testing</li><li>• Hardware prototyping and integration analysis</li><li>• Testing activities</li><li>• External communications upgrades</li><li>• Program Support Costs, advisory &amp; assistance service, and systems engineering support</li></ul> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> The FY2022 to FY2023 decrease is due to FY2022 up front BL4 developmental material, associated prototyping, software, and activities subsiding in FY2023.</p>											
Accomplishments/Planned Programs Subtotals							15.228	91.266	49.054	0.000	49.054
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 04 Line item CALL00: Compass Call Aircraft	159.867	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	159.867

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207253F I Compass Call						
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 Line item	180.983	195.098	16.630	0.000	16.630	144.266	93.806	101.417	193.098	0.000	925.298
CALL00: Compass Call Mods											
• APAF 06 Line item CALL00: Compass Call Mod Spares	10.985	65.624	1.982	0.000	1.982	85.950	13.824	22.170	17.271	0.000	217.806
Remarks											
E. Acquisition Strategy											
Compass Call maintains operational relevancy through an incremental upgrade strategy in which a new Baseline mission system configuration fields approximately every 3-4 years. The re-hosting of PME onto the BL3 and BL4 EC-37B has temporarily lengthened the planned upgrade schedule. Future baselines are planned to return to this upgrade cycle for major hardware updates. Urgent upgrades between Baselines are accomplished via QRCs. These efforts are accomplished by the 645th Aeronautical Systems Group (645 AESG) in accordance with their Acquisition Strategy, Program Management Directive (PMD), Class Justification and Approval (J&A) document for acquisition of supplies and services using other than full and open competition criteria, and Life Cycle Management Plan (LCMP) and cover the full spectrum of system life cycle management ("cradle to grave" support concept).											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
3600 / 7						PE 0207253F / <i>Compass Call</i>				674804 / <i>Compass Call</i>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Baseline Upgrade Development Primary Mission Equipment	SS/CPFF	BAE Systems : Nashua, NH	-	14.377	Dec 2020	80.971	Oct 2021	35.238	Oct 2022	-		35.238	Continuing	Continuing	-
Subtotal			-	14.377		80.971		35.238		-		35.238	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	SS/CPAF	Not specified. : TBD	-	0.584	Sep 2021	9.847	Nov 2021	13.293	Dec 2022	-		13.293	Continuing	Continuing	-
Subtotal			-	0.584		9.847		13.293		-		13.293	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Support Costs (PSC)	Various	AFLCMC : WPAFB, OH	-	0.267	Apr 2021	0.448	Apr 2022	0.523	Apr 2023	-		0.523	Continuing	Continuing	-
Subtotal			-	0.267		0.448		0.523		-		0.523	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	15.228		91.266		49.054		-		49.054	Continuing	Continuing	N/A
Remarks															
Program Support Costs have increased across FY2021 - FY2023 for A&AS support and program management needs associated with increased development and test activities.															
Test and Evaluation have increased across FY2021-FY2022 for increased needs associated with development and test activities.															
Product Development has fluctuated across FY2021-FY2023 due to FY2022 up front BL4 development material, associated prototyping, software development activities subsiding in FY2023.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity								R-1 Program Element (Number/Name)						Project (Number/Name)			
3600 / 7								PE 0207253F / <i>Compass Call</i>						674804 / <i>Compass Call</i>			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Compass Call																												
Baseline 3 Development																												
Baseline 4 Development																												
Test and Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Compass Call</i>				
Baseline 3 Development	1	2021	2	2022
Baseline 4 Development	1	2021	1	2026
Test and Evaluation	1	2021	4	2027

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>											
3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	PE 0207268F I <i>Aircraft Engine Component Improvement Program</i>											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	121.206	115.715	116.087	0.000	116.087	3.671	17.314	13.097	90.541	Continuing	Continuing
671012: <i>Aircraft Engine Component Improvement Program</i>	-	93.644	75.754	86.538	0.000	86.538	3.671	17.314	13.097	49.379	Continuing	Continuing
675365: <i>F135 Aircraft Engine Component Improvement Program</i>	-	27.562	39.961	29.549	0.000	29.549	0.000	0.000	0.000	41.162	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. 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 FY22 and FY23 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. It also serves as the primary vehicle to implement emerging technology solutions to resolve these issues and improve engine performance.

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.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver 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. For FY21 \$0.00 was expended, and for FY22 \$0.00M is forecast for civilian pay expenses in this program. element.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207268F I Aircraft Engine Component Improvement Program			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	125.666	103.715	0.000	0.000	0.000
Current President's Budget	121.206	115.715	116.087	0.000	116.087
Total Adjustments	-4.460	12.000	116.087	0.000	116.087
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	12.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-4.460	0.000			
• Other Adjustments	0.000	0.000	116.087	0.000	116.087
Change Summary Explanation					
The FY2022 President's Budget submittal did not reflect FY2023 through FY2026 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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
671012: Aircraft Engine Component Improvement Program	-	93.644	75.754	86.538	0.000	86.538	3.671	17.314	13.097	49.379	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 (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. Engine CIP directly addresses engine related causes to aircraft Non-Mission-Capability rates. Significant requirements for FY22 and FY23 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. Engines are inducted into the program with government acceptance of 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 replacement spares costs.

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, test capacity to rapidly respond to problems as they occur and absolutely paramount to reach SecDef directed 80% mission capability rate for F-22, F-16, and F-15 aircraft.

Minimal, if any, new tasks will be initiated in FY22/23.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> F100 Aircraft Engine Component Improvement Program	9.179	10.257	12.587	0.000	12.587
<b>Description:</b> The F100-220 and F100-229 Engine CIP provides critical developmental engineering support for approximately 3841 engines (including foreign military sales [FMS]) to maintain flight safety (highest priority), to					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
address parts obsolescence, to improve system 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.						
<b>FY 2022 Plans:</b> F100-220 and F100-229: - Will execute multiple tasks. Budget will 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, improved system operational readiness (OR) and reliability & maintainability (R&M), reduced engine life cycle costs (LCC), and sustain engines throughout their service life. - Funds may be used to address emerging and short-notice DMSMS issues.						
<b>FY 2023 Base Plans:</b> F100-220 and F100-229: - 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, improved system operational readiness (OR) and reliability & maintainability (R&M), reduced engine life cycle costs (LCC), and sustain engines throughout their service life. - Funds may be used to address emerging and short-notice DMSMS issues.						
<b>FY 2023 OCO Plans:</b> N/A						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to requirement increase						
Title: F110 Aircraft Engine Component Improvement Program		14.100	7.530	9.212	0.000	9.212
Description: The F101, F110-100, F110-129, F118-100, and F118-101 Engine CIP provides critical developmental engineering support for approximately 2568 engines (including FMS) to maintain flight safety (highest priority), to address parts obsolescence, to improve system OR and R&M, to reduce engine LCC, and to						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
sustain engines throughout their service life. Funds may be used to address emerging and short-notice DMSMS issues.						
<b>FY 2022 Plans:</b> F101, F110-100, F110-129, F118-100, and F118-101: - 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. - Maintain engine flight safety, address obsolescence deficiencies, improved system OR and R&M, reduced engine LCC, and sustain engines throughout their service life. - Funds may be used to address emerging and short-notice DMSMS issues.						
<b>FY 2023 Base Plans:</b> F101, F110-100, F110-129, F118-100, and F118-101: - 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. - Maintain engine flight safety, address obsolescence deficiencies, improved system OR and R&M, reduced engine LCC, and sustain engines throughout their service life. - Funds may be used to address emerging and short-notice DMSMS issues.						
<b>FY 2023 OCO Plans:</b> N/A						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to requirement increase						
<b>Title:</b> F119 Aircraft Engine Component Improvement Program		25.352	10.924	13.433	0.000	13.433
<b>Description:</b> The F119 Engine CIP provides critical developmental engineering support for approximately 471 engines to maintain flight safety (highest priority), to address parts obsolescence, to improve system 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.						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<b>FY 2022 Plans:</b> F119: - 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. - Maintain engine flight safety, address obsolescence deficiencies, improved system OR and R&M, reduced engine LCC, and sustain engines throughout their service life. - Funds may be used to address emerging and short-notice DMSMS issues.						
<b>FY 2023 Base Plans:</b> F119: - Will execute multiple tasks. The budget will 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. - Maintain engine flight safety, address obsolescence deficiencies, improved system operational readiness (OR) and reliability & maintainability (R&M), reduced engine life cycle costs (LCC), and sustain engines throughout their service life. - Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues.						
<b>FY 2023 OCO Plans:</b> N/A						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to requirement increase						
<b>Title:</b> Other Aircraft Engine Component Improvement Program		45.013	47.043	51.306	0.000	51.306
<b>Description:</b> The Other Engines (e.g., TF33, TF34, T53, T56, T700, T400, J85, F107, APUs) CIP provides critical developmental engineering support for approximately 8,000+ engines (including FMS) and over 16,000 APU/SPS to maintain flight safety (highest priority), to address parts obsolescence, to improve system 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.						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>FY 2022 Plans:</b> Other Engines (e.g., TF33, TF34, T53, T56, T700, T400, J85, APUs, F107): - Will execute multiple tasks. The budget will 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, improved system OR and R&amp;M, reduced 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> <p><b>FY 2023 Base Plans:</b> Other Engines (e.g., TF33, TF34, T53, T56, T700, T400, J85, APUs, F107): - Will execute multiple tasks. The budget will 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, improved system OR and R&amp;M, reduced 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> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase due to requirement increase</p>						
Accomplishments/Planned Programs Subtotals		93.644	75.754	86.538	0.000	86.538

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207268F / <i>Aircraft Engine Component Improvement Program</i>	<b>Project (Number/Name)</b> 671012 / <i>Aircraft Engine Component Improvement Program</i>
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A <b>Remarks</b> Other APPN RELATED ACTIVITIES  (U) - PEs 0203752A and 0205633N, Army/Navy Aircraft Engine CIPs  <b>D. Acquisition Strategy</b> 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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0207268F / Aircraft Engine Component Improvement Program						<b>Project (Number/Name)</b> 671012 / Aircraft Engine Component Improvement Program			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Aircraft Engine CIP:Develop aircraft engine improvements - F110/F101/F118	SS/CPFF	GE : Evendale, OH	-	14.100	Dec 2020	7.530	Dec 2021	9.212	Dec 2022	-		9.212	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-F100/F119/TF33/T400	SS/CPFF	Pratt & Whitney : Hartford, CT	-	41.938	Dec 2020	26.210	Dec 2021	31.508	Dec 2022	-		31.508	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-TF34/J85/T700	SS/CPFF	GE : Lynn, MA	-	7.395	Dec 2020	6.621	Dec 2021	7.221	Dec 2022	-		7.221	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-T56	SS/CPFF	Rolls Royce : Indianapolis, IN	-	1.615	Dec 2020	0.530	Dec 2021	0.578	Dec 2022	-		0.578	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft Auxiliary Power Unit improvements/T53	SS/CPFF	Honeywell : Phoenix, AZ	-	0.873	Dec 2020	4.494	Dec 2021	4.901	Dec 2022	-		4.901	Continuing	Continuing	-
Aircraft Engine CIP: Develop engine improvements-F107	SS/CPFF	Various : Various	-	0.022	Dec 2020	0.038	Dec 2021	0.041	Dec 2022	-		0.041	Continuing	Continuing	-
<b>Subtotal</b>			-	65.943		45.423		53.461		-		53.461	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Aircraft Engine CIP: Non-OEM CIP Tasks	Various	Various : Various	-	1.639	Dec 2020	0.311	Dec 2021	0.339	Dec 2022	-		0.339	Continuing	Continuing	-
<b>Subtotal</b>			-	1.639		0.311		0.339		-		0.339	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0207268F / Aircraft Engine Component Improvement Program						<b>Project (Number/Name)</b> 671012 / Aircraft Engine Component Improvement Program			
<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Remarks</b> Non-OEM CIP Tasks refer to work in support of Engine CIP.															
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Aircraft Engine CIP: Ground test and validate engine improvements	PO	AEDC : Arnold AFB, TN	-	7.429	Dec 2020	16.113	Dec 2021	17.569	Dec 2022	-		17.569	Continuing	Continuing	-
<b>Subtotal</b>			-	7.429		16.113		17.569		-		17.569	Continuing	Continuing	N/A
<b>Remarks</b> Fuel costs for contractor-performed T&E are included in the applicable contract.															
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Aircraft Engine CIP: PMA	Various	Various : Various	-	5.459	Dec 2020	5.234	Dec 2021	5.709	Dec 2022	-		5.709	Continuing	Continuing	-
Propulsion Center of Excellence (PCOE)	Various	Various : Various	-	13.174	Dec 2020	8.673	Dec 2021	9.460	Dec 2022	-		9.460	Continuing	Continuing	-
<b>Subtotal</b>			-	18.633		13.907		15.169		-		15.169	Continuing	Continuing	N/A
<b>Remarks</b> PMA Description: Program Management support, travel, and A&AS.															
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	93.644		75.754		86.538		-		86.538	Continuing	Continuing	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## 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 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>CIP Legacy Activities</b>																												
F-100 Engine CIP Activities																												
F-110 Engine CIP Activities																												
F-119 Engine CIP Activities																												
Other Legacy Engine CIP Activities																												
F-100 Engine CIP Activities FY27																												
F-110 Engine CIP Activities FY27																												
F-119 Engine CIP Activities FY27																												
Other Legacy Engine CIP Activities FY27																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207268F / Aircraft Engine Component Improvement Program	<b>Project (Number/Name)</b> 671012 / Aircraft Engine Component Improvement Program	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>CIP Legacy Activities</i></b>				
F-100 Engine CIP Activities	1	2021	1	2024
F-110 Engine CIP Activities	1	2021	1	2024
F-119 Engine CIP Activities	1	2021	1	2024
Other Legacy Engine CIP Activities	1	2021	1	2024
F-100 Engine CIP Activities FY27	1	2027	4	2027
F-110 Engine CIP Activities FY27	1	2027	4	2027
F-119 Engine CIP Activities FY27	1	2027	4	2027
Other Legacy Engine CIP Activities FY27	1	2027	4	2027

**Note**

Schedule not showing 2QFY24-4QFY26 as funding is currently insufficient in FY24-FY26 to complete tasks.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675365: F135 Aircraft Engine Component Improvement Program	-	27.562	39.961	29.549	0.000	29.549	0.000	0.000	0.000	41.162	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.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> F135 Aircraft Engine Improvement Program	27.562	39.961	29.549	-	29.549
<b>Description:</b> The Aircraft Engine CIP provides the only source of critical developmental engineering support for F-35 propulsion systems to maintain flight safety (highest priority) 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.					
<b>FY 2022 Plans:</b> <ul style="list-style-type: none"> <li>- Execute approximately 80+ AF-funded F135 engine tasks supporting F-35 flying operations.</li> <li>- Conduct accelerated mission test and analytical condition inspection.</li> <li>- Address safety of flight, engine component redesign, repair/rework procedures and life limit/mission analysis.</li> <li>- Validate redesigned parts and new repair procedures.</li> <li>- Maintain/improve engine flight safety, improve system operational readiness and reliability &amp; maintainability, reduce engine life cycle cost, and sustain engine throughout service life.</li> </ul>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207268F / Aircraft Engine Component Improvement Program	<b>Project (Number/Name)</b> 675365 / F135 Aircraft Engine Component Improvement Program			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>					
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>- Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues.</p> <p><b>FY 2023 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Execute approximately 80+ AF-funded F135 engine tasks supporting F-35 flying operations.</li> <li>- Conduct accelerated mission test and analytical condition inspection.</li> <li>- Address safety of flight, engine component redesign, repair/rework procedures and life limit/mission analysis.</li> <li>- Validate redesigned parts and new repair procedures.</li> <li>- Maintain/improve engine flight safety, improve system operational readiness and reliability &amp; maintainability, reduce engine life cycle cost, and sustain engine throughout service life.</li> <li>- Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues.</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> decrease due to reduced engineering tasks</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	27.562	39.961	29.549	-	29.549
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
Program Element 0205633N provides US Navy funding support for the F135 propulsion system.					
<b>D. Acquisition Strategy</b>					
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 2023 Air Force												Date: April 2022			
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					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 F135 engine improvements	SS/CPFF	Pratt & Whitney : Hartford, CT	-	22.943	Jan 2021	33.264	Jan 2022	24.764	Jan 2023	-		24.764	Continuing	Continuing	-
Subtotal			-	22.943		33.264		24.764		-		24.764	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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: Ground test and validate engine improvements	PO	AEDC : Arnold AFB, TN	-	4.299	Dec 2020	6.233	Dec 2021	4.453	Dec 2022	-		4.453	Continuing	Continuing	-
Subtotal			-	4.299		6.233		4.453		-		4.453	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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: PMA	Various	Various : Various	-	0.320	Oct 2020	0.464	Oct 2021	0.332	Oct 2022	-		0.332	Continuing	Continuing	-
Subtotal			-	0.320		0.464		0.332		-		0.332	Continuing	Continuing	N/A
Remarks															
PMA Description: Program Management support, travel, and A&AS.															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	27.562		39.961		29.549		-		29.549	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0207268F / Aircraft Engine Component Improvement Program					675365 / F135 Aircraft Engine Component Improvement Program			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 2023 Air Force		Date: April 2022
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	2021	1	2024
F-135 Engine CIP Tasks FY27	1	2027	4	2027

**Note**  
Schedule not showing 2QFY24-4QFY26 as funding is currently insufficient in FY24-FY26 to complete tasks.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force											<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0207325F <i>I Joint Air-to-Surface Standoff Missile (JASSM)</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	387.086	63.712	117.325	117.198	0.000	117.198	99.784	21.935	5.121	5.235	24.050	841.446
675356: <i>JASSM Extended Range (JASSM-ER)</i>	387.086	63.712	117.325	117.198	0.000	117.198	99.784	21.935	5.121	5.235	24.050	841.446
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
<b>Program MDAP/MAIS Code:</b> 555												
<p><b><u>A. Mission Description and Budget Item Justification</u></b></p> <p>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 and B-52. Threshold aircraft is the B-1 and Objective aircraft are F-15E, F-16, B-52, B-2, and F-35.</p> <p>The AGM-158A and AGM-158B are fielded. The AGM-158B-2, AGM-158B-3, and AGM-158D are in development and will gradual insert into the production line as a new missile build once ready. DD-250'd missiles will not be returned for modification to the newest variant.</p> <p>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 20/FY22 funding year.</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 FY21 0.0M was expended for civilian pay expenses in this program element, and in FY22 0.9M is forecasted for civilian pay expenses in this program element.</p> <p>Funding may be used to address Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues.</p> <p>This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.</p>												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207325F I Joint Air-to-Surface Standoff Missile (JASSM)				
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		70.663	117.325	0.000	0.000	0.000
Current President's Budget		63.712	117.325	117.198	0.000	117.198
Total Adjustments		-6.951	0.000	117.198	0.000	117.198
• 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		-4.700	0.000			
• SBIR/STTR Transfer		-2.251	0.000			
• Other Adjustments		0.000	0.000	117.198	0.000	117.198
Change Summary Explanation						
FY21: \$-4.7M Above threshold reprogramming source for AF FY21-16 PA DoD FY21-11 PA Omnibus (Non-MIP) FY 21 3rd Implementation						
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Warfighting Capability Enhancement				24.081	28.293	24.786
Description: Design and development of software and mission planning changes to ensure the missile maintains operational effectiveness in classified scenarios.						
FY 2022 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. FY2022 includes two planned system level flight tests; previous flight tests were at the sub-system level. Begin automation of Target Area Modeling (TAM) process, migrating away from the cumbersome manual update methods. Begin Weapon Data Link (WDL) Software development.						
FY 2023 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207325F <i>I Joint Air-to-Surface Standoff Missile (JASSM)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
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 TAM process. Continue WDL software development.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to TAM automation development completion.				
<b>Title:</b> Advanced Survivability, Integration, and Test		12.323	47.159	32.115
<b>Description:</b> 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) 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.				
<b>FY 2022 Plans:</b> Continue AGM-158B-2 flight test program to include contract efforts, in addition to ground/flying test beds, ground mounts, fit checks, captive carry, free flight releases, program protection and other tests as required.				
<b>FY 2023 Plans:</b> 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.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to procurement of materials associated with SILs/PILs and ground/flight test assets in previous fiscal years.				
<b>Title:</b> Electronic Safe and Arm Fuze (ESAF)		6.469	1.000	0.000
<b>Description:</b> ESAF will resolve Fuze Munition Unit-156 (FMU-156) obsolescence and reliability issues, improve yield, and potentially lower costs.				
<b>FY 2022 Plans:</b> Continue flight test.				
<b>FY 2023 Plans:</b>				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207325F <i>I Joint Air-to-Surface Standoff Missile (JASSM)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Effort will be complete resulting in a fully qualified FMU-156 B/B ESAF.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased because the effort will complete.				
<b>Title:</b> Weapon Data Link (WDL)  <b>Description:</b> This effort includes development, integration and testing efforts, and is currently aimed at improving WDL capabilities to re-target the missile, post-launch, against time sensitive targets during mission execution. Efforts also include, but are not limited to, continued development of alternative communication methods/architecture, and waveforms to advance missile capabilities against critical emerging targets.  <b>FY 2022 Plans:</b> Continue missile data link interface control documentation, AGM-158B-2 specification update, and System Requirements Review(s) to define technical performance parameters. Begin WDL antenna development, missile airframe reconfiguration effort, and address increased missile system software updates and additional cyber/crypto support.  <b>FY 2023 Plans:</b> Continue WDL radio/antenna development, integration, conduct system-level hardware demonstrations (to include infrastructure testing), and begin testing/qual activities required for All-Up-Round (AUR) integration and flight testing targeted in FY23.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to physical integration and flight test, which drive higher costs than radio development.		14.330	37.219	56.782
<b>Title:</b> Other Development/Safety/Survivability  <b>Description:</b> Develop and integrate advanced Precision, Navigation, and Timing (PNT) capabilities (e.g. GPS, M-Code, non-GPS, optical, passive, active, etc.), evaluations (study analysis), survivability enhancements to include safety certification, flight testing, DMSMS, improved Guidance, Navigation, Control (GNC), and obsolescence issues.  <b>FY 2022 Plans:</b> Continue evaluation activity addressing JASSM's obsolescence plan directed activities to include safety and survivability studies. Continue GNC and autopilot software allocations and updates.  <b>FY 2023 Plans:</b> Continue evaluation activity addressing JASSM's obsolescence plan directed activities to include safety and survivability studies. Continue GNC and autopilot software allocations and updates.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>		6.509	3.654	3.515

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0207325F <i>I Joint Air-to-Surface Standoff Missile (JASSM)</i>						

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Funding decreased because the Intelligent Telemetry Instrumentation Kit (ITiK) Re-packaging finishes in FY22.			
<b>Accomplishments/Planned Programs Subtotals</b>	63.712	117.325	117.198

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

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• MPAF 02 0207325F: JASSM	493.439	710.550	784.971	-	784.971	852.706	999.215	994.919	1,001.656	0.000	5,837.456

**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 2023 Air Force												Date: April 2022			
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)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Warfighting Capability Enhancement	SS/CPAF	Lockheed Martin : Orlando, FL	33.681	24.081	Nov 2020	28.293	Nov 2021	24.786	Nov 2022	-		24.786	41.466	152.307	153.217
Advanced Survivability, Integration, and Test	SS/CPFF	Lockheed Martin : Orlando, FL	63.424	12.323	Nov 2020	47.159	Nov 2021	32.115	Nov 2022	-		32.115	15.444	170.465	160.000
ESAF	SS/CPFF	Lockheed Martin : Orlando, FL	26.360	6.469	Apr 2021	1.000	Mar 2022	0.000		-		0.000	0.000	33.829	22.331
M-code and Related Development Efforts	SS/CPFF	Lockheed Martin : Orlando, FL	11.539	0.000		-		-		-		-	0.000	11.539	11.531
Weapon Data Link	C/CPFF	Various : Orlando, FL	0.000	14.330	Apr 2021	37.219	Dec 2021	56.782	Dec 2022	-		56.782	80.218	188.549	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	171.635	1.061	Jan 2021	3.554	Jan 2022	2.505	Mar 2023	-		2.505	18.597	197.352	185.000
Subtotal			306.639	58.264		117.225		116.188		-		116.188	155.725	754.041	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)															
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 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	-

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Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force

Date: April 2022

## 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)

## Test and Evaluation (\$ in Millions)

				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
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
<b>Subtotal</b>			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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 (PMA). Provides program office oversight of development and upgrade activities.	Various	PMA : Eglin AFB, FL	4.152	5.448	Mar 2021	0.100	Mar 2022	1.010	Mar 2023	-		1.010	0.400	11.110	0.000
<b>Subtotal</b>			4.152	5.448		0.100		1.010		-		1.010	0.400	11.110	N/A

			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			387.086	63.712		117.325		117.198		-		117.198	156.125	841.446	N/A

## Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
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 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>RDT&amp;E Schedule Details</b>																												
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 2023 Air Force			Date: April 2022
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)	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>RDT&amp;E Schedule Details</i></b>				
Warfighter Capability Enhancement	1	2021	4	2027
Advanced Survivability, Integration, and Test	1	2021	3	2024
Electronic Safe and Arm Fuze (ESAF)	1	2021	1	2023
ESAF Production Readiness Review (PRR)	3	2021	4	2022
Weapon Data Link	3	2021	4	2025
Diminishing Manufacture Sources and Obsolescence Evaluation/Development	1	2021	4	2027

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207327F / <i>Small Diameter Bomb (SDB)</i>
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<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	20.010	32.109	27.713	0.000	27.713	29.133	29.682	24.135	24.672	0.000	187.454
675191: <i>SDB Increment II</i>	-	20.010	32.109	27.713	0.000	27.713	29.133	29.682	24.135	24.672	0.000	187.454
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.

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 \$0.131M was expended for civilian pay expenses in this program element, and in FY22 \$0.819M is forecasted for civilian pay expenses in this program element.

The FY23 funding request was reduced by \$0.812M to account for the availability of prior year execution balances.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207327F I Small Diameter Bomb (SDB)				
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		20.780	27.109	0.000	0.000	0.000
Current President's Budget		20.010	32.109	27.713	0.000	27.713
Total Adjustments		-0.770	5.000	27.713	0.000	27.713
• 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		-0.038	0.000			
• SBIR/STTR Transfer		-0.732	0.000			
• Other Adjustments		0.000	0.000	27.713	0.000	27.713
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						
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 FY 2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: SDB II Development and Engineering Changes				10.510	15.503	14.18
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						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207327F I <i>Small Diameter Bomb (SDB)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>opportunities. Conduct trade studies and concept development for technology refresh redesigns as based on obsolescence forecasts.</p> <p><b>FY 2022 Plans:</b>            Continue cryptographic modernization weapon data link integration and subsystem level design verification testing. Continue integration of the TacNet WDL 1.5 into the current SDB II All-Up-Round (AUR) design. Conduct 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 all-up-round (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 quality CCAs. Perform OFP and firmware updates to support new CCA designs. Complete POD-level integrated CCA stack design verification testing and qualification. Finalize Proof of Manufacturing (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. Begin 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><b>FY 2023 Plans:</b>            Complete 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. Conduct 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 quality CCAs. Perform OFP and firmware updates to support new CCA designs. Complete POD-level integrated CCA stack design verification testing and qualification. Finalize Proof of Manufacturing (POM)</p>				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207327F / <i>Small Diameter Bomb (SDB)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
designs and purchase POM test assets. Continue integration of the TacNet 1.5 WDL with the new CCAs and associated OFP changes.				
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 concept development for technology refresh redesigns as required based on obsolescence forecasts.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased 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. Program will also begin System Improvement Program activities in response to anticipated warfighter requirements post fielding.				
<b>Title:</b> SDB II M-Code		6.000	11.606	13.532
<b>Description:</b> 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.				
<b>FY 2022 Plans:</b> 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. Build 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.				
<b>FY 2023 Plans:</b>				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207327F <i>I Small Diameter Bomb (SDB)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Continue activities to provide SDB II with M-Code capabilities for improved anti-jam and secure access to military GPS signals. Complete 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 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 qualification.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increase reflects cost increases on M-Code and Exportability development and qualification. Key drivers are supply chain delays in M-Code receiver and associated electronics combined with an additional respin on the M-Code ASIC, increased testing resources required to meet GlobalFoundries end-of-life deadlines, and delays in receiving required secure processor test equipment for wide-exportability.				
<b>Accomplishments/Planned Programs Subtotals</b>		16.510	27.109	27.713
		<b>FY 2021</b>	<b>FY 2022</b>	
<b>Congressional Add:</b> Precise Navigation		3.500	5.000	
<b>FY 2021 Accomplishments:</b> 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.				
<b>FY 2022 Plans:</b> 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 and begin algorithm integration into iECP baseline hardware.				
<b>Congressional Adds Subtotals</b>		3.500	5.000	

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development						R-1 Program Element (Number/Name) PE 0207327F I Small Diameter Bomb (SDB)						
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• MPAF 02 Line Item SDB002: Small Diameter Bomb II	185.096	275.934	279.006	-	279.006	263.124	228.439	207.971	211.333	Continuing	Continuing	
• RDTE 05 PE 0604329N: Small Diameter Bomb II	42.853	35.892	39.639	-	39.639	20.516	10.116	9.615	9.665	Continuing	Continuing	
• WPN Line Item 223800: Small Diameter Bomb II	57.755	33.764	108.317	-	108.317	102.635	89.364	91.847	92.496	Continuing	Continuing	
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, 0606398F. In FY21 \$0.131M was expended for civilian pay expenses in this program element, and in FY22 \$0.819M is forecasted for civilian pay expenses in this program element.												

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force** **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207327F / <i>Small Diameter Bomb (SDB)</i>	<b>Project (Number/Name)</b> 675191 / <i>SDB Increment II</i>
--------------------------------------------------	--------------------------------------------------------------------------------------------	------------------------------------------------------------------

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Changes & Technical Support	SS/ Various	Raytheon : Tucson, AZ	-	12.787	May 2021	16.917	Dec 2021	11.531	Dec 2022	-		11.531	0.000	41.235	136.520
M-Code Integration	SS/ Various	Raytheon : Tucson, AZ	-	6.000	May 2021	11.606	Dec 2021	13.532	Dec 2022	-		13.532	0.000	31.138	109.437
F-15E Integration & Test Support	SS/ Various	Boeing : St. Louis, MO	-	0.205	May 2021	1.398	Dec 2021	0.222	Dec 2022	-		0.222	0.000	1.825	49.762
System Performance & Lethality	Various	Not specified. : TBD	-	0.100	Jul 2021	0.284	Dec 2021	0.291	Dec 2022	-		0.291	Continuing	Continuing	-
<b>Subtotal</b>			-	19.092		30.205		25.576		-		25.576	Continuing	Continuing	N/A

**Remarks**

Engineering Changes and Technical Support: 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 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DT&E	PO	96th Test Wing : Eglin AFB, FL	-	-		-		-		-		-	0.000	0.000	33.725
Targets	Various	Various : Various	-	-		-		0.196	Dec 2022	-		0.196	0.000	0.196	-
Other Test Support	Various	Various : Various	-	-		-		-		-		-	0.000	0.000	11.896
<b>Subtotal</b>			-	-		-		0.196		-		0.196	0.000	0.196	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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207327F / Small Diameter Bomb (SDB)				Project (Number/Name) 675191 / SDB Increment II					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Professional Administrative Support Services (EPASS)	Various	Various : Eglin AFB, FL	-	0.750	Apr 2021	0.750	Jun 2022	0.750	Jun 2023	-		0.750	0.000	2.250	25.508
Program Management Administration (PMA)	Various	Various : Eglin AFB, FL	-	0.168	Oct 2020	0.335	Oct 2021	0.347	Oct 2022	-		0.347	0.000	0.850	11.536
DCA Civ Pay	Allot	Allotment : Eglin AFB, FL	-	0.000	Oct 2020	0.819	Oct 2021	0.844	Oct 2022	-		0.844	Continuing	Continuing	-
Subtotal			-	0.918		1.904		1.941		-		1.941	Continuing	Continuing	N/A
Remarks															
PMA: Other government costs (travel, Government Purchase Card (GPC), equipment supplies, and IT support)															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	20.010		32.109		27.713		-		27.713	Continuing	Continuing	N/A
Remarks															
Engineering Changes: 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. 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 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity								R-1 Program Element (Number/Name)						Project (Number/Name)			
3600 / 7								PE 0207327F / Small Diameter Bomb (SDB)						675191 / SDB Increment II			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SDB Increment II																												
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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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207327F / <i>Small Diameter Bomb (SDB)</i>	<b>Project (Number/Name)</b> 675191 / <i>SDB Increment II</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>SDB Increment II</i></b>				
F-15E Integration & Test Support	2	2021	4	2027
M-Code Integration & Testing	1	2021	2	2025
Data Link Crypto Mod Integration & Testing	1	2021	3	2024
Integration & Testing on Threshold F-35B/C	1	2021	3	2027
Precision Navigation	1	2021	2	2025
Lot Integration and Test	1	2021	4	2027
System Improvement Program	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207410F I Air & Space Operations Center (AOC)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	50.133	90.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
674596: AOC WS Modifications	-	50.133	90.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

In FY 2023, PE 0207410F, Air & Space Operations Center (AOC), Project 674596, AOC WS Modifications, was transferred to PE 0608410F, Air & Space Operations Center (AOC), Project 684596, AOC WS Modifications, in order to participate in DoD's Budget Activity 08 for Software and Digital Technology Pilot Program.

## A. Mission Description and Budget Item Justification

The Air Operations Center Weapon System (AOC WS), AN/USQ-163 Falconer, the senior element of the Theater Air Control System (TACS), 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 while delivering, enabling and operating an extensible cloud-based Infrastructure and Platform as a Service (IaaS/PaaS) hosting platform. AOC WS Modifications are required for the AOC to keep pace with evolving COTS/GOTS components, DoD directives, support operational energy security and efficiency objectives, changes in the underlying IT environment, and to remain interoperable, certified, supportable, and compliant through software engineering solutions, integration, testing, fielding, training, and sustainment of new capabilities and upgrades to the AOC WS. This includes utilization of managed cloud IaaS/PaaS hosting platform. Also, AOC WS Modifications activities evolve the AOC utilizing Agile Methodologies and embracing DevOps practices to deliver improved capabilities in support of mission requirements at Geographic and Global (formerly Functional) AOCs, as well as Support and Manpower Augmentation units, keeping the AOC current and interoperable with the Combatant Commands (CCMDs), cyber requirements, and next generation weapon systems/weapons.

No FY 2023 funding requested; FY 2023 project efforts are detailed in PE 0308606F, ADCP, and PE 0608410F, AOC.

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 2023 Air Force			Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207410F I Air & Space Operations Center (AOC)					
0606398F. In FY2021 \$19.087M was expended for civilian pay expenses in this program element, and in FY2022 \$15.699M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget		51.094	0.003	0.000	0.000	0.000	
Current President's Budget		50.133	90.027	0.000	0.000	0.000	
Total Adjustments		-0.961	90.024	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	90.024				
• Reprogrammings		0.000	0.000				
• SBIR/STTR Transfer		-0.961	0.000				
• Other Adjustments		0.000	0.000	0.000	0.000	0.000	
Change Summary Explanation							
FY2023: 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 FY 2023 cannot be made in a relevant manner.							
In FY2022, \$90.024M was transferred from 0608410F							
C. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: AOC WS Modifications Development			47.602	69.524	0.000	0.000	0.000
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.							

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207410F I Air & Space Operations Center (AOC)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Utilize CI/CD processes to provide engineering solutions, test, and deliver enhanced operational C2 capabilities including support of multi-domain operations.						
<b>FY 2022 Plans:</b> - Enable the continued transition from legacy applications such as TBMCS FL and AOC 10.1 to Block 20 Modernized capabilities - Continue supporting software engineering capacity required for AOC WS Modifications to enable transition from legacy AOC 10.1 baseline to AOC WS Block 20 modernized capabilities - Continue to optimize Operational Energy (aviation fuel) use and increase combat capability through operations software development						
<b>FY 2023 Base Plans:</b> See PE 0308606F, ADCP - Software Pilot Program, Project 682015, All Domain Common Platform, and PE 0608410F, AOC, Project Number 684596, AOC WS Modifications.						
<b>FY 2023 OCO Plans:</b> N/A						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to transfer to PE 0608410F, AOC, Project Number 684596, AOC WS Modifications.						
<b>Title:</b> AOC WS Modifications Direct Mission Support		2.531	20.503	0.000	0.000	0.000
<b>Description:</b> Plan and execute strategies to adopt commercial best practices for software development, scale out a modern IaaS/PaaS solution to the AOC WS enterprise, implement improved solutions for platform architecture and CI/CD pipeline, and maintain continuous Authority to Operate (ATO).						
<b>FY 2022 Plans:</b> - Provide the competencies necessary to scale software development capacity and deprecation of TBMCS FL - Continue to enable development and establishment of extensible cloud-based IaaS/PaaS hosting platform/ enterprise architecture baseline environment						
<b>FY 2023 Base Plans:</b> See PE 0308606F, ADCP - Software Pilot Program, Project 682015, All Domain Common Platform, and PE 0608410F, AOC, Project Number 684596, AOC WS Modifications.						
<b>FY 2023 OCO Plans:</b>						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207410F I Air & Space Operations Center (AOC)									
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A														
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to transfer to PE 0608410F, AOC, Project Number 684596, AOC WS Modifications.														
Accomplishments/Planned Programs Subtotals										50.133	90.027	0.000	0.000	0.000
D. Other Program Funding Summary (\$ in Millions)														
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost			
• OPAF 03 834530: Air & Space Operations Center (AOC)	15.383	23.019	2.611	-	2.611	0.000	0.000	0.000	0.000	Continuing	Continuing			
• OPAF 03 833140: Strategic Command And Control	0.000	3.541	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing			
• RDTE 07 0303248F: All Domain Common Platform	0.000	64.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing			
• RDTE 08 0308606F: All Domain Common Platform (ADCP) - Software Pilot Program	0.000	0.000	190.112	-	190.112	175.196	190.889	187.666	188.307	Continuing	Continuing			
Remarks														
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, following DoDI 5000.87, Operation of Software Acquisition Pathway Guidance. The desired end state is continuous delivery of all AOC WS software.														
AOC WS Modifications will leverage a modular contracting strategy that focuses on evolving needs, continuous market research and streamlined solicitation procedures. AOC 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 Infrastructure as a Service/Platform as a Service (IaaS/PaaS) solution. Activities are also accomplished via Military														

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207410F / <i>Air &amp; Space Operations Center (AOC)</i>	
Interdepartmental Purchase Requests (MIPR). Additionally, significant technical expertise will be sought after via modular contracting approach and provided by Government Agencies, DoD Laboratory, Federally Funded Research and Development Centers (FFRDC), Academia, and Engineering & Professional Acquisition Support Services contractors as well as commercial industry partners.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AOC WS Modifications Development	C/Various	Various : Multiple	-	22.007	Dec 2020	58.372	Dec 2021	-		-		-	0.000	80.379	-
AOC WS Modifications Other Transaction	Various	Pivotal : Multiple	-	1.534	Dec 2020	-		-		-		-	0.000	1.534	-
Subtotal			-	23.541		58.372		-		-		-	0.000	81.913	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AOC WS Modifications Direct Mission Support	C/Various	Various : Various	-	2.531	Dec 2020	4.804	Dec 2021	-		-		-	0.000	7.335	-
AOC WS Modifications Civilian Direct Cite Authorizations for Product Development	Allot	AFLCMC/FZA : TBD	-	19.087	Oct 2020	15.699	Oct 2021	-		-		-	0.000	34.786	-
Subtotal			-	21.618		20.503		-		-		-	0.000	42.121	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AOC WS Modifications Engineering Services	Various	Various : Various	-	3.485	Oct 2020	4.423	Oct 2021	-		-		-	0.000	7.908	-
AOC WS Modifications Program Support	C/Various	Various : Various	-	1.489	Dec 2020	6.729	Dec 2021	-		-		-	0.000	8.218	-
Subtotal			-	4.974		11.152		-		-		-	0.000	16.126	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	50.133		90.027		-		-		-	0.000	140.160	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force							<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0207410F / Air & Space Operations Center (AOC)			<b>Project (Number/Name)</b> 674596 / AOC WS Modifications				
	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
<b>Remarks</b> In FY23 AOC funding transferred to PE 0608410F, Air & Space Operations Center (AOC), Project 684596, AOC WS Modifications.										

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
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 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207410F / Air & Space Operations Center (AOC)	<b>Project (Number/Name)</b> 674596 / AOC WS Modifications

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>AOC WS Modifications</b>				
AOC WS Modifications Kessel Run	1	2021	4	2022

### Note

See PE 0308606F, All Domain Common Platform (ADCP) - Software Pilot Program, Project 682015, All Domain Common Platform, and PE 0608410F, Air & Space Operations Center (AOC), Project Number 684596, AOC WS Modifications for continued development events.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207412F I Control and Reporting Center (CRC)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	15.514	9.875	6.615	0.000	6.615	17.492	17.817	18.190	18.594	Continuing	Continuing
67485L: CRC Modernization	-	15.514	9.875	6.615	0.000	6.615	17.492	17.817	18.190	18.594	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

CRC is part of the Air Force's Advanced Battle Management System (ABMS) initiative, to which CRC will provide a tactical C2 capability. CRC Modernization (formerly known as CRC Bridge to ABMS) strategy in FY20 commenced a consolidation of previous modernization efforts into a larger initiative that continues the upgrading of BMC2, sensors, and communications systems. These continuing modernization efforts will allow CRC to adopt a leaner, modular and streamlined architecture that can be tailored to execute a wide range of operations. Furthermore, CRC will develop organic operating software solutions that will ingest and disseminate Moving Target Indicator (MTI) feeds and tracks, enable Open Mission Systems (OMS)/Universal Command and Control Interface (UCI) compliance, and integrate Top Secret (TS)/ Sensitive Compartmented Information (SCI)/Special Access Program (SAP) hardware and software capability solutions. The organic software development efforts rely on having a steady stream of RDT&E funding through the FYDP.

In FY 2023, CRC development efforts support CRC Modernization include, but are not limited to: AN/TYQ-23A(V)1, AN/TRC-213 architecture modernization upgrades, Next Generation CRC weapons systems prototyping, continuous software development/integration/deployment using Agile and development, security and operations (DevSecOps), 3DELRR Integration, passive sensor integration, ground and air MTI trackers, TS/SCI/Joint Worldwide Intelligence Communication System (JWICS) and Talon Thresher, SAP, hardware and software integration, ABMS, TS accredited structures and storage solutions in pursuit of emerging technology for OMS/Open System Architecture (OSA) advancements, along with possible hardware changes to support ABMS software/hardware development work and collaboration with other ABMS software factories, integration of Link 16 Radios and Secure Internet Protocol Router Network (SIPRNet) capabilities, TS/SCI/SAP accredited structures and storage solutions in pursuit of emerging technology for OMS/OSA advancements. Additionally, possible hardware changes to support ABMS architecture and Live/Virtual/Constructive (L/V/C) Operations capability, multilevel security, edge computing, and artificial intelligence/machine learning solutions. Additional CRC modifications are required for the system to keep pace with evolving COTS/GOTS components, DoD directives, changes in the underlying IT/ Cyber Security environment and any other emerging requirements, and to remain interoperable, certified, supportable, and compliant through the development, integration, testing, fielding, training and related equipment of new CRC capabilities, upgrades and electronic warfare techniques such as "Angry Kitten".

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, 0605832F, 0605833F, 0605898F, 0606398F. In FY21, \$0.943M was expended for civilian pay expenses in this program element, and in FY22, \$1.000M 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 2023 Air Force				Date: April 2022			
Appropriation/Budget Activity		R-1 Program Element (Number/Name)					
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0207412F I Control and Reporting Center (CRC)					
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total		
Previous President's Budget	16.012	9.875	0.000	0.000	0.000		
Current President's Budget	15.514	9.875	6.615	0.000	6.615		
Total Adjustments	-0.498	0.000	6.615	0.000	6.615		
• 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	-0.498	0.000	6.615	0.000	6.615		
Change Summary Explanation							
FY2023: 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 FY 2023 cannot be made in a relevant manner.							
C. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: CRC Modernization (formerly known as CRC Bridge to ABMS)			15.514	9.875	6.615	0.000	6.615
Description: - CRC Modernization (formerly known as CRC Bridge to ABMS) efforts will incorporate all future modernization efforts. The following efforts will continue in FY22 and continue into FY23. - CRC Modernization: OMS/UCI development/integration, organic system software development and upgrades in collaboration with ABMS Software factories, JWICS integration, Ground and Air MTI tracker integration, Multi-Level Security/Cross Domain Solution (MLS/CDS) Implementation, L/V/C Operations capability							
FY 2022 Plans:							
- Field minimum viable product of organic software							
- Continue development, test and integration of additional CRC requirements							
- Provide technical assistance for fielded software							
- Maintain security patches and required updates							
- Test and integrate modernized AN/TYQ-23A(V)1 and AN/TRC-213/214 prototype							
FY 2023 Base Plans:							
- CRC Modernization (formerly known as CRC Bridge to ABMS) efforts will incorporate all future modernization efforts. The following efforts will continue in FY22 and continue into FY23.							

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022							
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>			<b>R-1 Program Element (Number/Name)</b> PE 0207412F <i>I Control and Reporting Center (CRC)</i>								
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>											
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>						
<p>- CRC Modernization starting in FY23 will be CRC Next Gen: hardware architecture modernization upgrades, continuous software development/integration/deployment using Agile development, security and operations(DevSecOps). Production is for scalable, tactical mobile command and control systems.</p> <p><b><i>FY 2023 OCO Plans:</i></b> N/A</p> <p><b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding decreased due to the requirement for CRC Modernization</p>											
<b>Accomplishments/Planned Programs Subtotals</b>											
	15.514	9.875	6.615	0.000	6.615						
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 833040: <i>Theater Air Control Sys Improvemen</i>	13.374	18.658	0.000	-	0.000	0.000	0.000	0.000	-	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b>											
<p>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. 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.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207412F / Control and Reporting Center (CRC)				Project (Number/Name) 67485L / CRC Modernization					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
CRC Next Gen	C/Various	Various : Hill AFB, UT	-	7.042	Jun 2021	3.901	Dec 2021	0.000	Dec 2022	-		0.000	Continuing	Continuing	-
CRC 520th Organic Software Development	C/FP	520 SWEG : Hill AFB, UT	-	4.839	Dec 2020	3.175	Dec 2021	3.755	Dec 2022	-		3.755	Continuing	Continuing	-
Subtotal			-	11.881		7.076		3.755		-		3.755	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
CRC Modernization Direct Cite Authority - Additional 11 Civilian Positions	RO	Various : Hill AFB, UT	-	1.042	Oct 2020	1.200	Oct 2021	1.200	Oct 2022	-		1.200	Continuing	Continuing	-
Subtotal			-	1.042		1.200		1.200		-		1.200	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
CRC Modernization Test Support	Various	Various : Various	-	0.209	Aug 2021	0.599	Nov 2021	0.660	Nov 2022	-		0.660	Continuing	Continuing	-
Subtotal			-	0.209		0.599		0.660		-		0.660	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Booze Allen Hamilton	C/FP	Not specified. : TBD	-	1.192	Mar 2021	-		0.000	Dec 2022	-		0.000	Continuing	Continuing	-
HX5	C/FP	Not specified. : TBD	-	1.190	Mar 2021	1.000	Mar 2022	1.000	Mar 2023	-		1.000	Continuing	Continuing	-
Subtotal			-	2.382		1.000		1.000		-		1.000	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0207412F / Control and Reporting Center (CRC)				Project (Number/Name) 67485L / CRC Modernization					
	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	15.514		9.875		6.615		-		6.615	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207412F / Control and Reporting Center (CRC)						Project (Number/Name) 67485L / CRC Modernization			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AN/TRC-213/214 RRSVS Radio Modernization Upgrade																												
Design and Development																												
Integration and Testing																												
CRC Software Modernization																												
Development and Integration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207412F / Control and Reporting Center (CRC)	Project (Number/Name) 67485L / CRC Modernization	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>AN/TRC-213/214 RRSVS Radio Modernization Upgrade</b>				
Design and Development	1	2021	4	2021
Integration and Testing	4	2021	4	2022
<b>CRC Software Modernization</b>				
Development and Integration	1	2023	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
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)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	108.779	167.014	239.658	0.000	239.658	599.899	415.325	293.956	160.266	Continuing	Continuing
67411L: Airborne Warning & Control System (AWACS)	-	108.779	167.014	239.658	0.000	239.658	599.899	415.325	293.956	160.266	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program, BA 7, PE 0207417F, project 67411L, E-3 Replacement, is a new start.

**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 E-3G AWACS has limited operational utility in contested conflicts coupled with its availability challenges create an operational imperative to replace it. The 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.
2. E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON): DRAGON completes the Federal Aviation Administration (FAA), International Civil Aviation Organization (ICAO), and European Organization for the Safety of Air Navigation (EUROCONTROL) air traffic control mandated safety of flight capabilities. This program will provide the E-3 fleet with the flight instruments and other avionics for the Required Navigation Performance (RNP), and the surveillance and communication capabilities necessary to maintain continued critical unrestricted access to global airspace. DRAGON replaces the existing Diminishing Manufacturing Sources (DMS) Global Positioning System (GPS) Integrated Navigation System (GINS) with a modern Flight Management System (FMS) that will accommodate new capabilities including Mode 5 Identification Friend or Foe (IFF) and Joint Mission Planning System (JMPS).
3. E-3 Electronic Protection (EP): EP will provide improved radar processing in a specific flight environment to meet a classified requirement. EP will replace the radar controller, exciter, receiver, and data processor in the current Radar System Improvement Program (RSIP) system. The EP-processed radar picture will appear on the battle manager's display and is intended to provide APY-2 radar quality to the entire U.S. AWACS fleet. EP also resolves DMS and obsolescence concerns with APY-1/ APY-2 radar.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
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)	
<p>4. 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&amp;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&amp;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, Foreign Military Sales (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.</p> <p>5. 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 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. 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 &amp; 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).</p> <p>6. E-3 Combat Identification (CID) DMS: AWACS' current CID capability is based upon 1960's era technology that has become unsustainable, and requires an update to retain a significant part of AWACS overall mission capability. AWACS will address C2 Combat ID shortfalls with a modern, persistent Airborne Moving Target Indicator (AMTI) BMC2 Combat ID. CID DMS supports the kill chain and decision superiority.</p> <p>7. 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 Air Force fighters to Navy submarines. The current 20 year-old Class 2 terminal has sustainability/DMS issues and does not support mandated Crypto Mod (CM) &amp; Freq. Remap (FR). CNU resolves DMS issues, provides CM &amp; FR, Link 16 enhancements &amp; 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.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
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)	
<p>8. E-3 Mode 5 Acceleration: Updates flight deck to address known Air Traffic Management restrictions; upgrades the current flight deck transponder to include the Mode 5 capability since DRAGON's Initial Operating Capability (IOC) of 2022/Full Operational Capability (FOC) of 2028 does not meet the Mode 5 mandate. This subset accelerates the Mode 5 transponder FOC independent of DRAGON.</p> <p>9. 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 the existing and additional military 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 &amp; BMC2 to CCMDs for Joint, Allied &amp; Coalition ops by maintaining compatibility with CAF/Sister service C2 nodes and theater assets.</p> <p>The total cost of the E-3 ACIP Middle Tier of Acquisition Rapid Prototyping (RP) effort is 64.44M, including RDT&amp;E and procurement of prototype units. The E-3 ACIP RP program is fully funded across the Future Years Defense Program.</p> <p>10. E-3 AWACS Fifth to Fourth (5th to 4th): 5th to 4th provides the capability for E-3G AWACS to receive 5th generation data via Link 16 and other data feeds, as required. This capability includes the security domain required to integrate the 5th generation data into Mission Computing Software and generate an integrated operational air picture. 5th to 4th addresses gaps and inaccuracies in the Common Tactical Picture (CTP) and improves Situational Awareness (SA) and BMC2 decision making by shortening the kill chain for warfighters in a contested environment.</p> <p>Note: A unique Program Element for the E-3 replacement has been requested and is awaiting approval. E-3 GPS Upgrade (M-Code) and E-3 AWACS Global Lightning (AGL) were canceled due to E-3 Divestment Strategy.</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 FY21 2.600M was expended for civilian pay expenses in this program element, and in FY22 4.750M is forecasted for civilian pay expenses in this program elements.</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 2023 Air Force				Date: April 2022		
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)				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	123.925	171.014	0.000	0.000	0.000	
Current President's Budget	108.779	167.014	239.658	0.000	239.658	
Total Adjustments	-15.146	-4.000	239.658	0.000	239.658	
• Congressional General Reductions	0.000	0.000				
• Congressional Directed Reductions	0.000	-4.000				
• Congressional Rescissions	0.000	0.000				
• Congressional Adds	0.000	0.000				
• Congressional Directed Transfers	0.000	0.000				
• Reprogrammings	-11.000	0.000				
• SBIR/STTR Transfer	-4.146	0.000				
• Other Adjustments	0.000	0.000	239.658	0.000	239.658	
Change Summary Explanation						
The FY2022 President's Budget submittal did not reflect FY2023 through FY2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.						
FY2022 received a congressional mark of \$4M for "Reduce program growth".						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: E-3 Replacement				0.000	0.000	226.776
Description: E-3 Replacement: E-3 Replacement is the planned E-3G AWACS replacement. The E-3G AWACS has limited operational utility in contested conflicts coupled with its availability challenges create an operational imperative to replace it. The 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.						
FY 2022 Plans: N/A						
FY 2023 Plans: Award contract to begin work on the following tasks: acquire long lead items and/or complete end items and potential modification components for up to two aircraft to support test and evaluation; development efforts to ensure compliance with US cyber security and program protection standards; development efforts to ensure navigation and communication systems comply with GPS Mcode and Narrowband SATCOM mandates; design and build-out contractor and government System Integration Laboratories						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207417F <i>I Airborne Warning and Control System (AWACS)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> supporting development, integration, and test activities; and provide analysis and products supporting airworthiness certification. Program office will also support Operational Assessment (OA) of coalition systems providing basis for follow-on production/fielding decisions, undertake Depot Source of Repair (DSOR) analysis, and assemble FAA airworthiness certification package.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to New Start. Though incrementally funded at the program level, significant RDT&E funding is required in FY23 to fully fund [in accordance with the FMR] individual hardware components for up to two aircraft systems and modification kits.		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)  <b>Description:</b> DRAGON: Provides analog to digital cockpit addressing the Federal Aviation Administration (FAA), International Civil Aviation Organization (ICAO), and European Organization for the Safety of Air Navigation (EUROCONTROL) air traffic control mandated safety of flight capabilities. Provides the E-3 fleet with the flight instruments and other avionics for the Required Navigation Performance (RNP), and the surveillance and communication capabilities necessary to maintain continued critical unrestricted access to global airspace.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> N/A		1.601	0.000	0.000
<b>Title:</b> E-3 Electronic Protection (EP)  <b>Description:</b> EP: Provides improved radar processing in a specific flight environment to meet a classified requirement. Replaces the radar controller, exciter, receiver, and data processor in the current Radar System Improvement Program (RSIP) system.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> N/A		12.727	0.000	0.000
<b>Title:</b> E-3 Training, Support and Infrastructure (TSI)  <b>Description:</b> 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 infrastructure and tracking and monitoring the AWACS vendor's core		11.561	8.342	1.413

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207417F <i>I Airborne Warning and Control System (AWACS)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> 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.  <b>FY 2022 Plans:</b> TSI will continue to maintain and provide DT&E labs to AWACS programs and support AWACS development and production programs lab integration & test efforts. Will provide system lab support, integration, and test to current AWACS programs and support Third Party Integration efforts in The Boeing Company labs in Oklahoma and Washington. Will continue to support AWACS and other OSD mandated interoperability testing and support mandatory E-3 Operational, Safety, and Suitability and Effectiveness program. Additionally, will continue to support the execution of the AITS lab transfer acquisition strategy.  <b>FY 2023 Plans:</b> 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 in The Boeing Company 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.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased to align with reduced E-3 development activities due to planned transition to an E-3 replacement platform.		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> E-3 Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR)  <b>Description:</b> 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).  <b>FY 2022 Plans:</b> 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.  <b>FY 2023 Plans:</b> Continue to conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support risk reduction activities for program planning.		33.353	41.395	2.085

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207417F <i>I Airborne Warning and Control System (AWACS)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Continue to execute cooperative Independent Research and Development.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease in risk reduction requirements in alignment with transition from E-3 to an E-3 replacement platform prioritizing rapid delivery of mature capability.				
<b>Title:</b> E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS)  <b>Description:</b> Combat Identification (CID) Diminishing Manufacturing Sources (DMS): Addresses C2 CID shortfalls with a modern, persistent Airborne Moving Target Indication (AMTI) BMC2 combat ID. Supports the kill chain and decision superiority.  <b>FY 2022 Plans:</b> Complete software and sub-system level development; prepare for Alpha Phase II RFP release.  <b>FY 2023 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding discontinued to align with reduced E-3 development activities due to planned transition to an E-3 replacement platform.		0.313	20.610	0.000
<b>Title:</b> E-3 Communication Network Upgrade (CNU)  <b>Description:</b> 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 Air Force fighters to Navy submarines.  <b>FY 2022 Plans:</b> Begin rapid prototyping and development contract.  <b>FY 2023 Plans:</b> Continue rapid prototyping and development contract.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased to align with reduced E-3 development activities due to planned transition to an E-3 replacement platform.		37.228	48.052	2.000
<b>Title:</b> E-3 Mode 5 Acceleration  <b>Description:</b> Mode 5 Acceleration:		4.146	0.000	0.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207417F <i>I Airborne Warning and Control System (AWACS)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Updates flight deck to address known Air Traffic Management restrictions; upgrades the current flight deck transponder to include the Mode 5 capability. Accelerates the Mode 5 transponder FOC independent of DRAGON.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> N/A				
<b>Title:</b> E-3 AWACS Communications Integration Program (ACIP)  <b>Description:</b> 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 the existing and additional military waveforms as a combined integration program on AWACS.  <b>FY 2022 Plans:</b> Rapid Prototyping and development contract award.  <b>FY 2023 Plans:</b> Continue Rapid Prototyping and development.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased to align with reduced E-3 development activities due to planned transition to an E-3 replacement platform.		3.993	48.615	7.384
<b>Title:</b> E-3 AWACS Fifth to Fourth (5th to 4th)  <b>Description:</b> E-3 AWACS Fifth to Fourth (5th to 4th): 5th to 4th provides the capability for E-3G AWACS to receive 5th generation data via Link 16 and other data feeds as necessary. This capability includes the security domain required to integrate the 5th generation data into Mission Computing Software and generate an integrated operational air picture. 5th to 4th addresses gaps and inaccuracies in the Common Tactical Picture (CTP) and improves Situational Awareness (SA) and BMC2 decision making by shortening the kill chain for warfighters in a contested environment.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> N/A		3.857	0.000	0.000
<b>Accomplishments/Planned Programs Subtotals</b>		108.779	167.014	239.658

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207417F <i>I Airborne Warning and Control System (AWACS)</i>
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**D. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item E00300: <i>E-3</i>	135.740	162.960	165.973	-	165.973	220.273	240.339	245.259	-	Continuing	Continuing
• APAF 05 0207417F: <i>Airborne Warning and Control System (AWACS)</i>	42.276	30.327	-	-	-	-	-	-	-	0.000	72.603
• APAF 06 Line Item 000999: <i>Initial Spares/Repair Parts</i>	7.018	21.274	-	-	-	-	-	-	-	Continuing	Continuing

**Remarks**

Other Program Funding  
Appn: APAF, BA: 05, PE/ Line Item: Line Item E00700, Title: E-3 AMTI Replacement, FY2025: \$809.044M, FY2026: \$1319.106M, FY2027: \$1512.659M, Cost to Complete: Continuing

**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 PEO 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) [SAF/AQ]. Of note, E-3 Block 40/45 Upgrade has completed development activities, so it has no 3600 funding and thus not otherwise referenced in this document. The Decision Authority for current AWACS Middle Tier of Acquisition (MTA) 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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0207417F / Airborne Warning and Control System (AWACS)						<b>Project (Number/Name)</b> 67411L / Airborne Warning & Control System (AWACS)			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)	SS/FPIF	L3 : Arlington, TX	-	1.601	Jan 2021	-		-		-		-	Continuing	Continuing	-
E-3 Electronic Protection (EP)	SS/CPFF	GTRI : Atlanta, GA	-	1.670	Nov 2020	-		-		-		-	Continuing	Continuing	-
E-3 Electronic Protection (EP) Rapid Prototyping Alpha Phase 1A	C/FFP	AFLCMC/ACI OTA to SOSSEC : Salem, NH	-	8.997	Feb 2021	-		-		-		-	Continuing	Continuing	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR)	SS/ Various	BAH & Various : Washington, DC	-	7.037	Jan 2021	21.124	Jul 2022	1.435	Jan 2023	-		1.435	Continuing	Continuing	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) GTRI Study	SS/CPFF	Georgia Tech Research Ins : Atlanta, GA	-	-		3.106	Feb 2022	-		-		-	Continuing	Continuing	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) Follow on Studies and Analysis	SS/CPFF	Boeing : Oklahoma City, OK	-	9.950		7.838	Apr 2022	-		-		-	Continuing	Continuing	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Prototype Development	MIPR	DMEA : McClellan, CA	-	-		2.176	Mar 2022	-		-		-	Continuing	Continuing	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Software and Sub-System Level Development	SS/CPFF	Raytheon : Fort Wayne, IN	-	-		12.519	Jan 2022	-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Contr ol System (AWACS)				Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (SMS) Software Development	Various	76 SWES : Tinker AFB, OK	-	-		0.279	Jan 2022	-		-		-	Continuing	Continuing	-
E-3 Communication Network Upgrade (CNU)	Various	Space & Naval Warfare Sys : San Diego, CA	-	0.725	Jan 2021	3.500	Jan 2022	-		-		-	Continuing	Continuing	-
E-3 Communication Network Upgrade (CNU) GTRI	Various	Georgia Tech Research Ins : Atlanta, GA	-	22.195	Feb 2021	39.664	May 2022	1.250	Feb 2023	-		1.250	Continuing	Continuing	-
ACIP Rapid Prototyping Gov't Furnished Equipment (GFE)	MIPR	TBD : TBD	-	-		1.563	Apr 2022	-		-		-	Continuing	Continuing	-
E-3 Communication Network Upgrade (CNU) Boeing	Various	Boeing : Oklahoma City, OK	-	2.526	Feb 2021	0.000	Feb 2022	-		-		-	Continuing	Continuing	-
E-3 Communication Network Upgrade (CNU) Software Development	Various	76th SWES : Tinker AFB, OK	-	3.841	Jan 2021	2.250	Jan 2022	0.750	Jan 2023	-		0.750	Continuing	Continuing	-
Mode 5 Acceleration	MIPR	DMEA : McClellan, CA	-	3.158	Feb 2021	-		-		-		-	Continuing	Continuing	-
ACIP Rapid Prototyping Alpha Phase	TBD	TBD : TBD	-	-		43.049	Apr 2022	-		-		-	Continuing	Continuing	-
Fifth to Fourth (5th to 4th) Risk Reduction	Various	Various : Various	-	2.095	Feb 2021	-		-		-		-	Continuing	Continuing	-
Fifth to Fourth (5th to 4th) Rapid Prototyping GFE	MIPR	Various : TBD	-	0.893	Nov 2021	-		-		-		-	Continuing	Continuing	-
Fifth to Fourth (5th to 4th) Rapid Prototyping Alpha Phase	C/TBD	TBD : TBD	-	2.370	Dec 2021	-		-		-		-	Continuing	Continuing	-
E-3 Replacement	TBD	TBD : TBD	-	-		-		222.890	Apr 2023	-		222.890	Continuing	Continuing	-
Subtotal			-	67.058		137.068		226.325		-		226.325	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
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)				
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
E-3 Training, Support & Infrastructure (TSI) Systems AITS II	C/Various	Boeing : Oklahoma City, OK	-	4.709	Jan 2021	3.481	Apr 2022	0.636	Jan 2023	-		0.636	Continuing	Continuing	-
E-3 Training, Support & Infrastructure (TSI) Radar AITS II	C/Various	Northrop Grumman : Linthicum, MD	-	5.421	Jan 2021	3.169	Apr 2022	0.777	Jan 2023	-		0.777	Continuing	Continuing	-
Subtotal			-	10.130		6.650		1.413		-		1.413	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
(U) Program Management Administration (PMA)	Various	AWACS Program Office : Hanscom AFB, MA	-	31.591	Jan 2021	23.296	Jan 2022	11.920	Jan 2023	-		11.920	Continuing	Continuing	-
Subtotal			-	31.591		23.296		11.920		-		11.920	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	108.779		167.014		239.658		-		239.658	Continuing	Continuing	N/A
Remarks															
The E-3 replacement effort is expected to involve significant amounts of hardware purchases early in development which create a larger than normal amount of termination and liability costs that must be funded.															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## 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 &amp; Control System (AWACS)

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>AWACS PE 0207417F</b>																												
TSI																												
C2ISR																												
CID DMS Alpha Phase																												
CNU Beta Decision (August 2021)																												
CNU Development																												
ACIP Risk Reduction																												
ACIP Prototyping																												
Fifth to Fourth (5th to 4th) Risk Reduction																												
Fifth to Fourth (5th to 4th) Rapid Prototyping																												
E-3 Replacement Prototyping																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207417F / Airborne Warning and Control System (AWACS)	<b>Project (Number/Name)</b> 67411L / Airborne Warning & Control System (AWACS)	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>AWACS PE 0207417F</b>				
TSI	1	2021	4	2023
C2ISR	1	2021	4	2023
CID DMS Alpha Phase	1	2021	2	2022
CNU Beta Decision (August 2021)	4	2021	4	2021
CNU Development	1	2021	4	2024
ACIP Risk Reduction	1	2021	2	2022
ACIP Prototyping	3	2022	3	2025
Fifth to Fourth (5th to 4th) Risk Reduction	1	2021	1	2022
Fifth to Fourth (5th to 4th) Rapid Prototyping	1	2022	4	2022
E-3 Replacement Prototyping	3	2023	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207418F / AFSPECWAR - TACP							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.497	4.598	5.982	0.000	5.982	4.120	4.196	4.286	4.382	Continuing	Continuing
675234: TACP Support	-	0.497	4.598	5.982	0.000	5.982	4.120	4.196	4.286	4.382	Continuing	Continuing
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 Battlefield Airmen, to include Joint Terminal Attack Controller (JTAC) operations, Special Tactics Combat Control Team (CCT), 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. FY23 funds are required to complete development of PRC 161 and PRC 163 concurrency & integration of Army C2 and Fire Support Systems 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 JTAC/CCT and ASOC/Special Operations Forces (SOF) Command and Control (C2) battle staff skills. JTAGSS will provide the ASOC, SOF, and TACP (Tactical Air Control Party) 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 work stations that have synthetic reflex agent applications for each ASOC/SOF crew position to execute the air tasking order.

Funds may be used to address emerging and short-notice Diminishing Manufacturing 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207418F I AFSPECWAR - TACP				
This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver JTC TRS weapon system capability until permanent manpower authorizations are funded. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F.						
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		4.215	4.598	0.000	0.000	0.000
Current President's Budget		0.497	4.598	5.982	0.000	5.982
Total Adjustments		-3.718	0.000	5.982	0.000	5.982
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		-3.718	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	5.982	0.000	5.982
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: JTC TRS Trainer Development				0.497	4.598	5.982
Description: Development and test of Engineering Change Proposals (ECPs) for TACP-Close Air Support System (CASS).						
FY 2022 Plans: FY 22 plans are to use the funds to integrate Digitally Aided Close Air Support (DA CAS) tools into the JTC-TRS simulator for realistic training.						
FY 2023 Plans: FY23 funds are required to complete development of PRC 161 and PRC 163 concurrency & integration of Army C2 and Fire Support Systems into JTAGSS.						
FY 2022 to FY 2023 Increase/Decrease Statement:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>						<b>R-1 Program Element (Number/Name)</b> PE 0207418F / AFSPECWAR - TACP					
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	
The increase is due to a reimbursement from FY 20 cuts. It is needed because the JTAGGS that used to fall under AFRL now falls under AFLCMC purview along with the JTC-TRS program. These funds will be used to transition the JTAGGS to integrate with the Joint Air-Ground Center (JAGIC) construct.											
<b>Accomplishments/Planned Programs Subtotals</b>								0.497	4.598	5.982	
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 837100: <i>Tactical C-E Equipment</i>	3.939	4.009	2.876	-	2.876	3.475	3.540	-	-	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b>											
<p>a. The JTC TRS acquisition has provided full capability as defined in the 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.</p> <p>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.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207418F / AFSPECWAR - TACP				Project (Number/Name) 675234 / TACP Support					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
JTC TRS Trainer Development	C/FFP	AFLCMC/WNS, AFMC : Wright Patterson AFB, OH	-	0.497	Dec 2020	4.598		5.982		-		5.982	Continuing	Continuing	-
JTAGSS Development	C/CPFF	AFRL, AFMC : Wright Patterson AFB, OH	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	0.497		4.598		5.982		-		5.982	Continuing	Continuing	N/A
Remarks															
JTC TRS 2.0 - Adds Air Traffic Control and Assault Zone operations for Special Operations Special Tactics personnel and TACP-CASS.  JTAGSS 2.0. This effort: a) Will increase the autonomous functionality and capability using reflex agents; b) improve internal ASOC crew capacity with increased voice recognition capabilities; c) make the JTAGSS system DMO ready and capable; and d) provide joint and coalition full mission rehearsal capability. -ASOC/JTAGSS Metric Development. -Scenario Authoring Tool. -Distributed Mission Operations Ready -Internal Reflex Agent Research and Development. -Instructor Operator Station. -After Action Review. -JTAGSS Documentation and Rapid Transition Documentation.															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.497		4.598		5.982		-		5.982	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0207418F / AFSPECWAR - TACP					675234 / TACP Support			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JTC TRS Trainer Development																												
Develop and Test TACP Engineering Change Proposals																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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
JTC TRS Trainer Development				
Develop and Test TACP Engineering Change Proposals	1	2021	4	2027

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0207431F <i>I Combat Air Intelligence System Activities</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	16.534	17.863	23.504	0.000	23.504	20.397	11.592	11.836	12.097	Continuing	Continuing
675307: <i>TARGETING ENTERPRISE RESEARCH</i>	-	15.775	17.100	22.699	0.000	22.699	19.575	10.755	10.982	11.225	Continuing	Continuing
675309: <i>GEO Info &amp; Serv Software</i>	-	0.759	0.763	0.805	0.000	0.805	0.822	0.837	0.854	0.872	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The mission of Combat Air Intelligence Systems (CAIS) is to process, analyze, and disseminate intelligence for air component and unit operations worldwide by providing key intelligence infrastructure and production capabilities for the supported and supporting forces with true backbone type of intelligence support for air operations and air support to joint operations. CAIS is focused on providing the intelligence infrastructure and funding to Air Force Major Commands, Intelligence, Cyber and Space Squadrons, Field Operating Agencies, and subordinate units.

Modernizations utilize Section 804, Middle Tier of Acquisitions as a rapid fielding effort to provide required modernization to remain interoperable, certified, supportable, and compliant through software engineering solutions, integration, testing, fielding, and sustainment of new capabilities and upgrades. This includes the utilization of Agile software engineering methodologies and managed cloud infrastructure and platform services. Modernizations are required for the CAIS enterprise capabilities, inside and outside AOCs to keep pace with evolving Government Off the Shelf (GOTS) components, integrated Commercial Off the Shelf (COTS) components, Department of Defense (DoD) directives, and changes in the underlying Information Technology (IT) environment, as well as to deliver effective operational capabilities for the user. In Summer of FY20, the decision was made to transition from MTA, Sec 804 Rapid Prototyping/Fielding to the new NDAA FY20 - Software Acquisition Pathway, which is the preferred path for acquisition and development of software-intensive systems.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Targeting and Geospatial Intelligence 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 \$2.688M was expended for civilian pay expenses in this program element, and in CY \$2.761M is forecasted for civilian pay expenses in this program element.

This program is part of the overarching Kessel Run portfolio.

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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0207431F I Combat Air Intelligence System Activities			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	16.534	21.863	0.000	0.000	0.000
Current President's Budget	16.534	17.863	23.504	0.000	23.504
Total Adjustments	0.000	-4.000	23.504	0.000	23.504
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-4.000			
• 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	23.504	0.000	23.504
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 FY 2023 cannot be made in a relevant manner.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207431F / Combat Air Intelligence System Activities				Project (Number/Name) 675307 / TARGETING ENTERPRISE RESEARCH			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675307: TARGETING ENTERPRISE RESEARCH	-	15.775	17.100	22.699	0.000	22.699	19.575	10.755	10.982	11.225	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Provides support to personnel utilizing Target Development, Planning, and Execution applications; Unit Level Intelligence; Tactical Intelligence Applications; and direct support to national, combatant command, and Air Force intelligence missions.												
This program element may include necessary civilian pay expenses required to manage, execute, and deliver Targeting for 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 \$2.475M was expended for civilian pay expenses in this program element, and in CY \$2.565M is forecasted for civilian pay expenses in this program element.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
Title: Targeting Enterprise Research									15.775	17.100	22.699	
Description: Conduct Targeting Enterprise research and advancement for projects such as Joint Targeting Toolbox (JTT) [In both the Global Command and Control System Joint (GCCS-J) and Stand-alone configurations-JTT-Capability Package (JTT-CP)] and the Unit Level Intelligence (ULI) systems Toolkit for Intelligence Targeting Analysis (TITAN) and Targeting Application Workstation (TAW).) This budget item also funds emerging targeting capabilities (such as Target System Analysis, 4D visualization, etc.) and Targeting Enterprise software application modernization efforts.												
FY 2022 Plans: Continue the phased modernization of capabilities within the T&G portfolio, expand test automation, and migrate to a true Continuous Integration/DevOps environment to support continuous delivery to the warfighter.												
FY 2023 Plans: Continue the phased modernization of capabilities within the T&G portfolio, expand test automation, and migrate to a true Continuous Integration/DevOps environment to support continuous delivery to the warfighter.												
FY 2022 to FY 2023 Increase/Decrease Statement: Increase attributed to FTEs supporting Targeting modernization efforts for different product teams.												
Accomplishments/Planned Programs Subtotals									15.775	17.100	22.699	

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022	
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0207431F / Combat Air Intelligence System Activities				Project (Number/Name) 675307 / TARGETING ENTERPRISE RESEARCH			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 Line Item 832070: Intelligence Comm Equipment	2.550	2.720	3.185	-	3.185	2.822	5.907	6.083	6.217	Continuing	Continuing
• O&M 27431F: Combat Air Intelligence System (CAIS)	5.197	6.413	6.070	-	6.070	6.184	6.297	6.422	6.551	Continuing	Continuing
Remarks											
Combat Air Intelligence System (CAIS) procurement funds.											
D. Acquisition Strategy											
The acquisition strategy builds on agile software engineering methodologies and modernization of existing capabilities utilizing evolutionary acquisition. Using Section 804, timelines are reduced by modularizing both software engineering solutions and the associated contracting and funding strategies. This enables dynamic resource allocation based on current warfighter needs. The desired end state is continuous delivery of Software. In Summer of FY20, the decision was made to transition from MTA, Sec 804 Rapid Prototyping/Fielding to the new NDAA FY20 - Software Acquisition Pathway, which is the preferred path for acquisition and development of software-intensive systems. 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.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207431F / Combat Air Intelligence System Activities				Project (Number/Name) 675307 / TARGETING ENTERPRISE RESEARCH					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Targeting Enterprise Research	Various	Various : TBD	-	4.676	Jan 2021	6.393	Jan 2022	6.918	Jan 2023	-		6.918	Continuing	Continuing	-
JTT-CP Legacy	SS/CPFF	BAE Systems : Rockville, MD	-	2.857	Jun 2021	0.905	Jun 2022	0.990	Jun 2023	-		0.990	Continuing	Continuing	-
JTT-CP Modernization	C/TBD	TBD : Hanscom AFB, MA	-	-		1.998	Aug 2022	3.186	Aug 2023	-		3.186	Continuing	Continuing	-
Software Development (ENDOR)	C/T&M	Various : Boston, MA	-	2.898	Jan 2021	2.403	Jan 2022	5.263	Jan 2023	-		5.263	Continuing	Continuing	-
Unit Level Intelligence Software Development	C/FFP	Booker Dimaio, LLC : Sykesville, MD	-	0.450	Dec 2020	-		-		-		-	0.000	0.450	-
Software Development (Radiance)	MIPR	NIWC Pacific : San Diego, CA	-	-		1.035	Dec 2021	1.101	Oct 2022	-		1.101	Continuing	Continuing	-
Development Enablement (OTA)	C/T&M	Pivotal Software, Inc : San Francisco, CA	-	0.285	Sep 2021	-		-		-		-	0.000	0.285	-
Subtotal			-	11.166		12.734		17.458		-		17.458	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Civilian Direct Cite Authority	Reqn	AFLCMC : WPAFB, OH	-	1.892	Oct 2020	2.970	Oct 2021	2.933	Oct 2022	-		2.933	Continuing	Continuing	-
Federally Funded Research & Development Center (FFRDC) Engineers	C/CPFF	MITRE : Hanscom AFB, MA	-	1.413	Oct 2020	0.859	Oct 2021	1.378	Oct 2022	-		1.378	Continuing	Continuing	-
Advisory & Assistance Services	C/CPFF	Oasis Systems, LLC : Boston, MA	-	0.507	Jul 2021	0.079	Jul 2022	0.245	Jul 2023	-		0.245	Continuing	Continuing	-
Subtotal			-	3.812		3.908		4.556		-		4.556	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207431F / Combat Air Intelligence System Activities				Project (Number/Name) 675307 / TARGETING ENTERPRISE RESEARCH					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Development Test Support	PO	45th Test Squadron : Eglin AFB, FL	-	0.474	Dec 2020	0.421	Dec 2021	0.630	Dec 2022	-		0.630	Continuing	Continuing	-
Subtotal			-	0.474		0.421		0.630		-		0.630	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Office Support	Various	Program Management Office : Hanscom AFB, MA	-	0.323	Nov 2020	0.037	Nov 2021	0.055	Nov 2022	-		0.055	Continuing	Continuing	-
Subtotal			-	0.323		0.037		0.055		-		0.055	Continuing	Continuing	N/A
			Prior Years	FY 2021	FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			-	15.775	17.100		22.699		-		22.699	Continuing	Continuing	N/A	
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0207431F / Combat Air Intelligence System Activities										Project (Number/Name) 675307 / TARGETING ENTERPRISE RESEARCH									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Targeting																												
Software/Hardware Development																												
Test and Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / Combat Air Intelligence System Activities	Project (Number/Name) 675307 / TARGETING ENTERPRISE RESEARCH	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Targeting				
Software/Hardware Development	1	2021	4	2027
Test and Evaluation	1	2021	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207431F / Combat Air Intelligence System Activities				Project (Number/Name) 675309 / GEO Info & Serv Software			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675309: GEO Info & Serv Software	-	0.759	0.763	0.805	0.000	0.805	0.822	0.837	0.854	0.872	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Provides support to personnel using Geospatial resources utilized in Geospatial Intelligence (GEOINT) databasing applications, technology exploration and refresh initiatives, geospatial imagery data management and dissemination architecture, geospatial information and services modernization, and enablers for intel and targeting capabilities. Provides support to the MAJCOMs to ensure requisite and available target intelligence and GEOINT tools for information directly available to warfighters.

The GEOINT information and service software program funds the Air Force Enhanced Geospatial Product Library (EGPL) which is currently fielded to all combatant command air components and subordinate units supporting global air operations. The EGPL provides digital GEOINT data to support mission planning, targeting & intelligence in support of mission objectives.

The Enhanced Geospatial Product Library (EGPL) is world-wide distributed United States Air Force (USAF) repository for geospatial products from the National Geospatial Intelligence Agency (NGA) and other government sources. Its purpose is to provide the Geospatial Intelligence (GEOINT) information needed by the Air Force (AF) and other DoD command and control systems. EGPL is on premise, continuously updated, NGA Foundational GEOINT data seamlessly accessible via shared drive or browser.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Geospatial Intelligence 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 \$0.213M was expended for civilian pay expenses in this program element, and in CY \$0.196M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Enhanced Geospatial Product Library (EGPL)	0.759	0.763	0.805
<b>Description:</b> Provide continuing support for EGPL software and storage to meet future and evolving IT and GEOINT standards and support.			
<b>FY 2022 Plans:</b> Continue to develop EGPL software and continue modernization efforts utilizing Agile Methodologies.			
<b>FY 2023 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0207431F / <i>Combat Air Intelligence System Activities</i>			<b>Project (Number/Name)</b> 675309 / <i>GEO Info &amp; Serv Software</i>				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>											
Continue to develop EGPL software and continue modernization efforts utilizing Agile Methodologies.							<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>		
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Increase attributed to FTEs supporting EGPL product team.											
<b>Accomplishments/Planned Programs Subtotals</b>							0.759	0.763	0.805		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 832070: <i>Intelligence Comm Equipment</i>	14.535	0.000	-	-	-	-	-	-	-	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b> The acquisition strategy builds on agile software engineering methodologies and modernization of existing capabilities utilizing evolutionary acquisition. Using section 804, timelines are reduced by modularizing both software engineering solutions and the associated contracting and funding strategies. This enables dynamic resource allocation based on current warfighter needs. The desired end state is continuous delivery of Software. In Summer of FY20, the decision was made to transition from MTA, Sec 804 Rapid Prototyping/Fielding to the new NDAA FY20 - Software Acquisition Pathway, which is the preferred path for acquisition and development of software-intensive systems. 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.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
Appropriation/Budget Activity						R-1 Program Element (Number/Name)					Project (Number/Name)				
3600 / 7						PE 0207431F / Combat Air Intelligence System Activities					675309 / GEO Info & Serv Software				
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Enhance Geospatial Product Library (eGPL)	C/T&M	Charles Stark Draper Lab : Cambridge, MA	-	0.533	Oct 2020	0.126	Oct 2021	-		-		-	0.000	0.659	-
eGPL Software Development (ENDOR)	C/T&M	Various : Boston, MA	-	-		0.445	Jan 2022	0.606	Jan 2023	-		0.606	Continuing	Continuing	-
Subtotal			-	0.533		0.571		0.606		-		0.606	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Civilian Direct Cite Authority	Reqn	AFLCMC : WPAFB, OH	-	0.226	Oct 2020	0.181	Oct 2021	0.187	Oct 2022	-		0.187	Continuing	Continuing	-
Subtotal			-	0.226		0.181		0.187		-		0.187	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Office Support	Reqn	Various : Hanscom, MA	-	0.000	Oct 2020	0.011	Oct 2021	0.012	Oct 2022	-		0.012	Continuing	Continuing	-
Subtotal			-	0.000		0.011		0.012		-		0.012	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.759		0.763		0.805		-		0.805	Continuing	Continuing	N/A
Remarks															
Realigned \$100K from BPAC 675307 to BPAC 675309 for EGPL follow-on contract.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0207431F / Combat Air Intelligence System Activities										Project (Number/Name) 675309 / GEO Info & Serv Software									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Geolnt																												
Software Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207431F / Combat Air Intelligence System Activities	Project (Number/Name) 675309 / GEO Info & Serv Software

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Geolnt				
Software Development	1	2021	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207438F I Theater Battle Management (TBM) C4I							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	7.660	7.905	5.851	0.000	5.851	6.452	6.611	6.751	6.901	0.000	48.131
675218: Applications Development	-	7.660	7.905	5.851	0.000	5.851	6.452	6.611	6.751	6.901	0.000	48.131
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This project funds software development capacity necessary to deliver the Air Force's (AF) Command and Control (C2) capabilities and services. Applications Development is executed under the Air Operations Center (AOC) Block 20 Modification effort. Applications Development provides worldwide operational capabilities for AF C2 in support of DoD, Coalition Partners, and other government agencies. These efforts focus on support of the Joint Forces Air Component Commander (JFACC) that provides air, space and cyber support as presented to the AOC and to other AF and Joint Services C2 systems. Applications Development efforts deliver capabilities identified in the Joint Command and Control (JC2) Capability Development Document (CDD) (2013). 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.

In FY 2023, C2 Applications Development will focus on providing software capabilities for the combat plans and operations divisions to build, disseminate and execute the Master Air Attack Plan (MAAP). C2 Applications Development also provides an Airspace Management tool used for building airspaces, evaluating requests and instantaneously generating the Airspace Control Order (ACO). These efforts deliver modern software for inclusion to the AOC Weapon System Modifications to replace the Master Air Attack Plan-Toolkit (MAAPTK) and components of Theater Battle Management Core System - Force Level (TBMCS FL). This effort will investigate and develop a solution to address joint partner and non-AOC usage of C2 Applications in TBMCS FL use cases.

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 FY2021, \$1.928M was expended for civilian pay expenses in this program element, and in FY2022 \$2.401M 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 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207438F I Theater Battle Management (TBM) C4I			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	7.844	7.905	0.000	0.000	0.000
Current President's Budget	7.660	7.905	5.851	0.000	5.851
Total Adjustments	-0.184	0.000	5.851	0.000	5.851
• 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	-0.184	0.000			
• Other Adjustments	0.000	0.000	5.851	0.000	5.851
Change Summary Explanation FY2023: 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.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: C2 Applications Development	7.660	7.905	5.851	0.000	5.851
Description: Employ agile software development methodologies to engineer, integrate, and test modern C2 software capabilities leveraging test-driven development. Provide engineering solutions, test, and deliver effective operational C2 capabilities utilizing continuous integration and continuous delivery (CI/CD) processes.					
FY 2022 Plans: - Deliver software to AOC WS Modifications to incrementally replace the MAAPTK and portions of TBMCS FL					
FY 2023 Base Plans: - Continue delivery of software to AOC WS Modifications to incrementally replace MAAPTK and portions of TBMCS FL					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development						<b>R-1 Program Element (Number/Name)</b> PE 0207438F I Theater Battle Management (TBM) C4I					
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>											
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>						
Decrease of funding due to reduction of development efforts.											
<b>Accomplishments/Planned Programs Subtotals</b>						7.660	7.905	5.851	0.000	5.851	
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 834520: Theater Battle Mgt C2 System	3.045	3.683	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.728
• OPAF 03 833140: Strategic Command And Control	0.000	3.541	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTE 07 0303248F: All Domain Common Platform	0.000	64.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTE 08 0308606F: All Domain Common Platform (ADCP) - Software Pilot Program	0.000	0.000	190.112	-	190.112	175.196	190.889	187.666	188.307	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b>											
The acquisition strategy builds on agile development and modification of existing capabilities using evolutionary acquisition to standardize and modernize C2 Applications Development. C2 Applications Development will operate under authority of a Software Acquisition Pathway following DoDI 5000.87, Operation of Software Acquisition Pathway Guidance.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207438F / Theater Battle Management (TBM) C4I				Project (Number/Name) 675218 / Applications Development					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
C2AOS-C2IS Agile Software Development	C/T&M	Multiple : Multiple	-	5.732	Nov 2020	5.152	Nov 2021	3.176	Oct 2022	-		3.176	Continuing	Continuing	-
Subtotal			-	5.732		5.152		3.176		-		3.176	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
C2AOS-C2IS Civilian Direct Cite Authorizations for Product Development	Allot	AFLCMC/FZA : TBD	-	1.928	Oct 2020	2.401	Oct 2021	2.402	Oct 2022	-		2.402	Continuing	Continuing	-
Subtotal			-	1.928		2.401		2.402		-		2.402	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Various	Multiple : TBD	-	-		0.352	Apr 2022	0.273	Apr 2023	-		0.273	Continuing	Continuing	-
Subtotal			-	-		0.352		0.273		-		0.273	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	7.660		7.905		5.851		-		5.851	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207438F / Theater Battle Management (TBM) C4I		Project (Number/Name) 675218 / Applications Development	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Applications Development																												
C2 Applications Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207438F / Theater Battle Management (TBM) C4I	Project (Number/Name) 675218 / Applications Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Applications Development				
C2 Applications Development	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207439F I Electronic Warfare Integrated Reprogramming (EWIR)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	15.000	15.990	0.000	15.990	16.513	17.018	17.534	18.098	Continuing	Continuing
673310: Electronic Warfare Integrated Reprogram RDT&E	-	0.000	15.000	15.990	0.000	15.990	16.513	17.018	17.534	18.098	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

In FY 2022, DARPA efforts, previously funded in PE 0603766E, Network-Centric Warfare Technology, Project Net-01, Joint Warfare Systems; were transferred to the Air Force for funding in PE 0207439F, Electronic Warfare Integrated Reprogramming (EWIR), Project 673310, Electronic Warfare Integrated Reprogram RDT&E; to continue development of System of System Technology Integration Tool Chain for Heterogeneous Electronic Systems (STITCHES).

The Electronic Warfare Integrated Reprogramming (EWIR) program element hosts the first DoD transition of STITCHES Warfighter Application Team (SWAT) which is an integration team transferred from DARPA employing, maintaining, and instructing other teams in the DoD how to use the STITCHES integration toolchain. STITCHES is a fully government developed, owned, and open source software toolchain that integrates any DoD fielded systems together in different configurations of system of systems within mission planning time in order to create new capabilities without the need to modify system source code. STITCHES' separable and community-based database allows disparate teams across the DoD to utilize STITCHES and SWAT in separate security levels without comingling data. The Spectrum Warfare Wing will employ STITCHES using the SWAT by employing the STITCHES generated interoperability software on systems within the SWW and deploying the capabilities created through integration. SWAT interfaces and integrates with other DoD systems and their authorities in order to support SWW missions and HHQ directed activities. SWAT is responsible for testing and deploying STITCHES generated interoperability into DoD systems supported by the SWW, with working with existing DoD test and certification organizations, and teaming with organizations outside of the SWW when adapting and creating novel system of systems using capabilities from these organizations. SWAT will deliver adaptive and cutting-edge electromagnetic spectrum capabilities that provide the warfighter a tactical and strategic competitive advantage and freedom to attack, maneuver, and defend.

SWAT is an agile software development team composed of a government tiger team, the STITCHES toolchain developer, and a secure cloud infrastructure and repository developer. SWAT includes a revolving team of subsystem subject matter experts (SMEs) when adapting DoD systems using STITCHES.

SWAT is responsible for the execution of tasks employing STITCHES outlined in NDAA 2021 Section 804 and supports Joint All Domain Command and Control (JADC2) tasking and integration efforts in support of JADC2.

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 0605831F. In FY21 0 was expended for civilian pay expenses in this program element, and in FY22 0 is forecasted for civilian pay expenses in this program element.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207439F I Electronic Warfare Integrated Reprogramming (EWIR)				
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		0.000	15.000	0.000	0.000	0.000
Current President's Budget		0.000	15.000	15.990	0.000	15.990
Total Adjustments		0.000	0.000	15.990	0.000	15.990
• 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	15.990	0.000	15.990
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Develop Deployment Strategy for STITCHES				0.000	4.750	5.063
Description: Develop Deployment Strategy for System Technology Integration Tool Chain for Heterogeneous Electronic Systems (STITCHES). This effort involves development of training and implementation process for STITCHES.						
FY 2022 Plans: Develop deployment strategy for STITCHES.						
FY 2023 Plans: Develop deployment strategy for STITCHES.						
FY 2022 to FY 2023 Increase/Decrease Statement: Cost increase due to inflation.						
Title: Accomplish Requirements Outlined in NDAA Section 804 (Verify, Validate and Test)				0.000	2.500	2.665
Description: Improve existing STITCHES verification, validation, and testing capabilities and apply to STITCHES integrated systems in coordination with DoD test, accreditation, and certification authorities.						
FY 2022 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207439F / <i>Electronic Warfare Integrated Reprogramming (EWIR)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Improve STITCHES verification, validation, and testing capabilities and apply to STITCHES integrated systems in coordination with DoD test, accreditation, and certification authorities.  <b>FY 2023 Plans:</b> Improve STITCHES verification, validation, and testing capabilities and apply to STITCHES integrated systems in coordination with DoD test, accreditation, and certification authorities.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Cost increase due to inflation.				
<b>Title:</b> Accomplish Requirements Outlined in NDAA Section 804 (Deploy Secure Cloud Structures)  <b>Description:</b> Deploy secure cloud infrastructures and Section 804 repositories into FENCES environment.  <b>FY 2022 Plans:</b> Deploy secure cloud infrastructures and Section 804 repositories into FENCES environment.  <b>FY 2023 Plans:</b> Deploy secure cloud infrastructures and Section 804 repositories into FENCES environment.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Cost increase due to inflation.		0.000	2.500	2.665
<b>Title:</b> Accomplish Requirements Outlined in NDAA Section 804 (Develop Kill Chains)  <b>Description:</b> Develop a System of System Technology Integration Tool Chain for Heterogeneous Electronic Systems (STITCHES) Warfighter Application Team (SWAT) which is an integration team transferred from DARPA. STITCHES will integrate DoD fielded systems together in different configurations of system of systems within mission planning time in order to create new capabilities without the need to modify system source code.  <b>FY 2022 Plans:</b> Create novel kill chains involving previously incompatible weapon systems, sensor, and command, control, and communication systems from multiple military services in cooperation with United States Indo-Pacific Command or United States European Command.  <b>FY 2023 Plans:</b>		0.000	5.250	5.597

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207439F / <i>Electronic Warfare Integrated Reprogramming (EWIR)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Create novel kill chains involving previously incompatible weapon systems, sensor, and command, control, and communication systems from multiple military services in cooperation with United States Indo-Pacific Command or United States European Command.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Cost increase due to inflation.				
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	15.000	15.990
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> Project utilizes existing DoD contracts to develop, maintain, and deploy interoperability within the DoD. SWAT will generate interoperability derived from system interface details as the requirements from NDAA 2021 Section 804 are delivered to DoD repositories. These details are delivered via existing DoD programs. SWAT will serve existing programs to train and deliver their interface details into existing repositories including those Section 804 compliant repositories maintained by the STITCHES team. SWAT's System Adaptation effort generates those interface artifacts for programs not able to perform those functions on their own. SWAT and SWAT supporting contracts can accept external funding when requests for support exceed SWAT programmed funding.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207439F / <i>Electronic Warfare Integrated Reprogramming (EWIR)</i>						Project (Number/Name) 673310 / <i>Electronic Warfare Integrated Reprogram RDT&amp;E</i>			
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development, STITCHES Toolchain	C/CPFF	Various : TBD	-	-		7.500	Nov 2021	7.995	Nov 2022	-		7.995	Continuing	Continuing	-
Product Development, STITCHES Secure Cloud Infrastructure and Section 804 Repositories	C/CPAF	Not specified. : TBD	-	-		2.750	Nov 2021	2.932	Nov 2022	-		2.932	Continuing	Continuing	-
Product Development, System Adaption	C/Various	Various : TBD	-	-		2.865	Nov 2021	3.054	Nov 2022	-		3.054	Continuing	Continuing	-
Subtotal			-	-		13.115		13.981		-		13.981	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Mission Support	Various	Various : TBD	-	-		1.885	Nov 2021	2.009	Nov 2022	-		2.009	Continuing	Continuing	-
Subtotal			-	-		1.885		2.009		-		2.009	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		15.000		15.990		-		15.990	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0207439F / <i>Electronic Warfare Integrated Reprogramming (EWIR)</i>								Project (Number/Name) 673310 / <i>Electronic Warfare Integrated Reprogram RDT&amp;E</i>			

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207439F / <i>Electronic Warfare Integrated Reprogramming (EWIR)</i>	Project (Number/Name) 673310 / <i>Electronic Warfare Integrated Reprogram RDT&amp;E</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>STITCHES Development</i></b>				
Develop Offensive and Defensive Electromagnetic Spectrum Capabilities	1	2022	4	2023
<b><i>STITCHES Test and Evaluation</i></b>				
Test & Evaluate Offensive and Defensive Electromagnetic Spectrum Capabilities	1	2022	4	2023

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0207444F / <i>Tactical Air Control Party-Mod</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	12.589	13.081	10.315	0.000	10.315	11.981	12.204	12.462	12.739	Continuing	Continuing
676013: <i>Equipment Modernization</i>	-	12.589	13.081	10.315	0.000	10.315	11.981	12.204	12.462	12.739	Continuing	Continuing

## A. Mission Description and Budget Item Justification

The Air Force Special Warfare (AFSPEWAR) Tactical Air Control Party (TACP) Weapon System executes precision strike, integration, and all-domain command and control operations to meet Air Force air, space, and cyber power projection and joint force objectives. TACP Airmen are the USAF's highly mobile and scalable ground based command and control capability, which seamlessly integrates kinetic and non-kinetic effects cross the entire spectrum of conflict, by providing agile command and control to compete with or defeat peer adversaries at the tactical edge in highly contested environments. Additionally, TACP Airmen conduct precision strike and integration operations at all echelons of ground maneuver warfare, from Dismounted operations on the front lines to tactical operations center operations at higher headquarters; TACP Airmen plan, request, advise, and control joint fires and air power to meet commander objectives.

The purpose of the Tactical Air Control Party - Modernization (TACP-M) program is to provide TACPs voice, data and video communications, targeting and battlefield awareness/management capabilities across all domains. Improved targeting and data communications capabilities provide more accurate target coordinates, reduce Close Air Support (CAS) response times, and reduce the probability of fratricide or collateral damage using networked data communication.

The TACP-M program support includes addressing frequent TACP combat deployments that sometimes lead users to change equipment procurement priorities to support urgent operational needs and respond to evolving threat environments. . The TACP-M program jointly develops software with other AFSPEWAR programs to consolidate requirements that are common across the AFSPEWAR enterprise. This teaming arrangement helps standardize operational TACP equipment, improve efficiency by consolidating acquisition efforts, and often reduces unit costs by increasing procurement quantities.

The TACP-M program provides and modernizes capabilities in the following four major areas: (1) Air Support Operations Center (ASOC)/Tactical Operations Center (TOC) systems (used in fixed and mobile operations centers), (2) Vehicle Mounted Systems (used in TACP tactical vehicles) and semi-mobile operations, (3) Dismounted Systems (used by Joint Terminal Attack Controllers (JTACs) during Dismounted infantry operations), and (4) Digitally-Aided Close Air Support (DACAS) software.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0207444F I Tactical Air Control Party-Mod	
<p>ASOC provides execution management and integration with fires systems, utilizes Air Operations Center (AOC) (i.e., the Air Tasking Order (ATO)) inputs and archives data, provides a visual depiction and will assist in the management of the forward battlespace/area of contention in coordination with DOD, non-governmental, and international partners. It additionally provides TACP planning documents and data management/server capability for integrating ISR management and video feeds, managing Air Tasking real time, and receiving Battle Damage Assessment (BDA) inputs. The ASOC will tie into the Theater Deployable Communications (TDC) Program Management Directive (PMD), provide Joint All Domain Command and Control (JADC2) capabilities that will be leader-centric, network enabled, and ready to operate in complex and degraded information environments; to include the ability to support/execute air taskings should the AOC require assistance during periods of degraded operations.</p> <p>Dismounted and ASOC/TOC/Mounted (ATM) software meets the technical needs of implementing TACP Command and Control (C2) capabilities in operational environments. Software supports a wide variety of radio systems and other emerging systems to be employed by TACPs in the future. Future upgrades are necessary to maintain interoperability with strike aircraft, joint fire support systems, and emerging data networking waveforms. Software upgrades provide a modular architecture for digital communications, messaging, data handling, hardware management, targeting, and battle space awareness capabilities. The key characteristic of the software will be the agile development of Open System, Modular architectures that will enable rapid integration with new end user devices (such as laser range finders, radios, Full Motion Video (FMV), targeting and laptops/hand held computing devices, and tactical gateways) and rapid development, testing and fielding of new mission capability modules to meet immediate and future requirements. TACP C2 elements will be aligned and integrated with the Advanced Battle Management System to ensure synergy of effort.</p> <p>TACP DACAS (WARHAWK) software provides required advanced communication, advanced targeting capability, and significant interoperability improvements for mobile computing devices used by Vehicle Mounted systems and stationary systems used in operations centers. TACP DACAS software enables digital data communications with joint C2 nodes, other TACPs, strike aircraft, and Army C2 and Fire Support systems. It includes interfaces with ASOC/TOC, and JTAC radios and targeting devices, interoperability across the Dismounted, Vehicle Mounted systems, and ASOC/TOC mission sets. It also provides battlespace awareness capabilities needed to plan, request, coordinate, and control airspace, the integration of air and surface fires and Close Air Support (CAS) in support of ground maneuver forces. The DACAS software interfaces with all TACP-M components and provides interoperability with joint strike aircraft (F-35, A-10, F-16, F-15, F/A-18, AV-8B, B-52, etc.), Remotely Piloted Aircraft (RPA), artillery fire support systems, network- enabled weapons, and C2 nodes. To enable data communications with those systems / nodes, DACAS incorporates several communications protocols including Variable Message Format (VMF), Link 16, Situational Awareness Data Link (SADL), Marine Tactical System (MTS), and U.S. Message Text Format (USMTF); along with emerging waveform technologies.</p> <p>TACP DACAS (Special Warfare Assault Kit (SWAK)) - This program is a Machine to Machine (M2M) Modern Software Development Program (MSDP). The software acquisition uses a modern software development methodology and is not primarily in sustainment. It has no objective system and will use iterative development across the project's lifecycles. A suite of map-centric software applications that enables M2M transfer of precision targeting, information management, C4ISR (Command, Control Communications, Computers, Intelligence, Surveillance, and Reconnaissance), and Situational Awareness (SA) information. Provides the Special Warfare</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0207444F I Tactical Air Control Party-Mod	
<p>operators (TACPs) the ability to find, fix, track, target, and engage the enemy which greatly reduces the kill chain and drastically decreases the possibility of fratricide by enhancing the operator's SA on the battlefield.</p> <p>Funding supports Dismounted, Vehicle Mounted, and ASOC/TOC software to address: interfaces with new Dismounted requirements, evolution of existing Tactical Assault Kit (TAK)/SWAK software which provides a framework for the TACP software interfaces, ASOC-Mod (interoperability and hardware/software interfaces), changes to Army fires support systems, changes to AOC Theater Battle Management Core Systems, updates for fielded versions, new USAF and Army future JADC2 capabilities, new joint DACAS standards, technical support to operators employing the software, and system prototyping for required future ASOC/TOC/Vehicle Mounted system capabilities.</p> <p>Items requested in FY23 as identified in this Exhibit are representative but not limited to the items to be developed. Items developed during execution may change based on critical equipment needed to support current Air Force mission requirements. Due to the rapidly changing threat environment, the acquisition program manager has the authority to redirect funding as necessary to meet current slated and emerging requirements for operational TACP units.</p> <p>TACP-M 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>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 FY2021 \$0.000M was expended for civilian pay expenses in this program element, and in FY 2022 \$0.000M 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> <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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0207444F I Tactical Air Control Party-Mod			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	12.882	13.081	0.000	0.000	0.000
Current President's Budget	12.589	13.081	10.315	0.000	10.315
Total Adjustments	-0.293	0.000	10.315	0.000	10.315
• 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	-0.293	0.000			
• Other Adjustments	0.000	0.000	10.315	0.000	10.315
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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207444F / Tactical Air Control Party-M od				Project (Number/Name) 676013 / Equipment Modernization			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
676013: Equipment Modernization	-	12.589	13.081	10.315	0.000	10.315	11.981	12.204	12.462	12.739	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The Air Force Special Warfare (AFSPECWAR) Tactical Air Control Party (TACP) Weapon System executes precision strike, integration, and all-domain command and control operations to meet Air Force air, space, and cyber power projection and joint force objectives. TACP Airmen are the USAF's highly mobile and scalable ground based command and control capability, which seamlessly integrates kinetic and non-kinetic effects across the entire spectrum of conflict, by providing agile command and control to compete with or defeat peer adversaries at the tactical edge in highly contested environments. Additionally, TACP Airmen conduct precision strike and integration operations at all echelons of ground maneuver warfare, from Dismounted operations on the front lines to tactical operations center operations at higher headquarters; TACP Airmen plan, request, advise, and control joint fires and air power to meet commander objectives.

The purpose of the Tactical Air Control Party - Modernization (TACP-M) program is to provide TACPs voice, data and video communications, targeting and battlefield awareness/management capabilities across all domains. Improved targeting and data communications capabilities provide more accurate target coordinates, reduce Close Air Support (CAS) response times, and reduce the probability of fratricide or collateral damage using networked data communication.

The TACP-M program support includes addressing frequent TACP combat deployments that sometimes lead users to change equipment procurement priorities to support urgent operational needs and respond to evolving threat environments. The TACP-M program jointly develops software with other AFSPECWAR programs to consolidate requirements that are common across the AFSPECWAR enterprise. This teaming arrangement helps standardize operational TACP equipment, improve efficiency by consolidating acquisition efforts, and often reduces unit costs by increasing procurement quantities.

The TACP-M program provides and modernizes capabilities in the following four major areas: (1) Air Support Operations Center (ASOC)/Tactical Operations Center (TOC) systems (used in fixed and mobile operations centers), (2) Vehicle Mounted Systems (used in TACP tactical vehicles) and semi-mobile operations, (3) Dismounted Systems (used by Joint Terminal Attack Controllers (JTACs) during Dismounted infantry operations), and (4) Digitally-Aided Close Air Support (DACAS) software.

ASOC provides execution management and integration with fires systems, utilizes Air Operations Center (AOC) (i.e., the Air Tasking Order (ATO)) inputs and archives data, provides a visual depiction and will assist in the management of the forward battlespace/area of contention in coordination with DOD, non-governmental, and international partners. It additionally provides TACP planning documents and data management/server capability for integrating ISR management and video feeds, managing Air Tasking real time, and receiving Battle Damage Assessment (BDA) inputs. The ASOC will tie into the Theater Deployable Communications (TDC) Program Management Directive (PMD), provide Joint All Domain Command and Control (JADC2) capabilities that will be leader-centric, network enabled, and ready to operate in

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207444F / <i>Tactical Air Control Party-Mod</i>	<b>Project (Number/Name)</b> 676013 / <i>Equipment Modernization</i>
<p>complex and degraded information environments; to include the ability to support/ execute air taskings should the AOC required assistance during periods of degraded operations</p> <p>Dismounted and ASOC/TOC/Mounted (ATM) software meets the technical needs of implementing TACP Command and Control (C2) capabilities in operational environments. Software supports a wide variety of radio systems and other emerging systems to be employed by TACPs in the future. Future upgrades are necessary to maintain interoperability with strike aircraft, joint fire support systems, and emerging data networking waveforms. Software upgrades provide a modular architecture for digital communications, messaging, data handling, hardware management, targeting, and battle space awareness capabilities. The key characteristic of the software will be the agile development of Open System, Modular architectures that will enable rapid integration with new end user devices (such as laser range finders, radios, Full Motion Video (FMV), targeting and laptops/hand held computing devices, and tactical gateways) and rapid development, testing and fielding of new mission capability modules to meet immediate and future requirements. TACP C2 elements will be aligned and integrated with the Advanced Battle Management System to ensure synergy of effort.</p> <p>TACP DACAS (WARHAWK) software provides required advanced communication, advanced targeting capability, and significant interoperability improvements for mobile computing devices used by Vehicle Mounted systems and stationary systems used in operations centers. TACP DACAS software enables digital data communications with joint C2 nodes, other TACPs, strike aircraft, and Army C2 and Fire Support systems. It includes interfaces with ASOC/TOC, and JTAC radios and targeting devices, interoperability across the Dismounted, Vehicle Mounted systems, and ASOC/TOC mission sets. It also provides battlespace awareness capabilities needed to plan, request, coordinate, and control airspace, the integration of air and surface fires and Close Air Support (CAS) in support of ground maneuver forces. The DACAS software interfaces with all TACP-M components and provides interoperability with joint strike aircraft (F-35, A-10, F-16, F-15, F/A-18, AV-8B, B-52, etc.), Remotely Piloted Aircraft (RPA), artillery fire support systems, network- enabled weapons, and C2 nodes. To enable data communications with those systems / nodes, DACAS incorporates several communications protocols including Variable Message Format (VMF), Link 16, Situational Awareness Data Link (SADL), Marine Tactical System (MTS), and U.S. Message Text Format (USMTF); along with emerging waveform technologies.</p> <p>TACP DACAS (Special Warfare Assault Kit (SWAK)) - This program is a Machine to Machine (M2M) Modern Software Development Program (MSDP). The software acquisition uses a modern software development methodology and is not primarily in sustainment. It has no objective system and will use iterative development across the project's lifecycles. A suite of map-centric software applications that enables M2M transfer of precision targeting, information management, C4ISR (Command, Control Communications, Computers, Intelligence, Surveillance, and Reconnaissance), and Situational Awareness (SA) information. Provides the Special Warfare operators (TACPs) the ability to find, fix, track, target, and engage the enemy which greatly reduces the kill chain and drastically decreases the possibility of fratricide by enhancing the operator's SA on the battlefield.</p> <p>Funding supports Dismounted, Vehicle Mounted, and ASOC/TOC software to address: interfaces with new Dismounted requirements, evolution of existing Tactical Assault Kit (TAK)/SWAK software which provides a framework for the TACP software interfaces, ASOC-Mod (interoperability and hardware/software interfaces), changes to Army fires support systems, changes to AOC Theater Battle Management Core Systems, updates for fielded versions, new USAF and Army future JADC2 capabilities, new joint DACAS standards, technical support to operators employing the software, and system prototyping for required future ASOC/TOC/Vehicle Mounted system capabilities</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207444F / Tactical Air Control Party-M od	Project (Number/Name) 676013 / Equipment Modernization		
Items requested in FY23 as identified in this Exhibit are representative but not limited to the items to be developed. Items developed during execution may change based on critical equipment needed to support current Air Force mission requirements. Due to the rapidly changing threat environment, the acquisition program manager has the authority to redirect funding as necessary to meet current slated and emerging requirements for operational TACP units.				
TACP-M 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 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 \$XX.XXXM was expended for civilian pay expenses in this program element, and in CY \$XX.XXXM 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 2021	FY 2022	FY 2023
Title: Close Air Support System (CASS)		12.589	13.081	10.315
Description: Title: : DACAS (WARHAWK/CASS)				
Description: Title: TACP-M Software System (TSS)				
The TACP-M Software program will modernize software for Command, Control, Communications and Cybersecurity (C4) processing systems for multiple TACP mission areas, i.e., ASOC/TOC operations, Vehicle Mounted, and Dismounted operations				
FY 2022 Plans:				
-Continuing to support development/fielding of Special Warfare Assault Kit (SWAK) Dismounted Special Warfare software.				
-Continuing TACP common software architecture for further development to meet other Special Warfare airman operational needs.				
-Conducting investigations to provide additional features (capabilities) for the software.				
-Continuing to integrate WARHAWK with ASOC-Mod software acquisition.				

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force							Date: April 2022					
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0207444F / Tactical Air Control Party-M od			Project (Number/Name) 676013 / Equipment Modernization					
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2021		FY 2022		FY 2023	
<div>-Continuing to integrate, and test DACAS software data communications interfaces with C2 Nodes, CAS aircraft, Army Tactical Network (ATN), Soldier Radios Waveform (SRW) networks, TBMCS, and Mobile User Objective System (MUOS) Satellite Communications (SATCOM) networks and enhancing interoperability between TACPs, and other joint warfighters.</div> <div>-Complete WARHAWK Cyber, Development and Operational Testing</div> <div>-Start fielding of WARHAWK with delivery of minimally viable product (MVP). Once MVP fielded, continue agile software development with quarterly software releases across TACP systems.</div> <div><b>FY 2023 Plans:</b></div> <div>-Will continue agile software development with quarterly software releases across TACP systems.</div> <div>-Will continue with testing of quarterly software releases as applicable.</div> <div>-Will continue to support development/fielding of Special Warfare Assault Kit (SWAK) and Dismounted Special Warfare software.</div> <div>-Will continue TACP common software architecture for further development to meet other Special Warfare airman operational needs.</div> <div>-Will continue to integrate WARHAWK with ASOC-Mod Software acquisition.</div> <div>-Will continue to integrate and test DACAS software data communications interfaces with C2 Nodes, CAS aircraft, Army Tactical Network (ATN), Soldier Radios Waveform (SRW) networks, Theater Battle Management Core Systems (TBMCS), and Mobile User Objective System (MUOS) Satellite Communications (SATCOM) networks to enhance interoperability between TACPs and other joint warfighters.</div> <div>-Fielding to be underway for ASOC-Mod and will continue to test and field in MCS, TTG and other TACP systems.</div> <div>-Will conduct investigations to provide additional feature (capabilities) for the software.</div> <div><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></div> <div>FY 2022 to FY 2023 Increase/Decrease Statement:</div> <div>The increase in budget from FY22 to FY23 is due to inflation.</div>												
Accomplishments/Planned Programs Subtotals							12.589	13.081	10.315			
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• OPAF 03 Line item 837100: Tactical C-E Equipment	50.093	52.200	50.269	-	50.269	35.883	33.000	41.800	39.900	Continuing	Continuing	
Remarks												
OPAF funding covers all TACP-M programs with some 3080 funding assigned to CASS, WARHAWK and SWAK based on phase.												

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207444F / Tactical Air Control Party-Mod	Project (Number/Name) 676013 / Equipment Modernization
<p><b>D. Acquisition Strategy</b></p> <p>TTACP-M is executing agile development for the TACP-M CASS software. CASS, Dismounted, and ATM software strategy continues the development and deployment process through the active WARHAWK contract with yearly option Contract Line Item Numbers (CLINs) through FY25.</p> <p>The ASOC-Mod effort will continue to modernize fielded ASOC/TOC software capabilities by developing enhanced communications capabilities.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207444F / Tactical Air Control Party-M od						Project (Number/Name) 676013 / Equipment Modernization					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
DACAS(TAK/SWAK) Software Dismounted	Various	GDIT : Dayton, OH	-	2.789	Jun 2021	2.085	Apr 2022	1.643	Apr 2023	-		1.643	Continuing	Continuing	-		
DACAS (WARHAWK)Software ATM	C/CPIF	GDIT : Dayton, OH	-	5.997	Oct 2020	5.374	Mar 2022	4.526	Mar 2023	-		4.526	Continuing	Continuing	-		
ASOC MOD	Various	Multiple : Multiple	-	0.450	Aug 2021	1.557	Jan 2022	1.127	Jan 2023	-		1.127	Continuing	Continuing	-		
DACAS (WARHAWK) NSWC Crane (Naval Surface Warfare Center)	MIPR	NSWC Crane : Crane, IN	-	0.633	Jan 2021	1.229	Jan 2022	0.988	Jan 2023	-		0.988	Continuing	Continuing	-		
Subtotal			-	9.869		10.245		8.284		-		8.284	Continuing	Continuing	N/A		
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
Test Agency Support	MIPR	Various : Multiple, FL	-	0.942	Apr 2021	0.736	Apr 2022	0.592	Apr 2023	-		0.592	Continuing	Continuing	-		
Subtotal			-	0.942		0.736		0.592		-		0.592	Continuing	Continuing	N/A		
Remarks Development, operational and interoperability testing																	
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
Management Services	Various	Various/Various : TBD	-	1.778	Jul 2021	2.100	Jul 2022	1.439	Jul 2023	-		1.439	Continuing	Continuing	-		
Subtotal			-	1.778		2.100		1.439		-		1.439	Continuing	Continuing	N/A		
Remarks PMA funds: EPASS all multiple contractors in Massachusetts, North Carolina and Florida.																	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022				
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207444F / Tactical Air Control Party-Mod					Project (Number/Name) 676013 / Equipment Modernization					
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	12.589		13.081		10.315		-		10.315	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0207444F / Tactical Air Control Party-Mod					Project (Number/Name) 676013 / Equipment Modernization				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
WARHAWK Close Air Support System(CASS)																												
DACAS (SWAK/TAK) Software (all versions) Design, Development ,Testing and Fielding																												
DACAS (WARHAWK) ATM Software (all versions)Design, Development, Testing and Fielding																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207444F / Tactical Air Control Party-Mod	Project (Number/Name) 676013 / Equipment Modernization	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>WARHAWK Close Air Support System(CASS)</b>				
DACAS (SWAK/TAK) Software (all versions) Design, Development ,Testing and Fielding	1	2021	4	2027
DACAS (WARHAWK) ATM Software (all versions)Design, Development, Testing and Fielding	1	2021	2	2027

### Note

IOC & FOC dates are based on Objective and not Threshold dates.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207452F I DCAPEs							
COST (\$ in Millions)	Prior Years <sup>(+)</sup>	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	313.136	14.135	4.305	8.049	0.000	8.049	8.214	8.367	8.545	8.735	32.589	406.075
674801: DCAPEs INC 2B	74.486	14.135	4.305	8.049	0.000	8.049	8.214	8.367	8.545	8.735	32.589	167.425
Program MDAP/MAIS Code: 500												

<sup>(+)</sup> The sum of all Prior Years is \$238.650 million less than the represented total due to several projects ending

**A. Mission Description and Budget Item Justification**

Deliberate and Crisis Action Planning and Execution Segments (DCAVES) is the USAF system used to project air expeditionary forces (includes weapon systems, logistics, and personnel). It enables the USAF to posture mission ready and equipped forces (organized in effects-based operational capability packages) to deliver air, space and cyberspace capabilities to Joint commanders worldwide. Technical requirements planned for Increment 2B include enabling the system to support Public Key Infrastructure and elimination of Social Security Account Numbers as the primary key for identifying Air Force military and civilian members by replacing it with the Electronic Data Interchange Personal Identifier.

DCAVES funding will be executed against capabilities packaged into agile development projects for multiple releases based on the warfighter's priorities.

Funds will be used to perform studies and innovative integration efforts for common technology capabilities such as cloud migration, technology development and mobile application.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapons system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. 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.

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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207452F / DCAPES
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	14.789	4.305	0.000	0.000	0.000
Current President's Budget	14.135	4.305	8.049	0.000	8.049
Total Adjustments	-0.654	0.000	8.049	0.000	8.049
• 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	-0.654	0.000			
• Other Adjustments	0.000	0.000	8.049	0.000	8.049

**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 FY 2023 cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207452F / DCAVES				Project (Number/Name) 674801 / DCAVES INC 2B			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674801: DCAVES INC 2B	74.486	14.135	4.305	8.049	0.000	8.049	8.214	8.367	8.545	8.735	32.589	167.425
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Deliberate and Crisis Action Planning and Execution Segments (DCAVES) is the USAF system used to project air expeditionary forces (includes weapon systems, logistics, and personnel). It enables the USAF to posture mission ready and equipped forces (organized in effects-based operational capability packages) to deliver air, space and cyberspace capabilities to Joint commanders worldwide. DCAVES stores planning and execution information for Air Force (AF) functional users in the four (4) main AF disciplines: 1) operations, 2) logistics, 3) manpower, and 4) personnel. These disciplines support joint, combined, and AF military operations worldwide. Technical requirements planned for Increment 2B include enabling the system to support Public Key Infrastructure and elimination of Social Security Account Numbers as the primary key for identifying Air Force military and civilian members by replacing it with the Electronic Data Interchange Personal Identifier.

Funds will be used to perform studies and innovative integration efforts for common technology capabilities such as cloud migration, technology development and mobile application.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapons system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. 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.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> DCAVES INCREMENT 2B	14.135	4.305	8.049
<b>Description:</b> DCAVES Increment 2B includes Infrastructure Support, Business Intelligence, and the development of multiple Warfighter Capabilities (see remarks section below for capability titles). In August 2020, the Air Force restructured DCAVES Inc 2B Acquisition Program Baseline adding two and a half capability packages (second half of 6 plus 7 and 8), that had previously been deferred. Capability package 7 was later eliminated by the customer (SAF/A3OD) post restructure.			
<b>FY 2022 Plans:</b> <ul style="list-style-type: none"> <li>- Continue the development of Warfighter Capability 8</li> <li>- Continue JPES integration</li> <li>- DCAVES Cloud Migration</li> </ul>			
<b>FY 2023 Plans:</b> <ul style="list-style-type: none"> <li>- Will continue the development of Warfighter Capability 8</li> <li>- Will continue JPES integration</li> </ul>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207452F / DCAVES	<b>Project (Number/Name)</b> 674801 / DCAVES INC 2B	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
- Will develop Warfighter Capability 5 (Logistics Factor File) to manage wartime sortie/sortie duration ratio factors for combat aviation forces			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to accelerate completion of additional capability requirements and integration.			
<b>Accomplishments/Planned Programs Subtotals</b>		14.135	4.305
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b> DCAPES Increment 2B Warfighter Capability Packages: Capability 1 - Electronic Data Interface Personnel Identifier (EDIPI) Capability 2 - Global Force Management Interoperability (GFM-DI) Capability 3 - Enhanced Contingency-Rotational Air Expeditionary Force Scheduling Tool Interface (ECAST) Capability 4 - Manpower & Equipment Force Packaging (MEFPAK) Capability 5 - Logistics Factor File (LFF) Capability 6 - Force Availability Analysis (FAA) Capability 7 - Air Reserve Component (ARC) Forces (Removed by SAF/A3OD, requirement moved to TIMES Program) Capability 8 - Workflow JPES - Joint Planning Execution Services			
<b>D. Acquisition Strategy</b> The DCAVES program successfully awarded the DCAVES Increment 2B Development Task Order for a one-year Base Period and four one-year Option Periods using the NETCENTS 2 Application Services Small Business Indefinite Delivery Indefinite Quantity (IDIQ) contract. The period of performance started on 6 April 2020 and ends on 5 April 2024.  DCAPES is an Evolutionary Acquisition Program using an incremental development approach (DoDI 5000.02 Model 3) to develop capabilities over several increments. To support the rapid development and delivery of capabilities, DCAVES employs a hybrid Agile acquisition strategy in which capabilities are incrementally delivered in time-phased stages based on warfighter priorities and adoption of key architecture and technology requirements as a trade-off for accelerated delivery and risk reduction.  The DCAVES Program Management Office (PMO) uses a mix of agreements (Service Level Agreements and Memorandums) with DCAVES interface partners. A Service Level Agreement is in place with the Capabilities Integration Environment (AFLCMC/HNIZ) to provide the infrastructure used to conduct software development and testing. Memorandums of Agreement with Joint Interoperability Test Command, Air Force Operational Test and Evaluation Command, and the 45th Test Squadron are in place and outline the test support required before fielding the final capability packages.			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / DCAVES	Project (Number/Name) 674801 / DCAVES INC 2B
<p>The DCAVES Increment 2B requirements have been packaged into multiple discreet capabilities which will be developed in multiple releases. Each capability will be developed using several Sprints and with one or more fieldings to satisfy the approved requirements within each package.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207452F / DCAPEs				Project (Number/Name) 674801 / DCAPEs INC 2B					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DCAPES Increment 2B/ Prime Contract	C/FFP	CGI Federal Inc : Fairfax, VA	31.013	5.503	Dec 2020	1.131	Dec 2021	2.303	Dec 2022	-		2.303	13.569	53.519	43.136
DCAPES Infrastructure/ Integration	C/FFP	DATUM Software Inc. : John Creek, GA	4.029	0.800	Feb 2021	0.369	Feb 2022	0.844	Feb 2023	-		0.844	1.763	7.805	5.152
DCAPES Architecture Documentation Development	C/FFP	Bowhead LLC : Springfield, VA	1.793	0.356	Aug 2021	0.125	Aug 2022	0.372	Aug 2023	-		0.372	0.784	3.430	13.756
DCAPES DISA Hosting	MIPR	DISA : Pensacola, FL	7.534	1.496	Oct 2020	0.526	Oct 2021	1.229	Oct 2022	-		1.229	3.296	14.081	15.166
Subtotal			44.369	8.155		2.151		4.748		-		4.748	19.412	78.835	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DCAPES HIB Integration Contract Support	C/FFP	MacaLogic, LLC : Dayton, OH	4.306	0.855	Apr 2021	0.544	Apr 2022	0.778	Apr 2023	-		0.778	1.884	8.367	3.225
DCAPES Cost Analysis Contract Support	C/CPFF	BTAS, Inc. : Beavercreek, OH	1.712	0.340	May 2021	0.141	May 2022	0.000	May 2023	-		0.000	0.749	2.942	1.908
DCAPES Engineering Contract Support	C/CPFF	Oasis Systems, LLC : Lexington, MA	7.564	1.502	Dec 2020	0.774	Dec 2021	0.856	Dec 2022	-		0.856	3.310	14.006	5.392
DCAPES CIE Tech Support	MIPR	AFLCMC/HNIZ CIE : MAFB-Gunter Annex, AL	3.062	0.608	Mar 2021	0.221	Mar 2022	0.170	Mar 2023	-		0.170	1.340	5.401	7.390
DCAPES Development Environment HW	C/Various	Various : Various	0.000	0.000	Aug 2021	0.000	Aug 2022	0.000	Aug 2023	-		0.000	0.000	0.000	1.720
DCAPES Licenses (Software/Hardware)	C/Various	Various : Various	1.234	0.245	Feb 2021	0.030	Feb 2022	0.085	Feb 2023	-		0.085	0.540	2.134	1.573
DCAPES Oracle Licenses	C/FFP	Mythics : Vienna, VA	1.299	0.258	Aug 2021	0.095	Aug 2022	0.095	Aug 2023	-		0.095	0.568	2.315	4.560
DCAPES Government Purchase Card	Reqn	Various : Various	0.102	0.020	Oct 2020	0.015	Oct 2021	0.020	Oct 2022	-		0.020	0.044	0.201	0.209
Subtotal			19.279	3.828		1.820		2.004		-		2.004	8.435	35.366	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207452F / DCAPEs				Project (Number/Name) 674801 / DCAPEs INC 2B					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DCAPES Development Test and Evaluation	MIPR	45th Test Sqdn : Eglin AFB, FL	1.848	0.367	Dec 2020	0.141	Dec 2021	0.312	Dec 2022	-		0.312	0.809	3.477	3.519
DCAPES Interoperability Testing and Evaluation	MIPR	DISA JITC : Huachuca, AZ	0.680	0.135	Oct 2020	0.128	Oct 2021	0.129	Oct 2022	-		0.129	0.297	1.369	1.278
Subtotal			2.528	0.502		0.269		0.441		-		0.441	1.106	4.846	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Assessments	Various	Various : Various	7.982	1.585	Oct 2020	-		0.791	Oct 2022	-		0.791	3.492	13.850	4.145
DCAPES Travel	Reqn	Various : Various	0.152	0.030	Oct 2020	0.030	Oct 2021	0.030	Oct 2022	-		0.030	0.066	0.308	0.330
DCAPES Business Integration Support	Various	Various : Various	0.176	0.035	Oct 2020	0.035	Oct 2021	0.035	Oct 2022	-		0.035	0.077	0.358	0.385
Subtotal			8.310	1.650		0.065		0.856		-		0.856	3.635	14.516	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			74.486	14.135		4.305		8.049		-		8.049	32.588	133.563	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207452F / DCAVES	<b>Project (Number/Name)</b> 674801 / DCAVES INC 2B
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>DCAPES Increment 2B</b>																												
DCAPES Increment 2B (Restructured)																												
- Capability 4 Manpower & Equipment Force Packaging (MEFPAK)																												
- Capability 5 Logistics Factor File (LFF)																												
- Capability 6 Force Availability Analysis (FAA)																												
- Capability 8 AF Work Flow Management																												
- JPES (Joint Planning Execution Services)																												
- CloudOne Development Migration																												
DCAPES Continuous Development (Post Inc 2B)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207452F / DCAVES	Project (Number/Name) 674801 / DCAVES INC 2B	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>DCAVES Increment 2B</b>				
DCAVES Increment 2B (Restructured)	1	2021	2	2025
- Capability 4 Manpower & Equipment Force Packaging (MEFPAK)	1	2021	4	2021
- Capability 5 Logistics Factor File (LFF)	2	2023	3	2023
- Capability 6 Force Availability Analysis (FAA)	1	2021	3	2024
- Capability 8 AF Work Flow Management	1	2021	3	2024
- JPES (Joint Planning Execution Services)	3	2022	3	2024
- CloudOne Development Migration	2	2021	2	2022
DCAVES Continuous Development (Post Inc 2B)	3	2024	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207521F I Air Force Calibration Programs							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	1.966	1.984	2.123	0.000	2.123	2.167	2.207	2.255	2.305	Continuing	Continuing
673326: Precision Measurement & Calibration	-	1.966	1.984	2.123	0.000	2.123	2.167	2.207	2.255	2.305	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

This program develops, tests, and evaluates national and Air Force measurement standards (hardware) and calibration equipment in support of all Air Force programs and activities, including Precision Measurement Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to support systems in all phases of development and acquisition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems support. Rapidly changing technology requires continuing research and development of measurement standards and calibration equipment to ensure modern weapon systems meet Air Force readiness objectives. This program addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, millimeter wave, optical, physical, mechanical, electrical, electronic, and ionizing radiation measurements. Metrology is a technical discipline devoted to the science of measurements and to the study and improvement of measurement technology. Measurements are the foundation of military system development, quality assurance, hardware conformance testing and system readiness tests. The integrity of these tests is assured through calibration and traceability assurance schemes.

The capability to measure and calibrate must parallel the emergence of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability impedes or blocks the successful exploitation of new technologies, especially in the movement from development laboratory to production to deployment. R&D efforts are essential within the DoD to pace these requirements, otherwise, these same new systems will suffer time delays, excessive cost, and increased risk due to unreliable test results in all phases of development, production, deployment and operation.

This program element may include necessary civilian pay expenses required to manage, execute and deliver 0207521F. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, 0605898F, and 0605833F. In PY 0M was expended for civilian pay expenses in the program element and in CY 0M is forecasted for civilian pay expenses in this program element.

Program is managed by Air Force Materiel Command, Agile Combat Support Directorate, Air Force Metrology Division (WNM).

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 2023 Air Force				Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207521F I Air Force Calibration Programs					
B. Program Change Summary (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget		1.966	1.984	0.000	0.000	0.000	
Current President's Budget		1.966	1.984	2.123	0.000	2.123	
Total Adjustments		0.000	0.000	2.123	0.000	2.123	
• 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	2.123	0.000	2.123	
C. Accomplishments/Planned Programs (\$ in Millions)					FY 2021	FY 2022	FY 2023
Title: Weapons System Measurement Standards					0.368	0.352	0.439
Description: Develop national measurement standards to support Air Force infared / laser / electro-optical weapon systems and support equipment.							
FY 2022 Plans: Continue development of national measurement standards to support Air Force infared / laser / electro-optical weapon systems and support equipment.							
FY 2023 Plans: Continue development of national measurement standards to support Air Force infared / laser / electro-optical weapon systems and support equipment.							
FY 2022 to FY 2023 Increase/Decrease Statement: Additional funding for development of NIST on a Chip technology for self calibrating equipment.							
Title: Electrical Measurements					0.395	0.405	0.425
Description: Develop Standards for electrical measurements to support high accuracy electronic test equipment.							
FY 2022 Plans: Continue development of standards for electrical measurements to support high accuracy electronic test equipment.							
FY 2023 Plans:							

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207521F <i>I Air Force Calibration Programs</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Continue development of standards for electrical measurements to support high accuracy electronic test equipment.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Inflation				
<b>Title:</b> Calibration Standards  <b>Description:</b> Develop improved calibration standards to support physical, mechanical, and electro-mechanical support equipment.  <b>FY 2022 Plans:</b> Continue to develop improved calibration standards to support physical, mechanical, and electro-mechanical support equipment. <b>FY 2023 Plans:</b> Continue to develop improved calibration standards to support physical, mechanical, and electro-mechanical support equipment. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Inflation		0.639	0.649	0.681
<b>Title:</b> Radar Support/Communications  <b>Description:</b> Develop standards for radar support, RF communication, and radar cross section range measurements.  <b>FY 2022 Plans:</b> Continue to develop standards for radar support, RF communication, and radar cross section range measurements. <b>FY 2023 Plans:</b> Continue to develop standards for radar support, RF communication, and radar cross section range measurements.		0.564	0.578	0.578
<b>Accomplishments/Planned Programs Subtotals</b>		1.966	1.984	2.123
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>  <b>E. Acquisition Strategy</b> Primarily accomplished through intergovernmental transfer between the Department of Defense and other Federal Departments.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207521F / Air Force Calibration Programs				Project (Number/Name) 673326 / Precision Measurement & Calibration					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
National Institute of Standards and Technology	MIPR	AFMETCAL : Heath, OH	-	1.289	Oct 2021	1.465	Oct 2022	1.563	Oct 2022	-		1.563	Continuing	Continuing	-
Department of Defense	MIPR	AFMETCAL : Heath, OH	-	0.043	Oct 2021	0.040	Oct 2022	0.050	Oct 2022	-		0.050	Continuing	Continuing	-
Industry	Various	AFMETCAL : Heath, OH	-	0.634	Oct 2021	0.479	Oct 2022	0.510	Oct 2022	-		0.510	Continuing	Continuing	-
Subtotal			-	1.966		1.984		2.123		-		2.123	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.966		1.984		2.123		-		2.123	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207521F / Air Force Calibration Progra ms		Project (Number/Name) 673326 / Precision Measurement & Calibration	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Precision Measurement & Calibration																												
Precision Measurement & Calibration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207521F / Air Force Calibration Progra ms	Project (Number/Name) 673326 / Precision Measurement & Calibration

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Precision Measurement & Calibration				
Precision Measurement & Calibration	1	2021	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207522F I Airbase Air Defense Systems (ABADS)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	7.392	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.392
675218: Applications Development	-	0.000	7.392	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.392
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2022, PE 0207410F, Air & Space Operations Center (AOC), Project 674596, AOC WS Modifications were transferred to PE 0207522F, Airbase Air Defense Systems (ABADS), Project 675218, Applications Development.

In FY 2023, DRF COP efforts in PE 0207522F, Airbase Air Defense Systems (ABADS), Project 675218, Applications Development efforts are transferred to PE 0604617F, Agile Combat Support, Project 675218, Applications Development.

In FY 2023, DevOps efforts in PE 0207522F, Airbase Air Defense Systems (ABADS), Project 675218, Applications Development efforts are transferred to PE 0305015F, C2 Air Operations Suite - C2 Info Services, Project 675218, Applications Development.

**A. Mission Description and Budget Item Justification**

Command and Control, Incident Management, Emergency Response Application (C2IMERA) is a C2 system that addresses installation commanders' and staffs' ability to execute daily C2 and Air Operations. C2IMERA funds provide enhanced installation command and control to improve decision speed, quality, and lethality by incorporating direct user feedback, connecting people, automating daily operations, and integrating data from a myriad of systems. C2IMERA receives input from users and system interfaces, and displays data on the real-time, interactive Common Operating Picture (COP) and consolidated dashboards. C2IMERA also provides a theater level, Higher Headquarters module to aggregate theater-wide installation to provide real-time awareness of critical data. C2IMERA provides automated communications via the COP, automated emails, notifications, and alerts, alleviating the need for briefings, meetings, and radio communication(s).

The C2IMERA operational concept has three capability areas:

- C2 collaboration across the Wing - operate/fight the base
- Wing Situational Awareness
- Wing Collaboration/reporting to HHQ (i.e., AOC, AFFOR, Command Center etc.)

As part of C2IMERA emergency management, Disaster Response Force Common Operating Picture (DRF COP) funds identify and/or develop, implement, and maintain a standardized, singular, and near real-time situational awareness COP for Air Force disaster response forces. DRF COP 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207522F I Airbase Air Defense Systems (ABADS)				
Requirements include Command and Control Operations Career Field (1C3X1) community as the core Installation C2 node, supporting Base Operations, Mission Management and Monitoring, Higher Headquarters Information Exchange Requirements (IERS), Emergency Action Messaging, Situation Reports (SITREP) automation, and other key enablers supporting the operational concept.						
C2IMERA FY23 funds will support the Agile Dev Ops development of enhanced architecture to make C2IMERA more scalable, add additional integrations and enhance data automation. This includes architecting the application to operate in Degraded, Disconnected, Intermittent and Low-Bandwidth (D-DIL) environments to support key operational concepts such as Agile Combat Employment.						
This program is part of the overarching Kessel Run portfolio. This program element may include necessary civilian pay expenses required to manage, execute, and deliver C2IMERA weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY19 \$00.000M, in FY20 \$00.000M, and in FY21 \$00.000M was expended for civilian pay expenses in this program element.						
As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2019 Air Force penalty total is \$50.0M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.						
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		0.000	7.392	0.000	0.000	0.000
Current President's Budget		0.000	7.392	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

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207522F <i>I Airbase Air Defense Systems (ABADS)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Command and Control, Incident Management, Emergency Response Application (C2IMERA)  <b>Description:</b> C2IMERA will provide enhanced installation command and control to improve decision speed, quality, and lethality by incorporating direct user feedback, connecting people, automating daily operations, and integrating data from myriad systems. C2IMERA receives input from users and system interfaces and the data is displayed on the real-time, interactive COP. C2IMERA provides automated communications via COP, emails, notifications, and alerts, alleviating the need for briefings, meetings, and radio communication.  <b>FY 2022 Plans:</b> FY22 activities include but are not limited to the following:  -Continue to refine DRF COP capabilities to include enhanced automated integration with local, state, and federal safety agencies solutions. -Continue to further develop Advanced Battle Management System (ABMS)/Joint All Domain Command and Control (JADC2) capabilities to provide critical evolving capabilities integrating Installation Command and Control (IC2) with air operations at Major Command (MAJCOM) and Higher Headquarter (HHQ) levels. This includes enhancing system and data resiliency with edge computing technologies tied into the enterprise computing infrastructure. -Continue to extend Cross-Domain capabilities to support full data synchronization between the low side (NIPR) and high side (SIPR) C2IMERA instances to facilitate JADC2. -Continue with the enterprise employment of C2IMERA for installation and wing command and control to enhance warfighter effectiveness and impacts achieved through an overhaul of the C2IMERA data model and a consolidated/federated data access layer. -Continue with architectural improvements to transition from incrementally delivered micro services to a single-tenancy implementation with support for Software-as-a-Service (SaaS). -Continue with the automated workflow and improved system integration with continued interface development focusing on the fusion of installation/base C2 node data with MAJCOM and HHQ level systems at the strategic levels. -Migrate to All Domain Common Platform (ADCP).  <b>FY 2023 Plans:</b> See PE 0604617F, Agile Combat Support, Project 675218, Applications Development.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> See PE 0604617F, Agile Combat Support, Project 675218, Applications Development.		-	7.392	0.000
<b>Accomplishments/Planned Programs Subtotals</b>		-	7.392	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0207522F I Airbase Air Defense Systems (ABADS)	
D. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
E. Acquisition Strategy The acquisition strategy builds on agile software engineering methodologies and modernization of existing capabilities utilizing evolutionary acquisition. Using Section 804, timelines are reduced by modularizing both software engineering solutions and the associated contracting and funding strategies. This enables dynamic resource allocation based on current warfighter needs. The desired end state is continuous delivery of Software. In Summer of FY20, the decision was made to transition from MTA, Sec 804 Rapid Prototyping/Fielding to the new NDAA FY20 - Software Acquisition Pathway, which is the preferred path for acquisition and development of software-intensive systems. 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.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
3600 / 7						PE 0207522F / Airbase Air Defense Systems (ABADS)				675218 / Applications Development					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
C2IMERA Development	TBD	TBD : TBD	-	-		5.192	Jan 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	-		5.192		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
C2IMERA Test Support	PO	96th Test Wing : Eglin, FL	-	-		0.252	Mar 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	-		0.252		-		-		-	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
C2IMERA Program Management Administration	C/Various	Not specified. : Hanscom AFB, MA	-	-		1.560	Jul 2022	-		-		-	Continuing	Continuing	-
C2IMERA Systems Engineer	SS/ Various	Not specified. : Hanscom AFB, MA	-	-		0.388	Oct 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	-		1.948		-		-		-	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		7.392		-		-		-	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)									
3600 / 7					PE 0207522F / Airbase Air Defense Systems (ABADS)					675218 / Applications Development									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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																												
C2IMERA Software Development																												
Test																												
C2IMERA Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207522F / Airbase Air Defense Systems (ABADS)	Project (Number/Name) 675218 / Applications Development	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Software Development				
C2IMERA Software Development	1	2022	4	2022
Test				
C2IMERA Test	1	2022	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 0207573F I National Technical Nuclear Forensics							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.380	1.971	2.039	0.000	2.039	2.044	2.045	0.000	0.000	0.000	8.479
674881: Prompt Diagnostics	-	0.380	1.971	2.039	0.000	2.039	2.044	2.045	0.000	0.000	0.000	8.479
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

National Technical Nuclear Forensics (NTNF) is the collection, analysis and evaluation of pre- and post-detonation radiological and nuclear materials, devices, and debris as well as the immediate effects created by a nuclear detonation.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver National Technical Nuclear Forensics 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 PY 0M was expended for civilian pay expenses in this program element, and in CY 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	0.395	1.971	0.000	0.000	0.000
Current President's Budget	0.380	1.971	2.039	0.000	2.039
Total Adjustments	-0.015	0.000	2.039	0.000	2.039
• 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	-0.015	0.000	2.039	0.000	2.039

**Change Summary Explanation**

FY22: Added funds to increase capabilities of United States Prompt Diagnostic System within the National Technical Nuclear Forensics programs.

FY23: 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207573F I National Technical Nuclear Forensics				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Nuclear Forensics - Prompt Diagnostics		0.380	1.971	2.039	0.000	2.039
Description: Develop diagnostic detection systems to immediately record signals resulting from a nuclear detonation. These event signature elements support weapon and event characterization analysis for the purposes of identifying the weapon classification, magnitude of the detonation (yield), and Reaction Time History (RTH) of the device. The combination of these elements with radiochemical analysis enables analysts to distinguish between wide ranges of nuclear weapon designs and origin, supporting the national attribution assessment process.						
FY 2022 Plans: - Increase Technology Readiness Levels for Ground Based Optical Skyshine (GBOS). - Advanced Technology Development for fielded prototype sensor for form, fit, function for speed of light and speed of sound sensor technologies. - Analytical Tool Development for data analyst in support of Reaction Time History. - Analytical Tool Development for data analyst in support of Yield Determination. - Engineering and manufacturing systems development maturation and integration activities for the USPDS system suite. - Prompt Diagnostics Operational System Development for fielded systems to validated sensor production and system integration. - Development & Implementation of backward software compatibility for system configuration to provide flexibility and operations during software or hardware upgrades.						
FY 2023 Base Plans: - Will Continue advancing Technology Readiness Levels for Ground Based Optical Skyshine (GBOS). - Will Continue Advanced Technology Development for fielded prototype sensor for form, fit, function for speed of light and speed of sound sensor technologies. - Will Continue Analytical Tool Development for data analyst in support of Reaction Time History. - Will Continue Analytical Tool Development for data analyst in support of Yield Determination. - Will Continue Engineering and manufacturing systems development maturation and integration activities for the USPDS system suite. - Will Continue Prompt Diagnostics Operational System Development for fielded systems to validated sensor production and system integration.						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022							
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207573F I National Technical Nuclear Forensics									
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total					
- Will Continue Development & Implementation of backward software compatibility for system configuration to provide flexibility and operations during software or hardware upgrades.											
FY 2023 OCO Plans: N/A											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to higher priority Air Force needs.											
Accomplishments/Planned Programs Subtotals		0.380	1.971	2.039	0.000	2.039					
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 Line Item 834320: National Technical Nuclear Forensics	5.202	4.000	5.987	-	5.987	3.992	7.125	7.272	7.300	Continuing	Continuing
Remarks											
E. Acquisition Strategy											
The RDT&E strategy was developed in concert with the system stakeholders. The strategy is to utilize (1) Department of Energy Sensor R&D Principal Investigators (PI's) who developed the prototype systems for the USPDS program (2) Department of Energy National Security Campus who during the DSOR was identified as Engineering, Production Integration and Depot for the Life Cycle of the system (3) AFTAC Subject Matter Experts and Operator/End Users for the system. The planned acquisition will predominantly require funds transfers via Military Interdepartmental Procurement Requests (MIPRs). Prioritization and implementation of Acquisitions to support RDT&E for the system will be managed and prioritized quarterly by the USPDS R&D Requirements Review Board (RRB) and chaired by Air Combat Command (ACC/A5) as per the charter signed by the stakeholders. The strategy will utilize performance based techniques with the performance based on a statement of objectives to describe the overall output of the acquisition task.											
i. Air Combat Command (ACC) - Requirement Owner											
ii. Air Force Life Cycle Management Center - MDA, PEO, Procurement											
iii. Air Force Technical Applications Center (AFTAC) - SME, Operator, Maintainer											
iv. National Security Campus - Kansas City Plant (NSC-KCP) - Engineering, Integration, Depot											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207573F / National Technical Nuclear Forensics				Project (Number/Name) 674881 / Prompt Diagnostics					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Nuclear Forensics - Prompt Diagnostics	MIPR	National Laboratory : multiple	-	-		1.971	Apr 2022	2.039	Mar 2023	-		2.039	Continuing	Continuing	-
Subtotal			-	-		1.971		2.039		-		2.039	Continuing	Continuing	N/A
Remarks															
Kansas City Nuclear Security Campus will work with several National Laboratories for reachback/collaboration on efforts.															
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Management Services	C/CPAF	Not specified. : TBD	-	0.380	Dec 2020	-		-		-		-	Continuing	Continuing	-
Subtotal			-	0.380		-		-		-		-	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.380		1.971		2.039		-		2.039	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0207573F / <i>National Technical Nuclear Forensics</i>		<b>Project (Number/Name)</b> 674881 / <i>Prompt Diagnostics</i>	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>United States Prompt Diagnostics System (USPDS) Phase II</i></b>																												
- Phase 2: Complete Technical Data Package, Configuration Status Accounting, and Product Support Analysis/Logistics Product Data																												
<b><i>USPDS Sensor/User Tool Development</i></b>																												
Ground Based Optical Skyshine (GBOS)																												
Speed of Light Sensor Advanced Technology Development																												
Speed of Light Sensor Advance Technology Development																												
Reaction Time History and Yield Tool Development																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207573F / <i>National Technical Nuclear Forensics</i>	<b>Project (Number/Name)</b> 674881 / <i>Prompt Diagnostics</i>

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>United States Prompt Diagnostics System (USPDS) Phase II</i></b>				
- Phase 2: Complete Technical Data Package, Configuration Status Accounting, and Product Support Analysis/Logistics Product Data	1	2021	4	2021
<b><i>USPDS Sensor/User Tool Development</i></b>				
Ground Based Optical Skyshine (GBOS)	1	2022	4	2023
Speed of Light Sensor Advanced Technology Development	1	2022	4	2025
Speed of Light Sensor Advance Technology Development	1	2022	4	2025
Reaction Time History and Yield Tool Development	4	2022	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207590F I Seek Eagle							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	29.572	30.539	32.853	0.000	32.853	34.084	34.719	35.453	36.241	Continuing	Continuing
674037: SEEK EAGLE Certifications	-	29.572	30.539	32.853	0.000	32.853	34.084	34.719	35.453	36.241	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Air Force operates a variety of combat aircraft that carry numerous and varied stores munitions, missiles, fuel tanks, targeting pods, range pods, electronic countermeasures pods, etc. Stores are carried in many different loading combinations determined by operational and training scenarios, missions, tactics, and weapon development programs. Aircraft-store configurations/carriage and employment requirements change as operational plans and tactics change and as new stores are developed and fielded. Before operational, training, or test use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release), as well as verify ballistics accuracy under the user-certified carriage and employment parameters. The Air Force SEEK EAGLE program completes certification recommendations and recommended flight clearances through any combination of engineering analysis, wind tunnel testing, modeling and simulation, and ground/flight test and evaluation. The SEEK EAGLE effort encompasses eight disciplines: Fit and Function, Flutter, Structural Integrity, Stability and Control, Electromagnetic Compatibility/Interference (EMC/EMI), Separations, Ballistics, and Safe Escape.

In support of certification, the program recommends approximately 1000 aircraft-store combinations for flight each year with analysis and testing, requiring from weeks to years depending on the complexity. Integrated solutions for combat aircrew weapon delivery planning problems are developed and provided to combat forces via Combat Weapons Delivery Software (CWDS) and Joint Safe Escape Analysis Solution (JSEAS). SEEK EAGLE works in coordination with the Air Force Safety Center to provide Hazards of Electromagnetic Radiation to Ordnance (HERO) analysis and certification recommendations of ordnance systems containing electro-explosive devices. The program is also responsible for inserting new and emerging technologies into the SEEK EAGLE process to make the SEEK EAGLE certification process more efficient in support of rapid acquisition timelines, as well as providing resources for the sustainment of a viable Air Force aircraft-store certification capability.

SEEK EAGLE funds are currently budgeted to support certification testing and analysis for new and inventory stores including, but not limited to: Small Diameter Bomb I and II (SDB), Laser Joint Direct Attack Munitions (LJDAM), Joint Air-to-Surface Standoff Missile (JASSM), Long-Range Anti-Ship Missile (LRASM), Advanced Medium Range Air-to-Air Missile (AIM-120D), Miniature Air-Launched Decoy (MALD), BRU-57 (Smart Bomb Rack), BRU-61 (SDB Bomb Rack), Advanced Precision Kill Weapon System (APKWS), Sniper Targeting Pod with video data link, LITENING Targeting Pod with video data link, laser guided bombs, B61-12 nuclear free-fall weapon, penetrator warhead upgrades, practice bombs, and aircraft instrumentation pod modifications. SEEK EAGLE funds are also used to support certification of other inventory stores on Combat Air Forces (CAF) and Special Operations Command (SOCOM) aircraft. In addition, these funds further support capability development and weapons certification efforts required by Air Combat Command (ACC) to achieve Full Operational Capability (FOC) for the F-35A. Likewise, these funds also support F-22A weapons certification efforts for emerging weapons and B-21 development for critical Engineering and Manufacturing Development (EMD) milestones.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207590F I Seek Eagle				
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 \$0.00 was expended for civilian pay expenses in this program element, and in FY22 \$0.00 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		29.626	30.539	0.000	0.000	0.000
Current President's Budget		29.572	30.539	32.853	0.000	32.853
Total Adjustments		-0.054	0.000	32.853	0.000	32.853
• Congressional General Reductions		-0.054	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	32.853	0.000	32.853
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 FY 2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Aircraft-Store Certification				1.735	1.720	2.610
Description: Evaluates aircraft-store compatibility through analysis of ground and flight test data. Funds direct labor for SEEK EAGLE certifications. Supports procurement of test assets, such as instrumented weapons, and includes end-to-end tracking of MAJCOM requirements from user request to tech data fielding and operational flight program (OFP) updates. Provides certification recommendations to airworthiness authorities.						
FY 2022 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207590F / <i>Seek Eagle</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Provide for the United States Air Force (USAF) Air-to-Air and Air-to-Ground Munitions certification efforts to include countermeasures, towed-decoys, and Airborne Instrumentation Systems pods on USAF inventory aircraft such as A-10, B-1, B-2, B-52, F-15, F-16, F-22, F-35, T-38, and near term inventory aircraft like A-29, AT-6, F-15EX, and MH-139. Continue CWDS upgrade support.  <b>FY 2023 Plans:</b> Continue to provide for USAF Air-to-Air and Air-to-Ground Munitions certification efforts such as towed decoys, ECM pods, chaff/flare countermeasures certification efforts, Airborne Instrumentation Systems pods, fuel tanks, and travel pods certification efforts. Continue CWDS upgrade support.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase is to support F-16 Flutter Flight Test Program, which will reduce the need for flight testing for future F-16 aircraft-store compatibility projects, supporting the longevity and capability expansion of the F-16 fleet to meet warfighter needs.				
<b>Title:</b> Operations Baseline and Mission Support  <b>Description:</b> Supports the ability to rapidly meet emerging warfighter needs for global operations and other ongoing world-wide operations through sustainment of a viable Air Force aircraft-store certification capability.  <b>FY 2022 Plans:</b> Support SEEK EAGLE infrastructure and resource capacity needs in alignment with USAF demands on the SEEK EAGLE enterprise. Finalize stand-up for the Edwards Operating Location (OL) in support of next-generation test activities.  <b>FY 2023 Plans:</b> Continue to support increased Air Force munition and aircraft capability requirements that drive increased infrastructure and resource capacity needs within the SEEK EAGLE enterprise.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase is due to inflation adjustment.		20.098	21.225	21.604
<b>Title:</b> Advanced Capability Development  <b>Description:</b> Provides resources to increase the Air Force SEEK EAGLE OFFICE (AFSEO) organic capabilities; to support advanced weapons such as hypersonic weapons and other classified weapons programs, as well as investing in the development of advanced modeling and analytical tools to make the SEEK EAGLE certification process more efficient in support of rapid acquisition timelines. These resources include, but are not limited to: artificial intelligence, modeling and simulation enhancements, wind tunnel model development, automated tool enhancements, information technology enhancements, and facility improvements.		1.415	2.726	2.584

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207590F / <i>Seek Eagle</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>FY 2022 Plans:</b> Commence B-52 wind tunnel efforts for multiple external stores. Continue the development and sustainment of F-35 large-scale wind tunnel model. Continue supporting USAF investments in modeling and simulation for current hypersonic programs, Long Range Stand Off Weapon (LRSO), Stand-In Attack Weapon (SiAW), and early involvement in Global Precision Attack Weapons (GPAW).				
<b>FY 2023 Plans:</b> Commence the F-15EX model wind tunnel development, continue sustainment of the F-35 wind tunnel model, and continue supporting investments in other advanced modeling and simulation, automated tool and information technology enhancements.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease is minimal, due to redefinition of capability development efforts.				
<b>Title:</b> Tools, Equipment, and Capability Sustainment  <b>Description:</b> Supports development and sustainment of state-of-the-art engineering and business tools to support the SEEK EAGLE enterprise. Funding resources are required for operational management of existing information and technology infrastructure, hardware, software, and equipment.		6.324	4.868	6.055
<b>FY 2022 Plans:</b> Continue building upon AFSEO's Advance Analytics Artificial Intelligence (AAAI) digital transformation effort that provides predictive outcomes to rapidly determine analogy based certification recommendations. Continue to maintain and enhance security infrastructure and tool development for next-generation weapons certification.				
<b>FY 2023 Plans:</b> Continue to support development and sustainment of state-of-the-art engineering and business tools to support SEEK EAGLE enterprise.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase supports operation software requirements for the rapid/agile production of AFSEO flight clearances, and the expansion of production capability and digital storage capacity to support the AFSEO aircraft-store certification process.				
<b>Accomplishments/Planned Programs Subtotals</b>		29.572	30.539	32.853
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0207590F I Seek Eagle	
<p><b>E. Acquisition Strategy</b></p> <p>The SEEK EAGLE program is not an acquisition program in itself; instead it supports other acquisition programs. For initial aircraft-weapons integration, the aircraft or weapon program office is responsible for budgeting and providing the test assets to the Air Force SEEK EAGLE Office (AFSEO) for the store certification requirements. For post-integration certification requirements, AFSEO funds are used to obtain the non-inventory test assets. In addition to the above highlights, budgeting responsibilities for AFSEO are delineated in Air Force Instruction 63-101/20-101, paragraph 5.4.22.1.3, dated 30 June 2020.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207590F / Seek Eagle				Project (Number/Name) 674037 / SEEK EAGLE Certifications					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Advanced Data Analytics - Artificial Intelligence (AI)	SS/FP	TAMR : Cambridge, MA	-	2.155	Mar 2021	1.708	Apr 2022	1.875	Mar 2023	-		1.875	Continuing	Continuing	-
AFSEO Mission and Planning Support (SEMATS)	C/CPFF	ERC : Ft. Walton Beach, FL	-	11.272	Nov 2020	13.188	Oct 2021	13.460	Oct 2022	-		13.460	Continuing	Continuing	-
F-35 Capabilities	C/CPFF	Lockheed Martin : Marietta, GA	-	0.157	Nov 2020	0.255	Nov 2021	0.100	Nov 2022	-		0.100	Continuing	Continuing	-
Multiple Fighter and Weapon Capability Support	C/CPFF	Multiple : Multiple	-	0.106	Mar 2021	0.058	Mar 2022	0.064	Mar 2023	-		0.064	Continuing	Continuing	-
F-16 Aero Sustainment	C/CPFF	Lockheed Martin : Fort Worth, TX	-	0.103	Feb 2021	0.160	May 2022	0.163	Feb 2023	-		0.163	Continuing	Continuing	-
Subtotal			-	13.793		15.369		15.662		-		15.662	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Flight Tests and Aircraft/Store Compatibility Analysis	PO	96th Test Wing : Eglin AFB, FL	-	11.628	Oct 2020	11.979	Oct 2021	14.225	Oct 2022	-		14.225	Continuing	Continuing	-
Wind Tunnel Model/Design and Testing	PO	Arnold Engineering Dev Complex : Arnold AFB, TN	-	2.593	Jan 2021	2.533	Jan 2022	2.384	Jan 2023	-		2.384	Continuing	Continuing	-
Subtotal			-	14.221		14.512		16.609		-		16.609	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS Support (TMAS)	C/CPFF	AFTC : Eglin AFB, FL	-	0.114	Oct 2020	0.105	Oct 2021	0.107	Oct 2022	-		0.107	Continuing	Continuing	-
Management Support	Various	Various : Various, FL	-	1.444	Oct 2020	0.553	Oct 2021	0.475	Oct 2022	-		0.475	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207590F / Seek Eagle				Project (Number/Name) 674037 / SEEK EAGLE Certifications					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Subtotal			-	1.558		0.658		0.582		-		0.582	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	29.572		30.539		32.853		-		32.853	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)			Project (Number/Name)				
3600 / 7					PE 0207590F / Seek Eagle			674037 / SEEK EAGLE Certifications				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SEEK EAGLE																												
Aircraft-Store Certification																												
Operations Baseline and Mission Support																												
Advanced Capability Development																												
Tools, Equipment, and Capability Sustainment																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207590F / <i>Seek Eagle</i>	<b>Project (Number/Name)</b> 674037 / <i>SEEK EAGLE Certifications</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>SEEK EAGLE</b>				
Aircraft-Store Certification	1	2021	4	2027
Operations Baseline and Mission Support	1	2021	4	2027
Advanced Capability Development	1	2021	4	2027
Tools, Equipment, and Capability Sustainment	1	2021	4	2027

**Note**

Note: The SEEK EAGLE program supports both production stores on production aircraft and the planning for future acquisition program milestones without an anticipated end date. Current warfighter requirements trigger the SEEK EAGLE process for requested aircraft-store configurations, and work is completed in accordance with designated user priorities established through the SEEK EAGLE Prioritization List process.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 0207601F I USAF Modeling and Simulation							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	17.023	17.110	19.341	0.000	19.341	33.522	29.422	24.226	24.571	Continuing	Continuing
674567: M&S Foundations	-	7.052	7.093	7.468	0.000	7.468	7.620	7.763	7.927	8.103	Continuing	Continuing
675135: Warfighter Readiness	-	9.971	10.017	11.873	0.000	11.873	25.902	21.659	16.299	16.468	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Modeling and Simulation support to our Warfighter's Readiness is a United States Air Force (USAF) corporate imperative to ensure air, space, cyberspace training, and mission rehearsal activities are supported with realistic, interoperable, and readily available tools, data, services and environments. Warfighter readiness supports Department of Defense (DoD) Training Transformation (T2) and Joint National Training Capability (JNTC) along with the USAF priorities and core functions. Activities also include studies and analysis to support both current program planning, execution, and future program planning.

It includes several complimentary programs, initiatives and areas for investment: Warfighter and Joint Training Integration supports the Chief of Staff of the Air Force (CSAF) directed Live, Virtual, and Constructive (LVC) integration efforts and is a critical piece to the USAF's implementation of the Strategic Plan for Transforming DoD Training. The goal of LVC training and mission rehearsal is to prepare our warfighters for the full range of military operations and maintain the combat readiness levels required by the Combatant Commanders. This can only be accomplished by training and rehearsing in realistic operational environments. These environments include live training ranges and virtual simulators enhanced with constructive entities. Specific training and mission rehearsal events can include some or all of these simultaneously; making the ability to integrate LVC capabilities a necessity.

The Air, Space, and Cyberspace Constructive Environment (ASCCE) is the USAF's authoritative federation of constructive training models and tools realistically representing the tactical and operational capabilities the USAF brings to the joint fight. Project 675135, Warfighter Readiness, provides for the Command & Control Simulation Environment for Training (C2SET) development effort, which is modernizing the authoritative representation of AF and joint theater-level air and space power for training Air and Space Operations Center (AOC) personnel and Combatant Commanders' battle staffs. The primary models in development for C2SET are based on the AF common Advanced Framework for Simulation, Integration, and Modeling (AFSIM). C2SET will replace the current Air Force Modeling and Simulation Training Toolkit (AFMSTT).

The program element also contains Project 674567, M&S Foundations, the Air, Space and Cyberspace Collaborative Environment - Information Operations Suite (ACE-IO). ACE-IO is a federation of constructive models for the authoritative representation of Air Force Intelligence, Surveillance, and Reconnaissance (ISR), Electronic Warfare (EW), Information Operations (IO), and Cyber Effects on AF combat operations. The program supports multifaceted training and mission rehearsal for the Air Force at multiple training tiers, Joint Task Force commanders, and Combatant Commanders' battle staffs covering training from the AF schoolhouse through the Air Combatant Commander staff via Joint and Service exercises, tests, and experiments. This program also supports the DoD Training Transformation Initiative.

This program is part of the overarching Kessel Run portfolio and is leveraging 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207601F I USAF Modeling and Simulation				
<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 PY \$0.720M was expended for civilian pay expenses in this program element, and in CY \$1.155M 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>						
B. Program Change Summary (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		17.634	17.110	0.000	0.000	0.000
Current President's Budget		17.023	17.110	19.341	0.000	19.341
Total Adjustments		-0.611	0.000	19.341	0.000	19.341
• 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		-0.234	0.000			
• SBIR/STTR Transfer		-0.377	0.000			
• Other Adjustments		0.000	0.000	19.341	0.000	19.341
Change Summary Explanation						
FY2023: 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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation				Project (Number/Name) 674567 / M&S Foundations			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674567: M&S Foundations	-	7.052	7.093	7.468	0.000	7.468	7.620	7.763	7.927	8.103	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Modeling and Simulation Foundations (MSF) focuses on integrating foundational capabilities needed to improve the usefulness of Modeling and Simulation (M&S) capabilities derived from the Warfighter Readiness (WR) thrust. The efforts supporting the MSF thrust include both concept exploration and development. MSF provides the capability to rapidly and efficiently create realistic and accurate synthetic operational battlespaces to support the full spectrum of activities associated with concept development to acquisition and testing through composite training and mission rehearsals.

ACE-IOS project is a federation of constructive models for the authoritative representation of Air Force ISR and Information Operations. ACE-IOS provides simulation modeling and stimulation systems, software, and contract support in support of ISR/Cyber training from the AF ISR Schoolhouse to Joint mission rehearsal for the Air Force, Joint Task Force commanders, and Combatant Commands battle staffs during Joint and Service exercises, tests and experiments.

ACE-IOS provides ISR and Cyber live-virtual-constructive (LVC) environments to support the Joint training of offensive and defensive ISR/Cyber capabilities for the AF, DoD, select Coalition, and national agencies. AF Joint ISR operational training is conducted by the AF Simulation centers worldwide using the ACE-IOS M&S models and stimulations with specific extensions in support of the Air Force Cyber Simulation Center (CSC) and the AF ISR schoolhouse. Overall development and integration efforts of the ACE-IOS program are imperative to ensure that air, space, and cyberspace training and mission rehearsal activities are supported with realistic, interoperable, and readily available tools, data, and services. Specific ACE-IOS capability enhancements are built in direct support of the Distributed Mission Operations Center for Cyberspace (DMOC-C) and the AF ISR schoolhouse. The specific cyber effects software extensions for DMOC-C are in support of the training and exercising of tactical cyber mission forces (CMF), cyber service providers (CSP), and operational-level command and control, intelligence, and cyber planners and operators supporting global operations.

LVC environments today are used as one of the most cost effective and practical means to meet mission needs. These efforts enable more efficient delivery of effective capabilities to the warfighter while reducing the time and resources required for design, development, test and evaluation, maintainability and sustainment.

Authorization and Accreditation and Networthiness is maintained via the Information Technology (IT) systems Risk Management Framework (RMF) for seven classified ACE-IOS configurations and three supported cross domain solutions, which includes code and ruleset development, testing, and fielding, and meets AF Joint Worldwide Intelligence Communications System (JWICS), AF Secret Internet Protocol Router Network (SIPRNET) and AF and Joint Staff training network net worthiness standards and evaluations.

This program also supports the DoD Training Transformation Initiative.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation	Project (Number/Name) 674567 / M&S Foundations				
This program is part of the overarching Kessel Run portfolio and is leveraging 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.						
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 \$0.000M was expended for civilian pay expenses in this program element, and in CY \$0.000M is forecasted for civilian pay expenses in this program element.						
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Air, Space and Cyberspace Constructive Environment - Information Operations Suite (ACE-IOS)  Description: Provides the authoritative representation of the AF ACE-IOS program. ACE- IOS is comprised of models that support training and mission rehearsal for the Air Force, Joint Task Force commanders, and Combatant Commander battle staffs during Joint and Service exercises and experimentations. Also supports shared ACE-IOS development in support of the AF ISR schoolhouse and DMOC-C extensions.  FY 2022 Plans: -Delivered ACE-IOS version 5.0.23 -Delivered early model transformations to open architecture and aligned with Kessel Run common development processes -Delivered re-engineering of apps from Web Logic app server to Docker containers -Delivered new JVET service -Delivered select USMTF Protocol years and updated specific theater reporting directives -Delivered select updates to supported message protocols and simulations - IBS, OTH Gold, JUNIT, CMF and VMF. -Delivered graphics into a single web-based graphic system  FY 2023 Base Plans: -Will commence and deliver ACE-IOS version & deployment -Will continue ACE-IOS agile development -Will continue integration with M&S support to Kessel Run common development  FY 2023 OCO Plans: N/A  FY 2022 to FY 2023 Increase/Decrease Statement:		7.052	7.093	7.468	0.000	7.468

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0207601F / USAF Modeling and Simulation			<b>Project (Number/Name)</b> 674567 / M&S Foundations			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>											
					<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>		
Funding increased due to increase in development efforts.											
<b>Accomplishments/Planned Programs Subtotals</b>					7.052	7.093	7.468	0.000	7.468		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 833140: <i>Strategic Command And Control</i>	0.000	3.541	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTE 07 0303248F: <i>All Domain Common Platform</i>	0.000	64.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTE 08 0308606F: <i>All Domain Common Platform (ADCP) - Software Pilot Program</i>	0.000	0.000	190.112	0.000	190.112	175.196	190.889	187.666	188.307	Continuing	Continuing
<b>Remarks</b>											
N/A											
<b>D. Acquisition Strategy</b>											
The Acquisition goals of the Air, Space and Cyberspace Constructive Environment - Information Operations Suite (ACE-IOS) are achieved through incremental development of the project's M&S activities; all contracts are awarded using full and open competition. In order to meet evolving M&S technology and requirements and its modernization effort, the ACE-IOS program will leverage commercial best practices for agile software development.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation				Project (Number/Name) 674567 / M&S Foundations					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Air, Space and Cyberspace Constructive Environment - Information Operations Suite (ACE-IOS)	C/Various	CACI NSS, LLC : San Antonio, TX	-	7.052	Dec 2020	7.093	Dec 2021	7.468	Dec 2022	-		7.468	Continuing	Continuing	-
Subtotal			-	7.052		7.093		7.468		-		7.468	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	7.052		7.093		7.468		-		7.468	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022							
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation								Project (Number/Name) 674567 / M&S Foundations			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Air, Space and Cyberspace Constructive Environment - Information Operations Suite (ACE-IOS)																												
- ACE-IOS v5.0.22																												
- ACE-IOS v5.0.23																												
-ACE-IOS v5.0.24																												
-ACE-IOS v5.0.25																												
-ACE-IOS v5.0.26																												
-ACE-IOS v5.0.27																												
-ACE-IOS v5.0.28																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation	Project (Number/Name) 674567 / M&S Foundations	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Air, Space and Cyberspace Constructive Environment - Information Operations Suite (ACE-IOS)</i>				
- ACE-IOS v5.0.22	1	2021	4	2021
- ACE-IOS v5.0.23	1	2022	4	2022
-ACE-IOS v5.0.24	1	2023	4	2023
-ACE-IOS v5.0.25	1	2024	4	2024
-ACE-IOS v5.0.26	1	2025	4	2025
-ACE-IOS v5.0.27	1	2026	4	2026
-ACE-IOS v5.0.28	1	2027	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation				Project (Number/Name) 675135 / Warfighter Readiness			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675135: Warfighter Readiness	-	9.971	10.017	11.873	0.000	11.873	25.902	21.659	16.299	16.468	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Modeling and Simulation support to our Warfighter's Readiness is a United States Air Force (USAF) corporate imperative to ensure air, space, cyberspace training, and mission rehearsal activities are supported with realistic, interoperable, and readily available, tools, data, services and environments. Warfighter Readiness supports Department of Defense (DoD) Training Transformation (T2) and Joint National Training Capability (JNTC) along with the USAF priorities and core functions. Activities also include studies and analysis to support both current program planning, execution, and future program planning.

It includes several complimentary programs, initiatives and areas for investment: Warfighter and Joint Training Integration supports the Chief of Staff of the Air Force (CSAF) directed Live, Virtual, and Constructive (LVC) integration efforts and is a critical piece to the USAF's implementation of the Strategic Plan for Transforming DoD Training. The goal of LVC training and mission rehearsal is to prepare our warfighters for the full range of military operations and maintain the combat readiness levels required by the Combatant Commands. This can only be accomplished by training and rehearsing in realistic operational environments. These environments include live training ranges and virtual simulators enhanced with constructive entities. Specific training and mission rehearsal events can include some or all of these simultaneously; making the ability to integrate LVC capabilities a necessity.

The Air, Space, and Cyberspace Constructive Environment (ASCCE) is the USAF's authoritative federation of constructive training models and tools realistically representing the tactical and operational capabilities the USAF brings to the joint fight. This includes development effort for Command & Control Simulation Environment for Training (C2SET), which provides the authoritative representation of AF and Joint theater-level air and space power and is used to train Air and Space Operations Center (AOC) personnel and Combatant Commanders' battle staffs. C2SET is replacing the AFMSTT models with the proven core Advanced Framework for Simulation, Integration, and Modeling (AFSIM) scientific engine. The goal is toward a fully scalable and more scientific based modeling, simulation, and training stimulation to the Combined Forces Air Component Commander (CFACC). AFMSTT entered full sustainment in FY21 and continues to receive operational updates to maintain operational currency until C2SET fully replaces.

This program is part of the overarching Kessel Run portfolio and is leveraging 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.

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 \$0.720M was expended for civilian pay expenses in this program element, and in CY \$1.155M is forecasted for civilian pay expenses in this program element.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022					
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation		Project (Number/Name) 675135 / Warfighter Readiness				
B. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Title:</b> Air, Space, and Cyberspace Constructive Environment (ASCCE)/Air Force Modeling &amp; Simulation Training Toolkit (AFMSTT)</p> <p><b>Description:</b> Provides the authoritative representation of AF and joint theater-level air and space power used to train Air and Space Operations Center (AOC) personnel and Combatant Commanders' battle staffs.</p> <p><b>FY 2022 Plans:</b> N/A</p> <p><b>FY 2023 Base Plans:</b> N/A</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>				3.045	0.000	0.000	0.000	0.000
<p><b>Title:</b> Command &amp; Control Simulation Environment for Training (C2SET)</p> <p><b>Description:</b> Provides the authoritative representation of AF and joint theater-level air and space power and is used to train AOC personnel and Combat Commander's battle staffs</p> <p><b>FY 2022 Plans:</b> -Initiate C2SET Modernization Software Pathway -Initiate AF M&amp;S software consortium development efforts -Continue agile software development to meet M&amp;S Modernization objective (replacing AFMSTT capabilities), Federate Object Models and C2 interfaces requirements</p> <p><b>FY 2023 Base Plans:</b> -Will continue AF M&amp;S software consortium development efforts to meet M&amp;S Modernization objective (replacing AFMSTT capabilities), Federate Object Models and C2 interfaces requirements</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>				6.926	10.017	11.873	0.000	11.873

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0207601F / USAF Modeling and Simulation		<b>Project (Number/Name)</b> 675135 / Warfighter Readiness	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Funding increased to support team expansion to accomplish required parallel development efforts, capability modernization and legacy deprecation.							
<b>Accomplishments/Planned Programs Subtotals</b>			9.971	10.017	11.873	0.000	11.873

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF 03 833140: <i>Strategic Command And Control</i>	0.000	3.541	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTE 07 0303248F: <i>All Domain Common Platform</i>	0.000	64.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTE 08 0308606F: <i>All Domain Common Platform (ADCP) - Software Pilot Program</i>	0.000	0.000	190.112	0.000	190.112	175.196	190.889	187.666	188.307	Continuing	Continuing

**Remarks**

N/A

**D. Acquisition Strategy**

The Acquisition goals of the Command & Control Simulation Environment for Training (C2SET) are achieved through incremental development of the project's M&S activities; all contracts are awarded using full and open competition. C2SET operates under authority of a Software Acquisition Pathway following DoDI 5000.87, Operation of a Software Acquisition Pathway Guidance. The desired end state is continuous delivery of all C2SET software.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation				Project (Number/Name) 675135 / Warfighter Readiness					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AFMSTT	C/T&M	Cole Engineering Services, Inc : Orlando, FL	-	3.045	Dec 2020	-		-		-		-	Continuing	Continuing	-
C2SET (FSO)	C/T&M	Full Spectrum Operations : Fairfax, VA	-	1.953	Jul 2021	2.961	Jul 2022	1.628	Jul 2023	-		1.628	Continuing	Continuing	19.100
C2SET (Omni)	C/T&M	Omni Federal : Gainesville, VA	-	1.953	Jul 2021	2.961	Jul 2022	1.629	Jul 2023	-		1.629	Continuing	Continuing	19.100
Subtotal			-	6.951		5.922		3.257		-		3.257	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
AFMSTT/C2SET Direct Mission Support	C/TBD	Various : TBD	-	0.404	Oct 2020	1.577		5.895	Oct 2022	-		5.895	Continuing	Continuing	-
AFMSTT/C2SET Civilian Direct Cite Authorizations for Product Development	Allot	AFLCMC/FZA : TBD	-	0.720	Oct 2020	1.155	Oct 2021	1.349	Oct 2022	-		1.349	Continuing	Continuing	-
Subtotal			-	1.124		2.732		7.244		-		7.244	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	AFLCMC : Hanscom AFB, MA	-	1.586	Oct 2020	0.980	Oct 2021	0.981	Oct 2022	-		0.981	Continuing	Continuing	-
Systems Engineering	SS/ Various	MITRE : Bedford, MA	-	0.310	Oct 2020	0.383	Oct 2021	0.391	Oct 2022	-		0.391	Continuing	Continuing	-
Subtotal			-	1.896		1.363		1.372		-		1.372	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022				
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation					Project (Number/Name) 675135 / Warfighter Readiness					
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	9.971		10.017		11.873		-		11.873	Continuing	Continuing	N/A

## Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation								Project (Number/Name) 675135 / Warfighter Readiness			

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207601F / USAF Modeling and Simulation	Project (Number/Name) 675135 / Warfighter Readiness

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Air, Space, and Cyberspace Constructive Environment (ASCCE)				
C2SET	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207605F I Wargaming and Simulation Centers							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	6.113	7.535	7.004	0.000	7.004	6.867	6.995	7.142	7.301	Continuing	Continuing
672888: Distributed Mission Operations Center (DMOC)	-	6.113	7.535	7.004	0.000	7.004	6.867	6.995	7.142	7.301	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

The Distributed Mission Operations Center (DMOC) provides comprehensive Live, Virtual, and Constructive (LVC) simulation capabilities which prepare warfighters to conduct Joint All-Domain Command & Control (JADC2) operations in air, land, sea, space, and cyber domains for theater-level, full spectrum combat training for Air Force, joint service, and coalition partners. The DMOC training capabilities reach over 40 geographically separated Live, Virtual, and Constructive (LVC) locations across 17 time zones representing such assets as real-world weapon systems, operator-in-the-loop, and constructive or computer-driven simulations. It is responsible for development and integration of scenarios, models, and databases and the integration of participating sites into Virtual Flag (VF) and other Distributed Mission Operations (DMO) training events via numerous network connections, DMOC-developed interoperability tools, and controlled interfaces in support of Air Force, joint, and coalition warfighter readiness. In addition, activities include DMO technology and capability studies/analyses which support both current and future program planning and execution by:

1. Distributed Mission Operations Capability/Battlespace Systems Development: The DMOC upgrades and enhances the capabilities of various systems, tools, and simulators to incorporate emerging technology and training requirements into DMO events, such as Virtual Flag (VF) and Coalition VF (CVF), to enhance the quality of warfighter training. Activities include Environment Generator development, DMO Tool Development, and Simulator Enhancement. DMOC is in partnership with the US Naval Air Warfare Center-Aircraft Division (NAWCAD) to enhance the capabilities of the Next Generation Threat System (NGTS). The NGTS is the primary environment generator for both Blue and Red Air in DMOC White Force. DMO Tool development includes: a) DMOC Replay Tool (DRT), which facilitates a more complete mission review and debrief capability of the exercises as more sites and systems are added to events; b) enhancement & improvement of the Distributed Interactive Simulation (DIS) Filter and the Doctor-J (Dr. J) tools to enable tactical datalinks to be communicated and translated between disparate simulator and operationally fielded (i.e. live aircraft) communication formats; c) Development of Intelligence, Surveillance, and Reconnaissance (ISR)/Battle Damage Assessment (BDA) to improve damage state models used by intelligence analysts in exercises; and d) development of solutions for integrating Contested Degraded Operations Gateway (CDOG, geographical and communications jamming) into DMO events; and simulator enhancement efforts to incorporate Mission Package standards upgrades into the Control and Reporting Center (CRC) Simulation Package (CSP) to allow a real-world system to be used as a simulator when needed in DMO events.

2. Assessment & Authorization (A&A)/Software Certification: The DMOC supports cybersecurity requirements definition, integration/test support, analysis, systems engineering support, A&A of core systems, and support software certification. The DMOC implements cybersecurity requirements and complies with the application of the Risk Management Framework (RMF) and Continuous Monitoring. Efforts include Cross-Domain Information Sharing / Multi-national Information Sharing (CDIS/ MNIS) ruleset development, load sharing, and testing; integration and testing of various newly developed / updated systems such as the DMOC Replay Tool, Dr. J, DIS Filter, and the DMOC Battlespace; support of Air Force Network Integration Center (AFNIC) software certification.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207605F I Wargaming and Simulation Centers					
3. Distributed Training Sites & Systems Integration: DMOC integrates over 40 geographically separated LVC training locations and 50+ systems into LVC DMO training events such as VF and CVF by resolving interoperability issues between disparate systems and networks so that all exercise participants can interact in the DMO environment. New sites and systems are incorporated into LVC DMO events each year based on higher headquarters and Combatant Commander's (CCDRs) emerging requirements.							
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget		6.341	7.535	0.000	0.000	0.000	
Current President's Budget		6.113	7.535	7.004	0.000	7.004	
Total Adjustments		-0.228	0.000	7.004	0.000	7.004	
• 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		0.000	0.000				
• SBIR/STTR Transfer		0.000	0.000				
• Other Adjustments		-0.228	0.000	7.004	0.000	7.004	
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.							
C. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Distributed Mission Operations (DMO) Capability / Battlespace Systems Development			4.147	5.081	4.723	0.000	4.723
Description: Simulation software/hardware development in support of users conducting RDT&E, mission rehearsal, and concepts of operation development.							
FY 2022 Plans:							
- Continue DMO tool enhancements.							

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207605F I Wargaming and Simulation Centers				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>- Continue DMOC/NAWCAD Partnership: Enhance NGTS source code to implement future Air Force DMO requirements, develop/install future versions of DMOC customized NGTS, and focus on increasing NAWCAD partnership/requirements development to better meet AF DMO needs.</p> <p>- Transition battlespace virtualization into operations and explore other virtualized methods to enhance training.</p> <p>- Continue to research and test promising emerging Modeling &amp; Simulation (M&amp;S) technologies for possible integration into DMO training.</p> <p>- Continue to explore and transition to cloud-based software development.</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Will continue DMO tool enhancements.</p> <p>- Will continue DMOC/NAWCAD Partnership: Enhance NGTS source code to implement future Air Force DMO requirements, develop/install future versions of DMOC customized NGTS, and focus on increasing NAWCAD partnership/requirements development to better meet AF DMO needs.</p> <p>- Will transition battlespace virtualization into operations and explore other virtualized methods to enhance training.</p> <p>- Will continue to research and test promising emerging Modeling &amp; Simulation (M&amp;S) technologies for possible integration into DMO training.</p> <p>- Will continue to explore and transition to cloud-based software development.</p> <p><b>FY 2023 OCO Plans:</b></p> <p>N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>Costs adjusted downward due to slight reduction (\$0.270M) in FY23 budget.</p>						
<p><b>Title:</b> Assessment and Authorization (A&amp;A)/Software (A&amp;AS) Certification</p> <p><b>Description:</b> Support requirements definition, integration test support, scenario development, analysis, systems engineering support, and Certification and Accreditation (C&amp;A) and Networthiness of core systems. Implement requirements of Cybersecurity, Risk Management Framework, and Continuous Monitoring.</p> <p><b>FY 2022 Plans:</b></p> <p>- Continue testing for the following Assessment and Authorization activities:</p> <p>-- Maintain ATO from HAF/A3 for Battlespace.</p> <p>-- Maintain ATO for Jumper Room with accompanying SSP modifications for event-driven needs.</p> <p>- Continue to assess DMOC software for the AFNIC E/APL process viability and test accordingly</p>		0.466	0.581	0.540	0.000	0.540

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207605F I Wargaming and Simulation Centers				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<div>- Continue A&amp;A support for virtualization effort.</div> <div>- Continue support of CVF and RED KITE with CDIS ruleset development, testing, and implementation.</div> <div>- Continue development of Cross Domain Solutions into LVC training.</div> <div>FY 2023 Base Plans:</div> <div>- Will continue testing for the following Assessment and Authorization activities:</div> <div>-- Will maintain ATO from HAF/A3 for Battlespace.</div> <div>-- Will maintain ATO for Jumper Room with accompanying SSP modifications for event-driven needs.</div> <div>- Will continue to assess DMOC software for the AFNIC E/APL process viability and test accordingly</div> <div>- Will continue A&amp;A support for virtualization effort.</div> <div>- Will continue support of CVF and RED KITE with CDIS ruleset development, testing, and implementation.</div> <div>- Will continue development of Cross Domain Solutions into LVC training.</div> <div>FY 2023 OCO Plans:</div> <div>N/A</div> <div>FY 2022 to FY 2023 Increase/Decrease Statement:</div> <div>Costs adjusted downward due to slight reduction (\$0.270M) in FY23 budget.</div>						
<div>Title: Distributed Training Sites and Systems Integration</div> <div>Description: Establish distributed training site system integration and interoperability between DMOC, operational units, and modeling &amp; simulation facilities.</div> <div>FY 2022 Plans:</div> <div>- Continue the development of LVC concepts in support of VF/CVF integration efforts.</div> <div>- Continue to support emerging higher headquarters/CCDR requirements.</div> <div>- Continue Virtual-into-Live integration and testing with NTTR/VTTC/RF.</div> <div>- Expand Jumper Room support to CJCS events.</div> <div>- Expand distributed operations to increase the number of small-scale, joint/coalition events.</div> <div>- Utilize the Nellis Mission Operations Network (NMON) to enable VTTC incorporation into Joint/Coalition exercises.</div> <div>FY 2023 Base Plans:</div> <div>- Will continue the development of LVC concepts in support of VF/CVF integration efforts.</div> <div>- Will continue to support emerging higher headquarters/CCDR requirements.</div>		1.500	1.873	1.741	0.000	1.741

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>			<b>R-1 Program Element (Number/Name)</b> PE 0207605F <i>I Wargaming and Simulation Centers</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>
<ul style="list-style-type: none"> <li>- Will continue Virtual-into-Live integration and testing with NTTR/VTTC/RF.</li> <li>- Will expand Jumper Room support to CJCS events.</li> <li>- Will expand distributed operations to increase the number of small-scale, joint/coalition events.</li> <li>- Will utilize the Nellis Mission Operations Network (NMON) to enable VTTC incorporation into Joint/Coalition exercises.</li> </ul> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Costs adjusted downward due to slight reduction (\$0.270M) in FY23 budget.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>			6.113	7.535	7.004
<b>D. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
N/A					
<b>E. Acquisition Strategy</b>					
<p>The DMOC supports AF/Joint/Coalition DMO and the Joint National Training Capability (JNTC) through the development and integration of DMO training and test events, networks, scenarios, and databases. Due to evolving modeling &amp; simulation technology, the DMOC is an on-going, evolutionary effort to keep pace with those changes by continuously developing/upgrading DMO environment generators, systems, and tools and ensuring integration/interoperability of new systems into DMO to provide the best warfighter training possible.</p> <p>DMOC has the following two primary contracts that manage the acquisition, development, testing, and integration of DMO standards, training, modeling and simulation, cross-domain information sharing testbed, and exercises on AF/Joint/Coalition DMO networks. Additionally, Military Interdepartmental Purchase Requests (MIPRs) are sent to other external organizations (i.e. NAWCAD) to fund development of DMO tools that support DMOC efforts.</p> <p>Infrastructure, Development, and Engineering (IDE) Contract: Develops/upgrades various DMOC tools, systems, and simulators that are needed to conduct DMO training events. Develops, implements, and tests technical solutions for the integration of sites/systems into VF, CVF, and other DMO events. IDE is a firm-fixed-price contract.</p>					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	<b>R-1 Program Element (Number/Name)</b> PE 0207605F I Wargaming and Simulation Centers	
Command and Control Technical Support Contract (C2TSC): Supports government by assisting with development of technical requirements for upgrades to various systems and tools that will be developed by the IDE contractor and then performs acceptance testing of the delivered products. Develops requirements for site/system integration of sites/systems into VF, CVF, and other DMO events. C2TSC is a firm-fixed-price contract.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207605F / Wargaming and Simulation Centers				Project (Number/Name) 672888 / Distributed Mission Operations Center (DMOC)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Distributed Mission Operations (DMO) Capability / Battlespace Systems Development, Certification & Accreditation (C&A) and Networkiness, and Distributed Training Sites& Systems Integration	C/FFP	General Dynamics IT : Kirtland AFB, NM	-	3.358	Nov 2020	3.779	Nov 2021	3.500	Nov 2022	-		3.500	Continuing	Continuing	17.662
NAWCAD NGTS Development	MIPR	NAWCAD : Patuxent River, MD	-	0.992	Nov 2020	1.050	Nov 2021	1.445	Nov 2022	-		1.445	Continuing	Continuing	-
Artificial Intelligence Integration Into VF (Concept and Development)	C/CPFF	TBD : TBD	-	0.200	Nov 2021	0.750	Aug 2022	0.350	Aug 2023	-		0.350	Continuing	Continuing	-
Global Positioning System (GPS) Jamming Integration Into VF (Concept and Development)	C/CPFF	TBD : TBD	-	0.255	Nov 2021	0.750	Aug 2022	0.500	Aug 2023	-		0.500	Continuing	Continuing	-
Subtotal			-	4.805		6.329		5.795		-		5.795	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Technical requirements development, integration/ acceptance testing, and engineering support	C/FFP	River Tech, LLC : Kirtland AFB, NM	-	1.108	Jan 2021	0.966	Jan 2022	0.959	Jan 2023	-		0.959	Continuing	Continuing	4.759
Subtotal			-	1.108		0.966		0.959		-		0.959	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207605F / Wargaming and Simulation Centers				Project (Number/Name) 672888 / Distributed Mission Operations Center (DMOC)					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DMOC Program Management Office Support	Various	705 CTS : Kirtland AFB, NM	-	0.200	Oct 2020	0.240	Oct 2021	0.250	Oct 2022	-		0.250	Continuing	Continuing	-
Subtotal			-	0.200		0.240		0.250		-		0.250	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	6.113		7.535		7.004		-		7.004	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0207605F / Wargaming and Simulation Centers										Project (Number/Name) 672888 / Distributed Mission Operations Center (DMOC)									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DMO																												
DMO Capability / Battlespace Systems Development																												
Virtual Flag (VF)																												
Virtual Flag / Coalition Virtual Flag exercises																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207605F / Wargaming and Simulation Centers	Project (Number/Name) 672888 / Distributed Mission Operations Center (DMOC)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>DMO</b>				
DMO Capability / Battlespace Systems Development	1	2021	4	2027
<b>Virtual Flag (VF)</b>				
Virtual Flag / Coalition Virtual Flag exercises	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207610F I Battlefield Abn Comm Node (BACN)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	5.450	32.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
671201: E-11 Development	-	5.450	32.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

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 SATCOM, IBS, PTS, etc.), enhancements to Military Global Positioning System (GPS), 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 programs 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-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207610F I Battlefield Abn Comm Node (BACN)				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	6.815	32.008	0.000	0.000	0.000	
Current President's Budget	5.450	32.008	0.000	0.000	0.000	
Total Adjustments	-1.365	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	-1.365	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 2021	FY 2022	FY 2023
Title: Main Base Operating Base Integration Communications Engineering				0.890	1.500	0.000
Description: Small scale enhancements to BACN ground sites to enable increased operational effectiveness and/or efficiencies						
FY 2022 Plans: FY22 funds will support initial evaluation of sites current configuration and development of initial solutions that require minimal levels of effort to implement. Efforts are to support Direct Cite Civilian Pay (DCA)						
FY 2023 Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: No funds appropriated for FY23.						
Title: Military GPS Enhancements				4.560	28.110	0.000
Description: Effort enhances Military GPS, including integration of emerging technologies, testing, & certification.						
FY 2022 Plans: FY22 funds support testing, certification, and miscellaneous actions to support attaining full FAA certification of E-11A MilGPS system onto the existing BACN capability.						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207610F / <i>Battlefield Abn Comm Node (BACN)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Full FAA certification delayed from FY21 to FY22, due to lack of active year funding availability. Original proposal from sole-source 52M as of May 21 contract vehicle Period of Performance (PoP) no longer supports effort; FY22 sought open competition to drive down costs.  FY17 - FY21: BPAC was 675383.  <b>FY 2023 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> No funds appropriated for FY23.				
<b>Title:</b> High Capacity Backbone (HCB)  <b>Description:</b> Initial design for integration of HCB equipment to enable BACN to function as the backbone for high capacity data transfer.  <b>FY 2022 Plans:</b> No prior HCB activities.  <b>FY 2023 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> No funds appropriated for FY23.		0.000	0.000	0.000
<b>Title:</b> Data Links / Gateway Modernization Engineering  <b>Description:</b> Development enhancements required for integration of updated enterprise terminals to the BACN Capability.  <b>FY 2022 Plans:</b> FY22 funds will support MIDS JTRS Modernization, ARC 210 Gen 6, and integration of Open Mission Systems (OMS) concepts into BACN.  <b>FY 2023 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> No funds appropriated for FY23.		0.000	2.398	0.000
<b>Accomplishments/Planned Programs Subtotals</b>		5.450	32.008	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207610F / <i>Battlefield Abn Comm Node (BACN)</i>	
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>E. Acquisition Strategy</b> 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 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207610F / Battlefield Abn Comm Node (BACN)						Project (Number/Name) 671201 / E-11 Development			
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MilGPS - 675383	SS/CPAF	NGDS : Wichita, KS	-	4.560	Jan 2021	-		-		-		-	Continuing	Continuing	-
MilGPS - 671201	C/CPAF	TBD : TBD	-	-		26.292	Jan 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	4.560		26.292		-		-		-	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Acquisition Support	Various	Various : Various, MA	-	-		1.500	Jan 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	-		1.500		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	C/CPAF	Not specified. : TBD	-	-		0.500	Dec 2021	-		-		-	Continuing	Continuing	-
Subtotal			-	-		0.500		-		-		-	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
BACN A&AS	Various	A&AS : Bedford, MA	-	-		1.222	Apr 2022	-		-		-	Continuing	Continuing	-
MITRE	Various	MITRE : Bedford, MA	-	0.814	Oct 2020	2.400	Oct 2021	-		-		-	Continuing	Continuing	-
Travel	Various	Not specified. : TBD	-	0.076	Oct 2020	0.094	Oct 2021	-		-		-	Continuing	Continuing	-
Subtotal			-	0.890		3.716		-		-		-	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0207610F / Battlefield Abn Comm Node (BACN)					Project (Number/Name) 671201 / E-11 Development				
	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	5.450		32.008		-		-		-	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0207610F / Battlefield Abn Comm Node (BACN)										Project (Number/Name) 671201 / E-11 Development									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Battlefield Airborne Communication Node (BACN)																												
BACN MilGPS Development Testing and Certification																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207610F / <i>Battlefield Abn Comm Node (BACN)</i>	Project (Number/Name) 671201 / <i>E-11 Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Battlefield Airborne Communication Node (BACN)</i>				
BACN MilGPS Development Testing and Certification	2	2022	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207697F I Distributed Training and Exercises							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	3.260	4.007	4.628	0.000	4.628	4.722	4.810	4.912	5.021	Continuing	Continuing
675190: JFCOM Wargaming	-	3.260	4.007	4.628	0.000	4.628	4.722	4.810	4.912	5.021	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Funding supports the CSAF Title 10 wargaming efforts to test concepts, capabilities, programming choices, and plans using simulation and other techniques, otherwise known as wargaming. Based on the Department and Air Force direction, there is a concerted effort in these periods of fiscal restraint to reinvigorate, institutionalize, and systematize wargaming across the Department. This effort requires continued funding to maintain the level of effort to most effectively pursue an innovative strategy, avoid operational and technical surprise and make best use of limited resources. The Air Force continues to refine the wargame process and design to better integrate and synergize those efforts in support of the Air Force Strategy, Planning, Programming, Budget, and Execution (SPPBE) process. Specifically, in addition to maintaining a robust Title 10 Wargame series, Global Engagement, servicing Chief of Staff of the Air Force (CSAF) objectives. The HAF Wargaming Enterprise is executing on-call Wargaming in support of the AF/A5/7, the Agile series, along with quick-turning wargame support to the USAF Enterprise Capability Collaboration Team (ECCT) requirements, the Enterprise series, Plan Blue, and to service AF/A5/7 strategy and concept development objectives; all to better address the requirements of the Strategy, Planning, Programming, Budget, and Execution (SPPBE) process and cycles. Additionally, HAF Wargaming provides and coordinates Air Force representation at other Service and Joint wargames as they execute across the department. These efforts are providing decision support to senior Air Force leaders involving investment strategies and develop concepts to best employ U.S. forces in future conflicts.

The Wargame Information Environment (WIE) is a continually evolving system that provides an array of services to game players which enables the accomplishment of game objectives. The backbone of the WIE is GameNet, a deployable, standalone, Local Area Network (LAN) with servers and laptops that host applications to support virtual battlespace collaboration, decision making, three-dimensional visualizations & mapping, and services. Behind these applications are cutting edge technologies and database architectures from both commercial off-the-shelf and government developed software that assures relevance to the wargame. The modeling, simulation, and analysis applications allow participants, adjudicators, and control team members to effectively and efficiently collaborate, make decisions, present those decisions, and execute moves within the wargame; documenting each step in the process. This information capture enables discovery during the wargame and permits postgame analysis. These findings inform portfolio rebalancing exercises, concept and strategy development, and very senior leader decision making.

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 FY2021 \$0 Million was expended for civilian pay expenses in this program element, and in FY2022 \$0 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0207697F I Distributed Training and Exercises				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	3.384	4.007	0.000	0.000	0.000	
Current President's Budget	3.260	4.007	4.628	0.000	4.628	
Total Adjustments	-0.124	0.000	4.628	0.000	4.628	
• 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	-0.124	0.000	4.628	0.000	4.628	
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Develop/ Upgrade Modeling & Simulation (M&S) Tools for Wargaming Information Environment (WIE)				1.192	1.560	1.777
Description: Develop air, space and cyber space wargaming specific functionality in existing modeling and simulation and analysis tools and integrate into the latest version of the WIE						
FY 2022 Plans: • Continue developing and assimilating tools that capture consequences of alternative force structures and capabilities employed in wargames to inform Department of the Air Force (DAF) budgeting and programming choices.  • Continue to expand and develop the Headquarters USAF (HAF) Wargaming Information Environment (WIE) by integrating the latest technology and tools that will support of a more flexible, robust, and agile wargaming enterprise that is quicker to respond and tailorable for a wider range of wargaming. This will require analysis of the utility and functionality of additional models and analytical tools used in other wargames, and creation of custom interfaces to allow interaction within the WIE (for example, the latest iteration of Air Force Materiel Command's Integrated Sustainment and Wargaming Analysis Toolkit (ISWAT3), which assesses and reports changing logistics and supply levels across wargame moves, battle damage, resupply etc.).  • Seek to improve the ease and effectiveness of wargame execution by developing new WIE visualizations and user/ participant interfaces in the FY23 HAF "Title 10" wargame series comprised of Futures Game 22 (FG 22) and Global Engagement 22 (GE 22)						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207697F <i>I Distributed Training and Exercises</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> —where FG is a high-classification deep-dive into capabilities 15-20 years out and GE is an Ally-informed look at military theater competition between now and that period.  Justification of work planned for FY22:  <ul style="list-style-type: none"> <li>• This work will take place in preparation for, and in support of, FG 22 in the Spring of 2022; a Plan Blue game in Summer '22; and major planning workshops leading up to GE 23 in the Fall.</li> <li>• The HAF is using these wargames as one of its primary means to inform budgeting and programming decisions needed to fully implement and align with the National Defense Strategy.</li> <li>• This is particularly important follow-on work to implement/solidify lessons and best practices learned during the previous Futures Game 21 (FG 21), which will inform the wargaming M&amp;S, analysis, assessments, and adjudication that will be used for FG 22.               <ul style="list-style-type: none"> <li>o The WIE used for FG 22, combined with tools brought in and refined by AFWIC and RAND (and integrated with other tools we continue to refine such as ISWAT)will directly underpin the planned follow-on FG 23 wargame—and subsequently GE 23 and FG 24.</li> <li>o Loss of this PE funding for FY22 would drastically undermine both FG 22 and 23, as well as Global Engagement wargaming. The Air Force would lose the robust wargame results (enabled by the WIE and associated M&amp;S, assessments, and analysis tools) on which it relies to inform critical planning decisions on future concepts, capabilities, and force structure—all in support of NDS requirements.</li> </ul> </li> </ul> <b>FY 2023 Plans:</b> <ul style="list-style-type: none"> <li>• Continue developing and assimilating state of the art tools that capture consequences of alternative force structures and capabilities employed in wargames to inform Department of the Air Force (DAF) budgeting and programming choices.</li> <li>• Continue to expand and develop the Headquarters USAF (HAF) Wargaming Information Environment (WIE) by integrating the latest technology and tools that will support of a more flexible, robust, and agile wargaming enterprise that is quicker to respond and tailorable for a wider range of wargaming. This will require analysis of the utility and functionality of additional models and analytical tools used in other wargames, and creation of custom interfaces to allow interaction within the WIE (for example, the latest iteration of Air Force Materiel Command's Integrated Sustainment and Wargaming Analysis Toolkit (ISWAT3), which assesses and reports changing logistics and supply levels across wargame moves, battle damage, resupply etc.).</li> <li>• Seek to improve the ease and effectiveness of wargame execution by developing new WIE visualizations and user/ participant interfaces in the FY23 HAF "Title 10" wargame series comprised of Futures Game 23 (FG 23) and Global Engagement 23 (GE 23)</li> </ul>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207697F <i>I Distributed Training and Exercises</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>—where FG is a high-classification deep-dive into capabilities 15-20 years out and GE is an Ally-informed look at military theater competition between now and that period.</p> <p>Justification of work planned for FY23:</p> <ul style="list-style-type: none"> <li>• This work will take place in preparation for, and in support of, FG 23 in the Spring of 2023; a Plan Blue game in Summer '23; and major planning workshops leading up to GE 23 in the Fall.</li> <li>• The HAF is using these wargames as one of its primary means to inform budgeting and programming decisions needed to fully implement and align with the National Defense Strategy.</li> <li>• This is particularly important follow-on work to implement/solidify lessons and best practices learned during the previous Futures Game 22 (FG 22), which will inform the wargaming M&amp;S, analysis, assessments, and adjudication that will be used for FG 23. <ul style="list-style-type: none"> <li>o The WIE used for FG 22, combined with tools brought in and refined by AFWIC and RAND (and integrated with other tools we continue to refine, such as ISWAT3, will directly underpin the planned follow-on FG 23 wargame—and subsequently GE 23 and FG 24.</li> <li>o Loss of this PE funding for FY23 would drastically undermine both FG 23 and 24, as well as Global Engagement wargaming. The Air Force would lose the robust wargame results (enabled by the WIE and associated M&amp;S, assessments, and analysis tools) on which it relies to inform critical planning decisions on future concepts, capabilities, and force structure—all in support of NDS requirements.</li> </ul> </li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase in requirements</p>				
<p><b>Title:</b> Joint Concept Development &amp; Experimentation (JCD&amp;E) Tools</p> <p><b>Description:</b> Develop scenarios and data for future synthetic environment that are grounded in truth to support several wargames and mini-wargames.</p> <p><b>FY 2022 Plans:</b> HAF Wargaming will execute Global Engagement 23 and lead up events beginning in FY22. HAF Wargaming will continue to design, develop models, research concepts, and conduct workshops for Global Engagement 23 including the Capstone event in the Fall of 2023 including its post-game analysis and report writing(USAF Foundation wargame). HAF Wargaming will continue to</p>		2.068	2.447	2.851

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207697F <i>I Distributed Training and Exercises</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> conduct quick-turn wargames in support of senior leaders (Agile, ECCT) as directed including support to other service wargames to advocate for Air Force equities.  <b>FY 2023 Plans:</b> <ul style="list-style-type: none"> <li>• HAF Wargaming will execute FG 23 and GE 23 lead-up events in FY23.</li> <li>• HAF Wargaming will continue to design, develop models, research concepts, and conduct workshops for FG 23 and GE 23 including post-game assessment, analysis and reporting.</li> <li>• HAF Wargaming will continue to conduct quick-turn wargames in support of senior leaders as directed including support to other service wargames to ensure Air Force interests are incorporated in a realistic manner.</li> </ul> Justification of work planned for FY23: <ul style="list-style-type: none"> <li>• The utility and credibility of results from all Air Force Title 10 wargaming described in the FY23 base plan is utterly reliant on the development in each game cycle of plausible and well-informed scenarios, Blue planning &amp; facilitation experts, crack Red teams, and credible Red, Green and Blue baseline data for the future game epochs.</li> <li>• These scenarios, teams, and data—and the wargame plans they generate or underpin—are achievable only through the tailored hiring and the building over time of key persons/teams, and by enabling them with the right tools and collaboration activities to plan and build.</li> <li>• Wargaming access to such individuals, teams and tools, and their development activities that underpin HAF Title 10 wargames large and small, is made possible by this PE.</li> <li>• If this PE were to be defunded for FY23, the experts who build scenarios, develop and man Red teams, and provide the latest credible data on Blue, Red and Green forces and planning, would be lost—to be replaced later only slowly and with difficulty. The people and tools that port such data into the WIE would go away, as well. HAF Title 10 wargaming that depends on these elements—and therefore the vital results from such wargaming—would be significantly impacted, to the detriment of USAF future-force decisions and development.</li> <li>• Additionally, associated joint gaming/experimentation that uses and benefits from USAF Title 10 scenarios and data would be impacted as well (e.g. the Joint Staff's Global Integrated Wargame)</li> </ul>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0207697F <i>I Distributed Training and Exercises</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
OCO funds are not programmed in this PE.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase in requirements				
<b>Accomplishments/Planned Programs Subtotals</b>		3.260	4.007	4.628
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> In order to achieve an innovative strategy, avoid operational and technical surprise and make best use of limited resources, wargaming requires an evolutionary acquisition approach for every wargame. Contract support is required as wargame and IT specialized expertise resides with industry and is not available organically. The requirements constantly evolve and a challenge to be accurately defined at the outset of the contract; however, we will continue to pursue a firm fixed price (FFP) contract awarded under a full and open competition.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207697F / <i>Distributed Training and Exercises</i>				Project (Number/Name) 675190 / <i>JFCOM Wargaming</i>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
FA7014-19-FA092	Various	AFDW : JBA, MD	-	3.260	Nov 2020	4.007	Nov 2021	4.628	Apr 2023	-		4.628	0.000	11.895	22.084
Subtotal			-	3.260		4.007		4.628		-		4.628	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	3.260		4.007		4.628		-		4.628	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0207697F / <i>Distributed Training and Exercises</i>						Project (Number/Name) 675190 / <i>JFCOM Wargaming</i>			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Wargaming Information Environment																												
Develop and Integrate M&S Tools																												
Enhance ViewPoint																												
Improve GamePoint																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207697F / Distributed Training and Exercises	Project (Number/Name) 675190 / JFCOM Wargaming

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Wargaming Information Environment</i>				
Develop and Integrate M&S Tools	1	2021	4	2027
Enhance ViewPoint	1	2021	4	2027
Improve GamePoint	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0208006F I Mission Planning Systems							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	80.193	96.057	99.214	0.000	99.214	99.504	94.323	96.313	98.455	Continuing	Continuing
675302: Precision Aerial Delivery Systems (PADS)	0.000	0.132	1.865	1.964	0.000	1.964	2.002	2.041	2.083	2.130	Continuing	Continuing
675380: Mission Planning Systems (MPS) Modernization	0.000	80.061	94.192	97.250	0.000	97.250	97.502	92.282	94.230	96.325	Continuing	Continuing
Program MDAP/MAIS Code: 509												
<p><b>Note</b></p> <p>- Mission Planning Systems (MPS) software is a layered software, designed with open architected standards and modular construction. The core of the MPS Legacy Joint Mission Planning Systems (JMPS) software is the Framework software (FW) used by all MPS platforms and the Navy. Common Components are distinct services that are used by a select number of platforms. An example would be weapon specific capability that fighters share. The Unique Planning Component (UPC) is the platform specific software and associated software (install etc.) that is delivered to the users in the form of a mission planning environment. Traditionally, the MPS Systems Program Office had allocated FW funding to other Platform Operational Flight Program (OFP) development programs. Beginning in FY20, FW became a separate program code within the MPS Modernization Budget Program Activity Code (BPAC).</p> <p>- As part of MPS Modernization, the Mission Planning program is updating the current JMPS architecture with an Open Mission Systems architecture to: Improve system lethality, survivability, readiness, affordability, and extensibility; Improve the user interface and overall user experience; Decrease time to plan; Address security vulnerabilities and cybersecurity mandates; And increase system affordability. MPS is also transitioning its software development processes to incorporate best practice Agile DevOps methodologies that will speed the development and delivery of capabilities to the user as well as improve our ability to address changing threats and cybersecurity requirements. This transition will drive changes in organizational and programmatic structures in the future to align with the Agile DevOps processes and practices. The integration of the agile development methodology will require some program office organizational restructuring into Agile Release Trains (ARTs). In FY21, three ARTs (Core Mission Planning, Strike, and Weapons) continued developing software capabilities for the JMPS Open Mission System (JOMS).</p>												
<p><b>A. Mission Description and Budget Item Justification</b></p> <p>Mission planning involves the creation of a flight plan based on multiple inputs including threats, targets, terrain, weather, aircraft performance capability, and configuration. The technology will provide wide area targeting quality data at scale and with operationally useful latency in dense, stressing contested time sensitive environments. Mission Planning is an essential task that must be completed prior to any fixed- or rotary wing aircraft sortie. The planner must have the ability to plan weapon, cargo, passenger, and/or fuel delivery, calculate fuel requirements, and assess the route based on known enemy threat location and type. Mission planners must be able to: Optimize and de-conflict flight routes with other aircraft; Review, print, and brief the plan; Download pertinent flight information to on-board aircraft avionics; And, conduct dynamic/in-flight re-planning as applicable.</p>												

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0208006F / <i>Mission Planning Systems</i>
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The MPS program is a collaborative program with the U.S. Navy to leverage technical solutions and business practices for most Department of Defense (DoD) platforms. It provides automated mission planning tools and support for fixed- and rotary wing aircraft and guided munitions. It replaces two closed architecture legacy mission planning systems (UNIX-based MPS (UNIX-MPS) and the PC-based Portable Flight Planning Software (PFPS)), with a single multi-service, open architecture system, frequently referred to as JMPS. MPS has continually compressed the mission planning cycle by providing an improved integrated planning environment, reducing the time required to respond to changing situations and urgent needs such as striking time sensitive/critical targets and conducting combat search and rescue. MPS products have the potential to support all DoD fixed-wing and rotary wing aircraft and are shared with the selected programs in the U.S. Navy. MPS delivers significant benefits to command and control performance by enhancing information superiority for the warfighter and by providing unique capabilities in support of both precision engagement and dominant maneuver.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Mission Planning 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 \$0.281M was expended for civilian pay expenses in this program element, and in FY22 \$0.732M 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	91.601	92.557	0.000	0.000	0.000
Current President's Budget	80.193	96.057	99.214	0.000	99.214
Total Adjustments	-11.408	3.500	99.214	0.000	99.214
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	3.500			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-8.460	0.000			
• SBIR/STTR Transfer	-2.948	0.000			
• Other Adjustments	0.000	0.000	99.214	0.000	99.214

## **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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208006F / Mission Planning Systems				Project (Number/Name) 675302 / Precision Aerial Delivery Systems (PADS)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675302: Precision Aerial Delivery Systems (PADS)	0.000	0.132	1.865	1.964	0.000	1.964	2.002	2.041	2.083	2.130	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Mission planning involves the creation of a flight plan based on multiple inputs including threats, targets, terrain, weather, aircraft performance capability, and configuration. Mission Planning is an essential task that must be completed prior to any fixed- or rotary wing aircraft sortie. The planner must have the ability to plan weapon, cargo, passenger, and/or fuel delivery, calculate fuel requirement and assess the route based on known enemy threat location and type. Mission planners must be able to: Optimize and de-conflict flight routes with other aircraft; Review, print and brief the plan; Download pertinent flight information to on-board aircraft avionics; And, conduct dynamic/in-flight re-planning as applicable.

This project continues the development of a Joint Precision Airdrop System-Mission Planner (JPADS-MP) capability in conjunction with the Army. JPADS provides a planning capability for DoD airdrop requirements. It is the primary airdrop mission planning system for all ballistic airdrop missions as well as precision guided airdrops that are required when the mission profile or surface-to-air threat assessment warrants a high-altitude and/ or standoff precision delivery. It enables high-altitude, precise airdrop delivery to forward ground forces, while mitigating surface-to-air threats, reducing risk of exposure to Improvised Explosive Devices (IEDs) and insurgent attack on ground convoys. JPADS allows the warfighter to consider weather, terrain, aircraft capabilities, threat, and other data to accurately deliver payloads to U.S. and other friendly forces.

Consolidated Airdrop Tool (CAT) is the key JPADS-MP software deliverable. It will increase the accuracy of airdrop mission planning by improving aircraft, payload, and chute specific calculations along with weather analysis visualization tools specifically adapted for airdrop. Future initiatives are designated to achieve automation of airdrop planning and execution to reduce task saturation in the cockpit and support Air Mobility Command's (AMC) objective of moving to a two-man cockpit. These efforts include the ability to automatically receive and use real-time winds in any location, calculation of a release point and airdrop in a single pass, the ability to conduct real-time objective area analysis to calculate probable damage estimates and execute dynamic re-tasking, the ability to conduct post-drop assessments, and the implementation of new technologies (e.g. Service Oriented Architecture (SOA) Touch Screen environment).

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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> JPADS-MP Phase I	0.132	1.865	1.964
<b>Description:</b> Continues development of a JPADS capability for precise, high altitude delivery of material to forward ground forces.			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208006F / <i>Mission Planning Systems</i>	<b>Project (Number/Name)</b> 675302 / <i>Precision Aerial Delivery Systems (PADS)</i>	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b><i>FY 2022 Plans:</i></b> Continue agile development with quarterly releases. The scope of each release will be determined at a planning session based on the warfighter prioritized requirements identified in the approved requirements document as well as enhancements identified in field performance. Each release will be incorporated into a Mobility Based Mission Planning Environment (MPE) for use by Air Mobility Command and Air Combat Command Aircraft. The Micro Services Oriented Architecture evolution will evolve to align with the JOMS/NOM architecture.</p> <p><b><i>FY 2023 Plans:</i></b> JPADS will complete the JOMS/NOMS evolution and integration while maintaining quarterly releases. Each release will be proceeded with a planning session based on the warfighter prioritized requirements identified and approved as requirements. The goal of each release is to provide readiness at economical costs and meet the needs of the Mobility Based Mission Planning Environment (MPE) for use by Air Mobility Command and Air Combat Command Aircraft.</p> <p><b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Minimal change in funding level from FY22-FY23 (\$99K)</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	0.132	1.865	1.964

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 Line Item 833170: <i>Mission Planning Systems</i>	15.132	14.871	15.688	-	15.688	17.953	18.282	18.655	-	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The MPS PADS efforts are developed and fielded using a variety of contracting vehicles. Efforts to accomplish activities such as Scaled Agile Framework (SAFe) software development methodology, systems engineering and integration, training, and support are completed using competitively awarded contracts (e.g. Cost Plus Award Fee (CPAF), Fixed Price (FP)). Mission Planning will utilize established Government Wide Acquisition Contract (GWAC) ID/IQ schedules, with a larger pool of vendors, to competitively award future Task or Delivery Orders. These vehicles will be utilized to establish agile contracts to support transformation to agile devops approach.

Program Management Administration (PMA) contracts are awarded competitively and consist of various types of contracts at various locations. MITRE, a Federally Funded Research and Development Center (FFRDC) contractor, provides technical support via a no fee for service contract. The Systems Engineering & Integration

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / <i>Mission Planning Systems</i>	Project (Number/Name) 675302 / <i>Precision Aerial Delivery Systems (PADS)</i>
<p>Contract (SEIC) is a competitively awarded ID/IQ. Other efforts are accomplished using Purchase Orders (PO) and Military Interdepartmental Purchase Requests (MIPR).</p> <p>For the efforts listed above, the Air Force Life Cycle Management Center at Hanscom AFB (AFLCMC/HB) is the Contracting Authority and provides contracts, legal, and comptroller support.</p> <p>Air Force Program Executive Officer (PEO) for Digital is the PEO and Milestone Decision Authority (MDA) for the Precision Aerial Delivery Systems (PADS) program.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208006F / Mission Planning Systems				Project (Number/Name) 675302 / Precision Aerial Delivery Systems (PADS)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPIF	Various : Various	0.000	0.110	Nov 2020	1.533	Nov 2021	1.214	Nov 2022	-		1.214	Continuing	Continuing	-
Systems Engineering and Integration	C/CPFF	Leidos, Inc. : Reston, VA	0.000	0.007	Jan 2021	0.090	Jan 2022	0.482	Jan 2023	-		0.482	Continuing	Continuing	-
Subtotal			0.000	0.117		1.623		1.696		-		1.696	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Cost Estimating	C/T&M	Quantech Services : Lexington, MA	0.000	0.001	Nov 2020	0.017	Nov 2021	0.018	Nov 2022	-		0.018	Continuing	Continuing	-
Subtotal			0.000	0.001		0.017		0.018		-		0.018	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Responsible Test Organization (RTO)	PO	96CTG : Eglin AFB, FL	0.000	0.014	Dec 2020	0.225	Dec 2021	0.230	Dec 2022	-		0.230	Continuing	Continuing	-
Operational Testing	PO	28TH TEST AND EVAL : Eglin AFB, FL	0.000	-		-		0.020	Apr 2023	-		0.020	Continuing	Continuing	-
Subtotal			0.000	0.014		0.225		0.250		-		0.250	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.132		1.865		1.964		-		1.964	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022				
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208006F / Mission Planning Systems					Project (Number/Name) 675302 / Precision Aerial Delivery Systems (PADS)				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Precision Aerial Delivery Systems (PADS)</i></b>																												
JPADS-MP Program Increment (PI) 12	■																											
JPADS-MP Program Increment (PI) 13		■																										
JPADS-MP Program Increment (PI) 14			■																									
JPADS-MP Program Increment (PI) 15				■																								
JPADS-MP Program Increment (PI) 16					■																							
JPADS-MP Program Increment (PI) 17						■																						
JPADS-MP Program Increment (PI) 18							■																					
JPADS-MP Program Increment (PI) 19								■																				
JPADS-MP Program Increment (PI) 20									■																			
JPADS-MP Program Increment (PI) 21										■																		
JPADS-MP Program Increment (PI) 22											■																	
JPADS-MP Program Increment (PI) 23												■																
JPADS-MP Program Increment (PI) 24													■															
JPADS-MP Program Increment (PI) 25														■														
JPADS-MP Program Increment (PI) 26															■													
JPADS-MP Program Increment (PI) 27																■												
JPADS-MP Program Increment (PI) 28																	■											
JPADS-MP Program Increment (PI) 29																		■										
JPADS-MP Program Increment (PI) 30																			■									
JPADS-MP Program Increment (PI) 31																				■								
JPADS-MP Program Increment (PI) 32																					■							
JPADS-MP Program Increment (PI) 33																						■						
JPADS-MP Program Increment (PI) 34																							■					

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																				Date: April 2022																	
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0208006F / Mission Planning Systems										Project (Number/Name) 675302 / Precision Aerial Delivery Systems (PADS)																	
										FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JPADS-MP Program Increment (PI) 35										<div></div>																											

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208006F / <i>Mission Planning Systems</i>	<b>Project (Number/Name)</b> 675302 / <i>Precision Aerial Delivery Systems (PADS)</i>	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Precision Aerial Delivery Systems (PADS)</i></b>				
JPADS-MP Program Increment (PI) 12	1	2021	1	2021
JPADS-MP Program Increment (PI) 13	2	2021	2	2021
JPADS-MP Program Increment (PI) 14	3	2021	3	2021
JPADS-MP Program Increment (PI) 15	4	2021	4	2021
JPADS-MP Program Increment (PI) 16	1	2022	1	2022
JPADS-MP Program Increment (PI) 17	2	2022	2	2022
JPADS-MP Program Increment (PI) 18	3	2022	3	2022
JPADS-MP Program Increment (PI) 19	4	2022	4	2022
JPADS-MP Program Increment (PI) 20	1	2023	1	2023
JPADS-MP Program Increment (PI) 21	2	2023	2	2023
JPADS-MP Program Increment (PI) 22	3	2023	3	2023
JPADS-MP Program Increment (PI) 23	4	2023	4	2023
JPADS-MP Program Increment (PI) 24	1	2024	1	2024
JPADS-MP Program Increment (PI) 25	2	2024	2	2024
JPADS-MP Program Increment (PI) 26	3	2024	3	2024
JPADS-MP Program Increment (PI) 27	4	2024	4	2024
JPADS-MP Program Increment (PI) 28	1	2025	1	2025
JPADS-MP Program Increment (PI) 29	2	2025	2	2025
JPADS-MP Program Increment (PI) 30	3	2025	3	2025
JPADS-MP Program Increment (PI) 31	4	2025	4	2025
JPADS-MP Program Increment (PI) 32	1	2026	1	2026

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

**Date:** April 2022

**Appropriation/Budget Activity**

3600 / 7

**R-1 Program Element (Number/Name)**

PE 0208006F / Mission Planning Systems

Project (Number/Name)

675302 / Precision Aerial Delivery Systems  
(PADS)

	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
JPADS-MP Program Increment (PI) 33	2	2026	2	2026
JPADS-MP Program Increment (PI) 34	3	2026	3	2026
JPADS-MP Program Increment (PI) 35	4	2026	4	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208006F / Mission Planning Systems				Project (Number/Name) 675380 / Mission Planning Systems (MPS) Modernization			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675380: Mission Planning Systems (MPS) Modernization	0.000	80.061	94.192	97.250	0.000	97.250	97.502	92.282	94.230	96.325	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Mission planning involves the creation of a flight plan based on multiple inputs including threats, targets, terrain, weather, aircraft performance capability, and configuration. Mission Planning is an essential task that must be completed prior to any fixed- or rotary wing aircraft sortie. The planner must have the ability to plan weapon, cargo, passenger, and/or fuel delivery, calculate fuel requirements, and assess the route based on known enemy threat location and type. Mission planners must be able to: Optimize and de-conflict flight routes with other aircraft; Review, print and brief the plan; Download pertinent flight information to on-board aircraft avionics; And conduct dynamic/in-flight re-planning as applicable. The MPS Modernization project, following a multi-year strategic roadmap to migrate mission planning capabilities as discussed above into a services-based open architecture, focuses on delivering JMPS Open Mission Systems (JOMS) environment for mission planning supporting Combat Air Forces (CAF) and Mobility Air Forces (MAF), which includes the development, test and support of Mission Planning Environments (MPEs) to support combat and mobility aircraft, including the B-1, C-5, C-17, C-130, HC-130, EC-130, E-3 DRAGON, E-3/E-8, F-15, F-22A, KC-10, KC-46, KC-135, RC-135, HH-60 other platforms, as well as training aircraft, Framework (FW) and all Common Component (CCs) software tools for mission requirements. Activities also include studies and analysis to support both current program planning and execution and future program planning. MPS Modernization efforts that support modernizing the system architecture to JOMS are as follows:

1) CAF MPS Modernization: These development efforts modernize CAF Mission Planning Environments (MPEs). The modernization effort will provide new and improved mission planning capability for individual Operational Flight Program (OFF) requirements, such as new weapons, avionics upgrades, communications systems, etc. The OFFs requiring MPE updates under the CAF modernization effort include, but are not limited to, B-1 (Sustainment Blocks 17b, 17c, 18 and 19), F-15 (Suites 9.1, 9.1RR (Re-Release) for Data Transfer Module II (DTMII), 9.2, 10.x/Continuous Development & Integration (CD&I)) and F-22 update Release 3 through 5. CAF modernization also includes updates to mission planning capabilities supporting associated weapons including, but not limited to, Small Diameter Bomb (SDB-II), Joint Direct Attack Munitions (JDAM) and the Joint Air-to-Surface Standoff Missile (JASSM). A key piece of the CAF modernization effort involves interfacing between the CAF platforms and the weapons using tools such as, but not limited to, Universal Armament Interface (UAI) and Mission Planning Certification Tool (MPCT). CAF modernization will address required improvements to CAF related JMPS MPE CCs, including Weapon Planning Software (WPS), Electronic Warfare CC (EWCC), GPS Crypto (including GPS M-code), Weather CC, etc. Finally, CAF modernization also includes development of JOMS' Strike Mission Planning capabilities in collaboration with the Navy's Mission Planning Program Office. CAF MPE Modernization includes, but is not limited to, the following platform efforts:

a. F-15 Modernization Phase II & III: The F-15 Modernization program consists of multiple software development efforts driven by OFF updates for F-15 Suites 9.19.2, 10.x/CD&I, including the F-15 EX. Suite 9 MPE capabilities include, but are not limited to, Data Transfer Device (DTD) improvements, updates for new features in weapons such as Joint Direct Attack Munition (JDAM), Small Diameter Bomb I and II (SDB I and II), AIM-9X, AIM-120D, and Network Enable Weapon support elements (e.g. key handling, weapon data link and Link 16). It will also include enhancements to the synthetic aperture radar planning tool (SAR-PT) and the global area reference

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208006F / <i>Mission Planning Systems</i>	<b>Project (Number/Name)</b> 675380 / <i>Mission Planning Systems (MPS) Modernization</i>
<p>tool as well as radar modernization updates (e.g. combat identification, radar planning tool enhancements) and a variety of updates and enhancements for weapons and aircraft systems to include, but are not limited to, Eagle Passive Active Warning Survivability System (EPAWSS), a new Advanced Dual Core Process II (ADCP-II) computer as well as Digital Transfer Device/Modules (DTD/DTM) modernization. The integration of CD&amp;I MPE capabilities into the F-15 OFP has not yet been scheduled by the OFP. The F-15 EX MPE will be created from the USAF and Qatar baselines. The overall end state is a common OFP and one MPE baseline that supports all F-15 models -C, D, E &amp;EX. Finally, the F-15 Modernization program will begin to develop microservices to integrate JOMS into the F-15 MPE.</p> <p>b. F-22 Modernization Phase II: The F-22 Modernization program consists of multiple software development efforts driven by OFP updates for Releases 3 through 5 as identified by ACC and the operational user. These new capabilities include sensor enhancements and updates to Link-16 Transmit, SP-1 and Mode 5 IFF Transmit and Interrogate. The F-22 contract transitioned to the Strike Agile contract and implements SAFe software development. F-22 Modernization program established a team under the Strike ART and began JOMS development. First JOMS efforts include creating a common baseline MPE/UPC that any platform can use and a blended MPE product that integrates initial JOMS capabilities into JMPS and generates mission data files in a test jet in FY23.</p> <p>c. B-1 Modernization Phase I: The B-1 Modernization program consists of multiple software development efforts driven by OFP updates for Sustainment Blocks 17b, 17c, 8 and 19. It will incrementally deliver the B-1 MPE to increase aircraft mission capabilities, including JASSM and LRASM weapon updates, and incorporate crypto modernization for Link-16 network enabled weapons. Additionally, B-1 MPE will complete migration to a native 64-bit environment, replace the mass storage unit where pre-recorded map and mission data is stored and begin to develop microservices to integrate JOMS into the B-1 MPE.</p> <p>2) MAF MPS Modernization: These development efforts modernize MAF MPEs for all Air Mobility Command platforms. The modernization effort will provide new and improved mission planning capability to support Aircraft individual Operational Flight Programs (OFP), Global C2, and AMC fuel efficiency requirements incorporating Mobility Air Forces Automated Flight Planning Service into the deployed squadron mission planning suite. It includes, but is not limited to, enhanced capabilities to accommodate avionics upgrades, precision airdrop improvements for increased combat battlefield airdrop accuracy, improved communications systems, interfaces with command and control systems, and improved weather data ingestion/utilization for various MAF platforms. Development efforts also include, but are not limited to, integrating improvements to MAF related CCs. Examples of these CCs include, but are not limited to, MAF tools, such as Assault Zone CC and the Air Refueling Tool (ART) CC, Consolidated Airdrop Tool (CAT), and the Weather CC.</p> <p>3) The SMACC Modernization Program includes development, testing, and fielding of MP software for the E-3 DRAGON, E-3/E-8, RC-135 and EC-130. Combat Search and Rescue (CSAR) provides improved stability performance over the legacy mission planning system through enhanced architecture and baseline development, such as the improved transfer of mission data from the unique planning component to the HC-130J avionics suite and the 12 critical Digital Aeronautical Flight Information Files to integrate onto the smart multifunction color display for the HH-60G, resulting in mature JMPS mission planning environment for both CSAR platforms.</p> <p>4) In FY20, MPS Framework was established as an independent ACAT III Program of Record (PoR). The funding for MPS Framework has historically been accomplished through an allocation to the platform budgets in Mission Planning. The Program office has segregated MPS Framework for future oversight. MPS Framework initiated a one year agile pathfinder effort that represents the basic core functions of the JMPS Software developed as microservices in a Common</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208006F / Mission Planning Systems	Project (Number/Name) 675380 / Mission Planning Systems (MPS) Modernization		
Development Environment (CDE). MPS Framework has been renamed to Core Mission Planning (CMP) and will continue core modernization efforts utilizing the JOMS architecture to continuously develop and deploy core mission capabilities.				
Test, Training, and Certification: Continues all MPS-related integration, test, and certification activities for all CAF and MAF platforms.				
Program Support: Continues all program office management operations and support activities to ensure the timely development, testing, and delivery of mission planning systems to the warfighter.				
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 2021	FY 2022	FY 2023
Title: F-15 Modernization Phase II and III		10.734	2.975	10.126
Description: Incorporates and enables use of new lethal and survivable capabilities being developed in the F-15 OFP. Increases readiness and affordability through incremental incorporation of JOMS microservices.				
FY 2022 Plans: - Continue development w/ quarterly builds/releases until v6.1 fielding in support of OFP Suite 9.2; continue to provide maintenance of fielded MPEs and begin transition to support CD&I and inclusion of EX in mission planning software development. The OFP Ste 9.2 adds (or improves) aircraft capabilities like Infared Search and Track (IRST), Mobile User Objective System (MUOS)/Second Generation Anti Jam Tactical UHF Radio (Saturn), Trident Pod, BLU 134, Advanced Crew Station, Crypto Modernization (Link 16), Re-gridded Digital Terrain Elevation Data (RDTED), ID Enhancements, and Multiresolution Seamless Image Database (MrSID). The MPE capabilities will be expanded to support the new F-15EX {Large Area Display (LAD), Low Profile Heads Up Display (LPHUD), Hybrid Digital Video Recorder (HDVRs)} and the aircraft transition to CD& I releases.				
FY 2023 Plans: - Continue transitioning of fielded MPE maintenance; continued transitioning to support CD&I and incorporation of EX. Begin next generation JOMS mission planning development and integration of JOMS products for creation of an initial "JOMS Common Baseline MPE/UPC" that can be used by any platform to start development and refine over time for all platform capabilities.				
FY 2022 to FY 2023 Increase/Decrease Statement: Increase is due to the realignment of funding in FY23 BES via Zero Balance Transfer to align funding to the way the program office is executing the new Program of Record structure using Agile Release Trains.				
Title: F-22 Modernization Phase I and II		11.135	14.387	9.010

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0208006F / <i>Mission Planning Systems</i>		<b>Project (Number/Name)</b> 675380 / <i>Mission Planning Systems (MPS) Modernization</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> Incorporates and enables use of new lethal and survivable capabilities being developed in the F-22 OFP, including sensor enhancements, Link 16 Transmit, Mode 5 interrogate and transpond updates, SP1 upgrades, radar updates and pilot display updates. Increases readiness and affordability through incremental incorporation of JOMS microservices.</p> <p><b>FY 2022 Plans:</b> Complete development, FQT, DT/OT and Field v14.22 Link 16 Transmit and SP1 capabilities to support OFP Release 2; begin development for v14.3 initial sensor enhancement capability to support OFP Release 3; begin next generation JOMS mission planning development and integration of JOMS products for creation of an initial "JOMS Common Baseline MPE/UPC" that can be used by any platform to start development and refine over time for all platform capabilities.</p> <p><b>FY 2023 Plans:</b> Complete development, FQT, DT/OT and Field v14.3 sensor enhancements, radar updates and additional Link 16 and SP1 capabilities to support OFP Release 3; begin v14.4 development for mode 5 interrogate/transpond and sensor enhancement upgrades to support OFP Release 4; deploy a blended JMPS MPE with next generation JOMS Link 16 services for flight test in a jet.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease is due to the realignment of funding in FY23 BES via Zero Balance Transfer to align funding to the way the program office is executing the new Program of Record structure using Agile Release Trains.</p>					
<p><b>Title:</b> B-1 Modernization Phase I and II</p> <p><b>Description:</b> Continues the modernization of previously fielded B-1 MPEs to enable efficient use of new and improved capabilities being developed in the OFPs.</p> <p><b>FY 2022 Plans:</b> - Continue agile builds/releases (3 per year) to release 11.2 12.0, and 12.1. Complete development, FQT, DT/OT and Field Rel 11.2 to incorporate Crypto Modernization and 64-bit transition. Begin JOMS incorporation with the addition of the MSRP tool into the fielded MPE. Begin development for v12.0 to support the agile developed SB-19 OFP to provide additional weapon delivery capability as required.</p> <p><b>FY 2023 Plans:</b> - Continue agile builds/releases (3 per year) to release 12.2, 13.0, and 13.1. Continue development, FQT, DT/OT and Field Rel 12.2 and 13.X to incorporate additional weapon delivery capability as required. Continue JOMS incorporation by transitioning appropriate route and weapon planning with the integration of the SPRTA tool into the fielded MPE.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>			11.491	12.456	10.051

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208006F / <i>Mission Planning Systems</i>	<b>Project (Number/Name)</b> 675380 / <i>Mission Planning Systems (MPS) Modernization</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
Decrease is due to the realignment of funding in FY23 BES via Zero Balance Transfer to align funding to the way the program office is executing the new Program of Record structure using Agile Release Trains.			<b>FY 2023</b>
<b>Title:</b> MAF Modernization  <b>Description:</b> Continues the development, testing, and fielding of the Agile Global Mobility (AGM) effort for the modernization of the JMPS Mission Planning Environment (MPE) for the C-5, C-17, C-130, KC-10, KC 135 and KC-46 to account for changes in aircraft Operational Flight Program (OFP) and Global Command as well as operational mission requirements.  <b>FY 2022 Plans:</b> Based on prioritized warfighter enhancements development of follow on releases to the initial 3 May 2021 will be conducted via agile development with multiple Program Increments (PIs) and Common Components on quarterly releases. Major improvements include architectural updates/refactoring of current capabilities into next generation micro-services, test automation, implementation of rapid deployment processes, and instantiation of a cross-contractor integrated development environment. Each of the PIs provide full and/or interim capabilities made available to the using command for fielding. Software will be updated based on user feedback to improve usability and efficiency. Software updates will ultimately support transition to the JOMS.  <b>FY 2023 Plans:</b> Continue to improve fielded capability and update software design to improve lethality, survivability, readiness and affordability of the aircraft mission planning software while keeping current with aircraft OFP changes. Accomplished via agile development with multiple program increments, phased migration of capabilities to the JOMS and migration to the Cloud.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase is due to the realignment of funding in FY23 BES via Zero Balance Transfer to align funding to the way the program office is executing the new Program of Record structure using Agile Release Trains.		8.764	14.865
<b>Title:</b> Special Mission ACC (SMACC)  <b>Description:</b> Continues the modernization of previously fielded mission planning software environments for the E-3 DRAGON, E-3/E-8, EC-130, and RC-135. In addition, this effort continues modernization efforts for SMACC CSAR component for the HC-130J and sustainment efforts for the HH-60G helicopters.  <b>FY 2022 Plans:</b> Software release will continue on the 3 month agile cadence and include enhanced mission planning capabilities in support of an all-glass digital cockpit upgrade. The target list of other top priority items will be finalized through program increment planning sessions with Air Combat Command based on the backlog of items identified through agile software development/operations.		16.299	14.399

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0208006F / <i>Mission Planning Systems</i>		<b>Project (Number/Name)</b> 675380 / <i>Mission Planning Systems (MPS) Modernization</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
FY22 also brings the conversion to an open mission system architecture to modernize the software base for increased speed of operation and increased efficiency of software maintenance.					
<b>FY 2023 Plans:</b> Supporting the CSAF's Air Force Advanced Battle Management System (ABMS) Campaign Plan, in particular in the areas of readiness and affordability, in FY23, the combination of the four SMACC aircraft will be benchmarks in the conversion to an Mission Planning joint open modular system application framework (i.e, JOMS). This effort builds on planning begun in FY22 with application lessons which can be applied throughout the fleet. Additionally, continued agile development via quarterly software releases for the HH-60G helicopter will ensure application in advances in lethality and survivability to Air Combat Command to maintain the aircraft into 2026 while the replacement HH-60W completes development. The HC-130J fleet will also undergo a mission planning upgrade supporting the aircraft block change from version 6.0 to 8.1.					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease is due to the realignment of funding in FY23 BES via Zero Balance Transfer to align funding to the way the program office is executing the new Program of Record structure using Agile Release Trains.					
<b>Title:</b> MPS Core Mission Planning (CMP)  <b>Description:</b> MPS Core Mission Planning, is the set of Mission Planning services that all platforms and common capabilities utilize on an open system software architecture. It provides the core services utilized by both MAF and CAF platforms to include transit route planning, weather services and airfield data. MPS CMP includes the infrastructure and interfaces required to be integrated into the various platforms and weapons systems as well as addresses data access, services, integrity and real-time operational communication.			21.638	25.939	35.902
<b>FY 2022 Plans:</b> Will continue CMP development and deployment of services, modernizing from legacy development to micro-services in an Open Mission Systems/Service Oriented Architecture environment and improving quality, security, and automation of data supplied to mission planning systems. Deployments will include initial capability releases of improved transit route planning functionality, dynamic fuel usage, filing and collaborative planning functionality.					
<b>FY 2023 Plans:</b> Increased CMP development and deployment of services, modernizing from legacy development to micro-services in an Open Mission System/ Service Oriented Architecture environment and improving quality, security, and automation of data supplied to mission planning systems - reducing dependency on legacy functions. Deployments will include additional capability releases					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0208006F / <i>Mission Planning Systems</i>			<b>Project (Number/Name)</b> 675380 / <i>Mission Planning Systems (MPS) Modernization</i>				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>		
of route planning functionality, for 4th and 5th generation platforms providing multi-ship planning to accommodate collaborative planning functionality.											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase is due to the realignment of funding in FY23 BES via Zero Balance Transfer to align funding to the way the program office is executing the new Program of Record structure using Agile Release Trains.											
<b>Accomplishments/Planned Programs Subtotals</b>							80.061	94.192	97.250		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 833170: <i>Mission Planning Systems</i>	15.132	14.871	15.688	-	15.688	17.953	18.282	18.655	-	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
MPS Modernization consists of multiple capability upgrades across multiple platforms that are developed and fielded using a variety of contracting instruments. The Air Force Life Cycle Management Center at Hanscom AFB AFLCMC/HB) competitively awarded multiple (Indefinite Delivery/Indefinite Quantities) (ID/IQ) contracts for software development. Currently there are five (5) contractors, one of which is Small Business set aside, who are qualified sources. Each Delivery Order (DO) is competed among the five contractors. With expiration of this ID/IQ in June 2021, Mission Planning will utilize established GWAC ID/IQ schedules, with a larger pool of vendors, to competitively award future Task or Delivery Orders. These vehicles will be utilized to establish agile contracts to support transformation to agile devops approach. Efforts to accomplish program activities such as software development, systems engineering and integration, training, and support are competitively awarded using a variety of contract types to support agile development efforts.											
Program Management Administration (PMA) contracts are awarded competitively and consist of various types of contracts at various locations. MITRE, a Federally Funded Research and Development Center (FFRDC) contractor provides technical support on a no fee for service contract.											
The Systems Engineering & Integration Contract (SEIC) is a competitively awarded ID/IQ. Other efforts are accomplished via Purchase Orders (PO) and Military Interdepartmental Purchase Requests (MIPR). For the efforts listed above, the Air Force Life Cycle Management Center at Hanscom AFB (AFLCMC/HB) provides the program management, contracts, legal, and financial management support. The Air Force Program Executive Officer (PEO) for Digital (AFPEO/HB) is the Milestone Decision Authority (MDA) for all MPS Modernization projects.											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208006F / Mission Planning Systems				Project (Number/Name) 675380 / Mission Planning Systems (MPS) Modernization					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
Mission Planning Software Development	C/Various	Various : Various	0.000	26.831	Nov 2020	29.427	Nov 2021	28.174	Nov 2022	-		28.174	Continuing	Continuing	-
A-10 Modernization	PO	Organic : Hill AFB, UT	0.000	-		-		-		-		-	0.000	0.000	-
F-16 Modernization	PO	Organic : Hill AFB, UT	0.000	-		-		-		-		-	0.000	0.000	-
EC-130H Modernization	PO	Organic : Robins AFB, GA	0.000	0.850	Jan 2021	0.702	Jan 2022	0.902	Jan 2023	-		0.902	Continuing	Continuing	-
F-22 MilCloud SIL	MIPR	GSA : Washington, DC	0.000	-		-		-		-		-	0.000	0.000	-
MAF AMC Transition Tools	MIPR	AMCOM : Redstone Arsenal, AL	0.000	-		-		-		-		-	0.000	0.000	-
SMACC CSAR Tools	MIPR	Various : Various	0.000	0.529	Jan 2021	0.544	Jan 2022	0.560	Jan 2023	-		0.560	Continuing	Continuing	-
Digital Flight Scheduling (PUCKBOARD)	C/TBD	RevaComm : Honolulu, HI	0.000	-		3.500	May 2022	-		-		-	0.000	3.500	-
Systems Engineering and Integration	C/TBD	Leidos, Inc. : Reston, VA	0.000	10.484	Jan 2021	13.262	Jan 2022	16.558	Jan 2023	-		16.558	Continuing	Continuing	-
Framework	C/FPIF	Northrop Grumman : Herndon, VA	0.000	15.490	Jan 2021	21.533	Jan 2022	31.962	Jan 2023	-		31.962	Continuing	Continuing	-
Common Components	C/Various	Various : Various	0.000	15.395	Nov 2020	14.396	Nov 2021	7.883	Nov 2022	-		7.883	Continuing	Continuing	-
Subtotal			0.000	69.579		83.364		86.039		-		86.039	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Support	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
Software Engineering	C/T&M	SEI : Pittsburgh, PA	0.000	-		-		-		-		-	0.000	0.000	0.080
Cost Estimating	C/T&M	Tecolote Inc : Goleta, CA	0.000	0.145	Nov 2020	0.164	Nov 2021	0.184	Nov 2022	-		0.184	Continuing	Continuing	-

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0208006F / Mission Planning Systems						<b>Project (Number/Name)</b> 675380 / Mission Planning Systems (MPS) Modernization			
<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			0.000	0.145		0.164		0.184		-		0.184	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Test and Evaluation	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
Responsible Test Organization (RTO)	PO	96CTG : Eglin AFB, FL	0.000	4.511	Dec 2020	4.943	Dec 2021	5.702	Dec 2022	-		5.702	Continuing	Continuing	-
Certification and Accreditation	MIPR	JITC : Fort Huachuca, AZ	0.000	0.092	Feb 2021	0.094	Feb 2022	0.050	Feb 2023	-		0.050	Continuing	Continuing	-
Operational Testing	PO	28TH TEST AND EVAL : Eglin AFB, FL	0.000	-		-		0.180	Apr 2023	-		0.180	Continuing	Continuing	-
Type I Training	PO	96CTG : Eglin AFB, FL	0.000	1.825	Jul 2021	2.149	Jul 2022	1.579	Jul 2023	-		1.579	Continuing	Continuing	-
Field Representative Hardware	C/Various	Various : Various	0.000	0.374	Nov 2020	0.453	Nov 2021	0.468	Nov 2022	-		0.468	Continuing	Continuing	-
<b>Subtotal</b>			0.000	6.802		7.639		7.979		-		7.979	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Management Services	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
Engineering and Technical Support	RO	MITRE Corp : Bedford, MA	0.000	3.535	Oct 2020	3.025	Oct 2021	3.048	Oct 2022	-		3.048	Continuing	Continuing	-
<b>Subtotal</b>			0.000	3.535		3.025		3.048		-		3.048	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022				
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208006F / Mission Planning Systems				Project (Number/Name) 675380 / Mission Planning Systems (MPS) Modernization						
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	80.061		94.192		97.250		-		97.250	Continuing	Continuing	N/A

Remarks

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0208006F / <i>Mission Planning Systems</i>		<b>Project (Number/Name)</b> 675380 / <i>Mission Planning Systems (MPS) Modernization</i>	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Mission Planning Systems (MPS) Modernization</i></b>																												
F-15 v6.1 Fielding																												
F-22 v14.1 Fielding																												
F-22 v14.2 Fielding																												
F-22 v14.3 Fielding																												
B-1 Release 11.1 Fielding																												
B-1 Release 12.0 Fielding																												
B-1 Release 12.1 Fielding																												
B-1 Release 12.2 Fielding																												
B-1 Release 13.0 Fielding																												
B-1 Release 13.1 Fielding																												
B-1 Release 13.2 Fielding																												
CAF Modernization Continued Integration, Test, and Fielding																												
MAF Modernization (to include AGM) continued Integration, Test, and Fielding (on quarterly release cadence)																												
SMACC (E-3/E-8, E-3 Dragon and CSAR-Pedro King(HH-60G/HC-130J)) Releases																												
MPS Core Mission Planning Agile Development, Integration, Test & Release																												

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0208006F / Mission Planning Systems

Project (Number/Name)

675380 / Mission Planning Systems (MPS)  
Modernization

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Mission Planning Systems (MPS) Modernization</i></b>				
F-15 v6.1 Fielding	3	2021	2	2023
F-22 v14.1 Fielding	2	2021	2	2021
F-22 v14.2 Fielding	2	2022	2	2022
F-22 v14.3 Fielding	2	2023	2	2023
B-1 Release 11.1 Fielding	2	2022	2	2022
B-1 Release 12.0 Fielding	3	2022	3	2022
B-1 Release 12.1 Fielding	1	2023	1	2023
B-1 Release 12.2 Fielding	2	2023	2	2023
B-1 Release 13.0 Fielding	3	2023	3	2023
B-1 Release 13.1 Fielding	1	2024	1	2024
B-1 Release 13.2 Fielding	2	2024	2	2024
CAF Modernization Continued Integration, Test, and Fielding	1	2021	4	2026
MAF Modernization (to include AGM) continued Integration, Test, and Fielding (on quarterly release cadence)	1	2021	4	2026
SMACC (E-3/E-8, E-3 Dragon and CSAR-Pedro King(HH-60G/HC-130J)) Releases	1	2021	4	2026
MPS Core Mission Planning Agile Development, Integration, Test & Release	1	2021	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0208007F I Tactical Deception							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	14.338	17.074	0.000	17.074	26.473	0.535	0.546	0.558	Continuing	Continuing
674550: Air Base Resiliency	-	0.000	14.338	17.074	0.000	17.074	26.473	0.535	0.546	0.558	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Military Deceptions mission is to execute actions to deliberately mislead adversary military, paramilitary, or violent extremist organization decision makers, thereby causing the adversary to take specific actions (or inactions) that will contribute to the accomplishment of the friendly mission.

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.

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>B. Program Change Summary (\$ in Millions)</b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023 Base</u></b>	<b><u>FY 2023 OCO</u></b>	<b><u>FY 2023 Total</u></b>
Previous President's Budget	0.000	0.489	0.000	0.000	0.000
Current President's Budget	0.000	14.338	17.074	0.000	17.074
Total Adjustments	0.000	13.849	17.074	0.000	17.074
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	13.849			
• 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	17.074	0.000	17.074

**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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0208007F / <i>Tactical Deception</i>			
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Non-Kinetic Air Base Defense  <b>Description:</b> Provide non-kinetic air base defense capabilities to include military and civilian personnel to support planning, concept development, experimentation, and operational employment of emerging air base defense capabilities.  <b>FY 2022 Plans:</b> Funding will support non-kinetic Air Base Defense efforts, including development, testing, and operational employment  <b>FY 2023 Plans:</b> Continuing non-kinetic Air Base Defense development, testing, and operational support  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increased to support scheduled additional non-kinetic air base defense activities.		0.000	14.338	17.074
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	14.338	17.074
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> Acquisition strategy is still being assessed but is projected to be a mix of contract types. Periodic re-assessments will be done to ensure contracting strategy aligns with technical content and risk.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208007F / Tactical Deception				Project (Number/Name) 674550 / Air Base Resiliency					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
Non-Kinetic Air Base Defense Development	TBD	Various : TBD	-	0.000	Mar 2021	14.338	Mar 2022	17.074	Jan 2023	-		17.074	Continuing	Continuing	-
Subtotal			-	0.000		14.338		17.074		-		17.074	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000		14.338		17.074		-		17.074	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0208007F / <i>Tactical Deception</i>					674550 / <i>Air Base Resiliency</i>			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Non-Kinetic Air Base Defense Development</i>																												
Non-Kinetic Defense Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208007F / <i>Tactical Deception</i>	Project (Number/Name) 674550 / <i>Air Base Resiliency</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Non-Kinetic Air Base Defense Development</i>				
Non-Kinetic Defense Development	2	2021	4	2026

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0208064F / <i>OPERATIONAL HQ - CYBER</i>											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	5.323	2.115	2.347	0.000	2.347	15.100	0.000	0.000	0.000	0.000	24.885
676002: <i>Cyber Systems Modernization</i>	-	5.323	2.115	2.347	0.000	2.347	15.100	0.000	0.000	0.000	0.000	24.885
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

C3MS capabilities will fully transition to Joint Cyber Command and Control (JCC2) in FY23. Funds displayed for FY24 are due to database error. No funds will be requested in FY24.

**A. Mission Description and Budget Item Justification**

Cyber Command and Control Mission System (C3MS) Mission Description: Provides the AFCYBER Commander with the tools necessary to effectively and efficiently plan, monitor, and execute missions in the cyber domain. This includes development and dissemination of Cyberspace Tasking Orders to ensure commander's intent is supported through the application of cyber forces using the latest intelligence. C3MS provides a common operational picture to maintain cyberspace threat activities and integrates cyberspace indications and warnings, analysis, and other actionable intelligence products into overall situational awareness, planning, and execution.

C3MS capabilities will fully transition to Joint Cyber Command and Control (JCC2). All efforts support continuous development with focus on interoperability and integration into JCC2. C3MS will continue modernization efforts based on a backlog of validated requirements to automate battle management capabilities and provide comprehensive cyber situational awareness. Developmental Activities include: machine-to-machine interfaces to dynamically interoperate with Air Operations Center (AOC) systems, enabling the 616 OC to conduct Command and Control (C2) and Situational Awareness (SA) at the operational level, publish AF Cyber Tasking Orders (CTOs), and quickly facilitate collaboration and mutual situational awareness; capabilities to present weapon system operators with near-real-time force location, mission, effect, and linked information, including a standardized, dynamic, map-based, situational awareness interface to display, manipulate, and manage units, missions, network elements, and effects; and multi-level security capabilities to support full-spectrum operations.

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 FY2021 \$0.000M was expended for civilian pay expenses in this program element, and in FY2022 \$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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0208064F I OPERATIONAL HQ - CYBER			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	5.527	2.115	0.000	0.000	0.000
Current President's Budget	5.323	2.115	2.347	0.000	2.347
Total Adjustments	-0.204	0.000	2.347	0.000	2.347
• Congressional General Reductions	-0.010	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	-0.194	0.000			
• Other Adjustments	0.000	0.000	2.347	0.000	2.347
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.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Cyber Command and Control Mission System (C3MS) Modernization	5.323	2.115	2.347	0.000	2.347
Description: Perform development activities to automate processes and ingest & visualize data in support of Air Force specific cyber command and control requirements. Funding includes agile/continuous software development, test, and evaluation.					
FY 2022 Plans:					
- Develop automated battle management processes to define and provide cyber situational awareness to improve Air Force cyber command and control.					
- Develop multi-level security capabilities.					
- Develop machine-to-machine interface to dynamically interoperate with Air Operations Center (AOC) systems.					
FY 2023 Base Plans:					
- Will continue development of automated battle management processes to define and provide cyber situational awareness to improve Air Force cyber command and control.					
- Will continue development of multi-level security capabilities.					
- Will continue development of machine-to-machine interface to dynamically interoperate with Air Operations Center (AOC) systems.					

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>			<b>R-1 Program Element (Number/Name)</b> PE 0208064F / <i>OPERATIONAL HQ - CYBER</i>		

  

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
- Will continue development for system interoperability and integration into JCC2					
<b><i>FY 2023 OCO Plans:</i></b> N/A					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding increased due to economic adjustments.					
<b>Accomplishments/Planned Programs Subtotals</b>	5.323	2.115	2.347	0.000	2.347

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b><u>Line Item</u></b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023 Base</u></b>	<b><u>FY 2023 OCO</u></b>	<b><u>FY 2023 Total</u></b>	<b><u>FY 2024</u></b>	<b><u>FY 2025</u></b>	<b><u>FY 2026</u></b>	<b><u>FY 2027</u></b>	<b><u>Cost To Complete</u></b>	<b><u>Total Cost</u></b>
• OPAF 03 834320: C3 Countermeasures	4.794	4.882	8.417	-	8.417	23.634	0.000	0.000	-	0.000	41.727

  

<b>Remarks</b> Beginning in FY21 associated OPAF realigned from COMSEC Equipment WSC to C3 Countermeasures WSC for clarity in reporting.
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<b>E. Acquisition Strategy</b> The Cyber Command and Control Mission System (C3MS) weapon system program office will lead development of new capabilities to provide automated battle management capabilities to plan, monitor, and execute missions in the cyber domain. The program office will develop solutions based on a backlog of validated requirements. To meet these requirements, the C3MS program office will utilize various contractual vehicles when necessary, such as Government-Wide Acquisition Contract, Solutions for Enterprise-Wide Procurement IV, and General Services Administration Federal Supply Schedules, Network-Centric Solutions, Responsive Cyber Indefinite Delivery/Indefinite Quantity (IDIQ), Blanket Ordering Agreements (BOA) and competitive contract (if required). The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that will be able to meet emerging requirements related to Air Force Cyber Command and Control.
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208064F / OPERATIONAL HQ - CYB ER					Project (Number/Name) 676002 / Cyber Systems Modernization				
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
C3MS Software Development	Various	Multiple : Various	-	5.185	Feb 2021	1.315	Feb 2022	2.294	Feb 2023	-		2.294	0.000	8.794	-
Subtotal			-	5.185		1.315		2.294		-		2.294	0.000	8.794	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
C3MS Software Test and Evaluation	Various	Multiple : Various	-	0.138	Jun 2021	0.800	Oct 2021	0.053	Oct 2022	-		0.053	0.000	0.991	-
Subtotal			-	0.138		0.800		0.053		-		0.053	0.000	0.991	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	5.323		2.115		2.347		-		2.347	0.000	9.785	N/A
Remarks C3MS capabilities will fully transition to Joint Cyber Command and Control (JCC2) in FY23. Funds displayed for FY24 are due to database error. No funds will be requested in FY24.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0208064F / OPERATIONAL HQ - CYB ER						Project (Number/Name) 676002 / Cyber Systems Modernization			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Automated Battle Management and Cyber SA																												
Architecture and Modeling Support																												
Software Development																												
Test and Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208064F / OPERATIONAL HQ - CYB ER	Project (Number/Name) 676002 / Cyber Systems Modernization

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Automated Battle Management and Cyber SA</b>				
Architecture and Modeling Support	1	2021	4	2021
Software Development	1	2021	1	2024
Test and Evaluation	1	2021	4	2023

- Note**
- 1. C3MS Architecture and Modeling Support continued under Software Development as the transition to Commercial Cloud Services (C2S) environment requirement was incorporated into C3MS Software Development contracts.
  - 2. C3MS capabilities will fully transition to Joint Cyber Command and Control (JCC2) in FY23. Funds displayed for FY24 are due to database error. No funds will be requested in FY24.
  - 3. FY23 C3MS development contract period of performance ends 1Q FY24.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0208087F / <i>Distributed Cyber Warfare Operations</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	65.402	72.487	76.592	0.000	76.592	37.199	24.378	26.850	27.445	0.000	330.353
674540: <i>Cyber Tech Products - Payloads</i>	-	41.474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	41.474
674541: <i>Cyber Tech Projects - Platforms</i>	-	8.378	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.378
674542: <i>Cyber Tech Projects - Access/Infrastructure</i>	-	15.550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.550
674543: <i>AF Offensive Cyber Operations</i>	-	0.000	72.487	76.592	0.000	76.592	37.199	24.378	26.850	27.445	0.000	264.951

**Note**

In FY23, in Budget Activity 7, Program Element 0208087F, Project 674543 contains \$37.346M associated with USCYBERCOM foundation tools. Funding for USCYBERCOM foundational tools has been realigned to USCYBERCOM in FY24 as part of Enhanced Budget Control in accordance with the FY21 NDAA, Section 1746. FY23 is the last FY for the Air Force to fund USCYBERCOM foundational tools out of 0208087F.

**A. Mission Description and Budget Item Justification**

Distributed Cyber Warfare Operations (DCWO) provides advanced offensive cyber warfare capabilities to the 16th Air Force in direct support of US Cyber Command (USCYBERCOM), AF Major Commands (MAJCOMs), unified commands, and national agency cyber warfighting requirements. DCWO efforts directly support the Joint Network Attack Initial Capabilities Document (ICD), the National Military Strategy for Cyberspace Operations (NMS-CO), Department of Defense Cyber Strategy, USCYBERCOM operational directives, MAJCOM directive and guidance documentation, and other formal requirements documents in the delivery of offensive cyber effects.

Activities within the DCWO deliver operations-ready cyberspace superiority capabilities through the research, development, testing, evaluation, accelerated prototyping, demonstration, and fielding of advanced offensive cyber technologies and capabilities. The ongoing development of peculiar support equipment, facilities, operations, fielding, maintenance, and logistical support of fielded systems permits the rapid adaptation of current cyber capabilities to capitalize on emerging opportunities and mitigate adversary actions. This portfolio of capabilities permits Combatant Commanders the ability to operate in and through cyberspace to manipulate, disrupt, deny, degrade, or destroy targeted computers, information systems, or networks, and actively gather information from computers, information systems, and networks.

DCWO effectiveness comes from balancing three modular and interoperable elements necessary for the successful presentation of offensive cyber capabilities: Platforms, Access/Infrastructure, and Payloads. When unified, these three elements combine to form a cyber mission thread capable of delivering cyber effects to Combatant Commanders, to include cyber operational preparation of the environment, offensive counter-cyber, cyber-attack, electronic warfare operations, mission

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0208087F I Distributed Cyber Warfare Operations				
planning, intelligence, cybersecurity products and services and Command and Control/Situational Awareness (C2SA) tools needed to attack enemy networks, telephony, Integrated Air Defense Systems (IADS), command and control systems, and create cyber effects through the Electromagnetic Spectrum (EMS).						
Efforts within DCWO may include the expedited development of innovative solutions for existing and emerging technologies required for the continued superiority within the cyber domain.						
This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Air Force Distributed Cyber Warfare Operations for emergent or unanticipated 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 0.000M was expended for civilian pay expenses in this program element, and in FY22 1.420M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		68.154	72.487	0.000	0.000	0.000
Current President's Budget		65.402	72.487	76.592	0.000	76.592
Total Adjustments		-2.752	0.000	76.592	0.000	76.592
• 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		-0.507	0.000			
• SBIR/STTR Transfer		-2.245	0.000			
• Other Adjustments		0.000	0.000	76.592	0.000	76.592
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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations				Project (Number/Name) 674540 / Cyber Tech Products - Payloads			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674540: Cyber Tech Products - Payloads	-	41.474	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	41.474
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note In FY2022, PE 0208087F, Distributed Cyber Warfare Operations, Project 674540, Cyber Tech Products - Payloads efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.												
A. Mission Description and Budget Item Justification Distributed Cyber Warfare Operations (DCWO) conducts Research, Development, Testing and Evaluation (RDT&E) leading to operations-ready cyberspace superiority capabilities including the transition of efforts from laboratory, industry, and academia via studies, accelerated prototyping, and technology demonstrations. DCWO consists of a portfolio of programs and projects providing the rapid acquisition of operational cyber capabilities. DCWO effectiveness comes from balancing funding among three capability thrust areas required for cyber warfare operations: Air Force Platforms, Access and Payloads. The DCWO portfolio provides capabilities by combining these three areas to provide cyber effects to Combatant Commanders. Cyber payload capabilities and foundational tools are required to deliver cyber effects through the DCWO platform and access.  The payloads capability develops and fields cyber tools and payloads leveraging industry and other Government/non-Government mission partnered applications and programs.  Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.  This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Air Force Distributed Cyber Warfare Operations for emergent or unanticipated 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 0.0M was expended for civilian pay expenses in this program element, and in FY22 0.0M is forecasted for civilian pay expenses in this program element.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
Title: Payloads									41.474	0.000	0.000	
Description: The payloads capability develops and fields cyber tools and payloads leveraging industry and other Government/non-Government mission partnered applications and programs.												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0208087F / <i>Distributed Cyber Warfare Operations</i>			<b>Project (Number/Name)</b> 674540 / <i>Cyber Tech Products - Payloads</i>				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>		
Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.  <b>FY 2022 Plans:</b> Refer to Project Number 674543. - FY21 was last year to use Project# 674540. Project# 674540 was consolidated to New Project# 674543 starting in FY22.  <b>FY 2023 Plans:</b> Refer to Project Number 674543. - FY21 was last year to use Project# 674540. Project# 674540 was consolidated to New Project# 674543 starting in FY22.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A											
<b>Accomplishments/Planned Programs Subtotals</b>							41.474	0.000	0.000		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 834320: <i>C3 Countermeasures</i>	18.782	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	18.782
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
The Distributed Cyber Warfare Operations program office will utilize Concept, Development, Risk Management, Production, or Deployment Plans as part of a streamlined approach to acquisition planning. All plans will contain sufficient information for the Milestone Decision Authority (MDA) to determine readiness to enter into the applicable phase of the acquisition process. Distributed Cyber Warfare Operations will utilize both new and existing contractual vehicles, such as Government-Wide Acquisition Contract (GWAC) vehicles (Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV)), and General Services Administration (GSA) Federal Supply Schedules and a Cyber Indefinite Delivery Indefinite Quantity (IDIQ) contract. The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that should be able to meet many requirements related to Offensive Cyberspace Operations. These multiple-award contractual vehicles have already met the statutory requirements of the Competition in Contracting Act (CICA), which requires a fair opportunity to all contract holders, in accordance with Federal Acquisition Regulation (FAR) 16.505, unless an exception to fair opportunity applies.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208087F / <i>Distributed Cyber Warfare Operations</i>						Project (Number/Name) 674540 / <i>Cyber Tech Products - Payloads</i>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
Payload Development	Various	Various : Various	-	4.613	Oct 2020	-		-		-		-	0.000	4.613	-		
CMF Foundational Tool Development	Various	Various : Various	-	24.532	Oct 2020	-		-		-		-	0.000	24.532	-		
CMF Interoperability Development	Various	Various : Various	-	3.800	Nov 2020	-		-		-		-	0.000	3.800	-		
CMF Automated Test Development	Various	Various : Various	-	3.700	Oct 2020	-		-		-		-	0.000	3.700	-		
Subtotal			-	36.645		-		-		-		-	0.000	36.645	N/A		
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
DCA - Payloads and Effects	Various	USAF : Hanscom AFB, MA	-	1.100	Oct 2020	-		-		-		-	0.000	1.100	-		
Subtotal			-	1.100		-		-		-		-	0.000	1.100	N/A		
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
Payload Test and Evaluation	PO	47 CTS : San Antonio, TX	-	0.154	Dec 2020	-		-		-		-	0.000	0.154	-		
CMF Foundational Tool Testing	MIPR	47 CTS : San Antonio, TX	-	0.600	Oct 2020	-		-		-		-	0.000	0.600	-		
Subtotal			-	0.754		-		-		-		-	0.000	0.754	N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208087F / <i>Distributed Cyber Warfare Operations</i>				Project (Number/Name) 674540 / <i>Cyber Tech Products - Payloads</i>					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSC - Engineering & Technical Assistance Support Services (Various)	C/FFP	Various : San Antonio, TX	-	1.118	Oct 2020	-		-		-		-	0.000	1.118	-
CMF Foundational Tool PSC (A&AS, FFRDC)	C/Various	Various : Various	-	1.857	Oct 2020	-		-		-		-	0.000	1.857	-
Subtotal			-	2.975		-		-		-		-	0.000	2.975	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	41.474		-		-		-		-	0.000	41.474	N/A
Remarks															
In FY20, PE 0305251F, Cyberspace Operations Force and Force Support, Project 646008, US Cyber Command Technology Development efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674540, Cyber Tech Projects - Payloads, to consolidate prototyping and development of cyber payload capabilities.															
In FY22, PE 0208087F, Distributed Cyber Warfare Operations, Project 674540, Cyber Tech Products - Payloads efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations										Project (Number/Name) 674540 / Cyber Tech Products - Payloads									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Neptune Rumble																												
CMF Foundational Tool Development																												
Interoperability Development																												
Automated Test																												
Saturn Crash																												
Tool Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations	Project (Number/Name) 674540 / Cyber Tech Products - Payloads	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Neptune Rumble</b>				
CMF Foundational Tool Development	1	2021	4	2021
Interoperability Development	1	2021	4	2021
Automated Test	1	2021	4	2021
<b>Saturn Crash</b>				
Tool Development	1	2021	4	2021

### Note

Neptune Rumble and Saturn Crash each develop payloads against a specific series of targets. These aspects are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.

In FY2022, PE 0208087F, Distributed Cyber Warfare Operations, Project 674540, Cyber Tech Products - Payloads efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations				Project (Number/Name) 674541 / Cyber Tech Projects - Platforms			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674541: Cyber Tech Projects - Platforms	-	8.378	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.378
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

In FY2022, PE 0208087F, Distributed Cyber Warfare Operations, Project 674541, Cyber Tech Projects - Platforms efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.

## A. Mission Description and Budget Item Justification

DCWO conducts Research, Development, Testing and Evaluation (RDT&E) leading to operations-ready cyberspace superiority capabilities including the transition of efforts from laboratory, industry, and academia via studies, accelerated prototyping, and technology demonstrations. DCWO consists of a portfolio of programs and projects providing the rapid acquisition of operational cyber capabilities. DCWO effectiveness comes from balancing funding among three capability thrust areas required for cyber warfare operations: Air Force Platforms, Access and Payloads. The DCWO portfolio provides capabilities by combining these three areas to provide cyber effects to Combatant Commanders. Cyber platforms serve as the primary operator interface in the DCWO portfolio and projects encompass hardware and software development.

The platform capability provides user interface and controls by leveraging industry and other Government/non-Government mission partners' applications and programs.

Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Air Force Distributed Cyber Warfare Operations for emergent or unanticipated 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 0.0M was expended for civilian pay expenses in this program element, and in FY22 0.0M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Platforms	8.378	0.000	0.000
<b>Description:</b> The Cyber Mission Platform (CMP) program is an ACAT III program of record that provides a modular, configurable framework for Cyber Operations. The CMP framework is currently being applied to offensive cyber operations and may also be applied to defensive cyber operations in the future as prioritized by CMP stakeholders. CMP uses an Agile acquisition strategy that allows the USAF to dynamically prioritize the delivery of operational capabilities. CMP develops capability enhancements on			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0208087F / <i>Distributed Cyber Warfare Operations</i>				<b>Project (Number/Name)</b> 674541 / <i>Cyber Tech Projects - Platforms</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	
<p>a regular cadence and delivers them to operations based on operational need and acceptance timelines. The platform project also includes platform integration development activities necessary to integrate CMP into DCWO mission threads.</p> <p>Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.</p> <p><b><i>FY 2022 Plans:</i></b> Refer to Project Number 674543. - FY21 was last year to use Project# 674541. Project# 674541 was consolidated to New Project# 674543 starting in FY22.</p> <p><b><i>FY 2023 Plans:</i></b> Refer to Project Number 674543. - FY21 was last year to use Project# 674541. Project# 674541 was consolidated to New Project# 674543 starting in FY22.</p> <p><b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> N/A</p>											
<b>Accomplishments/Planned Programs Subtotals</b>								8.378	0.000	0.000	
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 834320: C3 Countermeasures	18.782	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	18.782
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
<p>The Distributed Cyber Warfare Operations program office will utilize Concept, Development, Risk Management, Production, or Deployment Plans as part of a streamlined approach to acquisition planning. All plans will contain sufficient information for the Milestone Decision Authority (MDA) to determine readiness to enter into the applicable phase of the acquisition process. Distributed Cyber Warfare Operations will utilize both new and existing contractual vehicles, such as Government-Wide Acquisition Contract (GWAC) vehicles (Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV)), and General Services Administration (GSA) Federal Supply Schedules and a Cyber Indefinite Delivery Indefinite Quantity (IDIQ) contract. The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that should be able to meet many requirements related to Offensive Cyberspace Operations. These multiple-award contractual vehicles have already met the statutory requirements of the Competition in Contracting Act (CICA), which requires a fair opportunity to all contract holders, in accordance with Federal Acquisition Regulation (FAR) 16.505, unless an exception to fair opportunity applies.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations				Project (Number/Name) 674541 / Cyber Tech Projects - Platforms					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Platform Development	C/Various	Various : Various	-	4.303	Nov 2020	-		-		-		-	0.000	4.303	-
Subtotal			-	4.303		-		-		-		-	0.000	4.303	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Platform Test and Evaluation	PO	47 CTS : San Antonio, TX	-	0.150	Dec 2020	-		-		-		-	0.000	0.150	-
Subtotal			-	0.150		-		-		-		-	0.000	0.150	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSC - Advisory & Assistance Services (A&AS & FFRDC Support)	C/Various	Various : San Antonio, TX	-	3.925	Oct 2020	-		-		-		-	0.000	3.925	-
Subtotal			-	3.925		-		-		-		-	0.000	3.925	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	8.378		-		-		-		-	0.000	8.378	N/A
Remarks															
In FY2022, PE 0208087F, Distributed Cyber Warfare Operations, Project 674541, Cyber Tech Projects - Platforms efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations		Project (Number/Name) 674541 / Cyber Tech Projects - Platforms	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cyber Mission Platform (CMP)																												
CMP-H (Incrementally Delivered Each Quarter)																												
Build Infrastructure Tracking System (BITS)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208087F / <i>Distributed Cyber Warfare Operations</i>	<b>Project (Number/Name)</b> 674541 / <i>Cyber Tech Projects - Platforms</i>

**Schedule Details**

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
<b><i>Cyber Mission Platform (CMP)</i></b>				
CMP-H (Incrementally Delivered Each Quarter)	1	2021	4	2021
Build Infrastructure Tracking System (BITS)	1	2021	4	2021

**Note**

In FY2022, PE 0208087F, Distributed Cyber Warfare Operations, Project 674541, Cyber Tech Projects - Platforms efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations				Project (Number/Name) 674542 / Cyber Tech Projects - Access/Infrastructure			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674542: Cyber Tech Projects - Access/Infrastructure	-	15.550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.550
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note												
In FY2022, PE 0208087F, Distributed Cyber Warfare Operations, Project 674542, Cyber Tech Projects - Access/Infrastructure efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.												
A. Mission Description and Budget Item Justification												
Distributed Cyber Warfare Operations (DCWO) conducts Research, Development, Testing and Evaluation (RDT&E) leading to operations-ready cyberspace superiority capabilities including the transition of efforts from laboratory, industry, and academia via studies, accelerated prototyping, and technology demonstrations. DCWO consists of a portfolio of programs and projects providing the rapid acquisition of operational cyber capabilities. DCWO effectiveness comes from balancing funding among three capability thrust areas required for cyber warfare operations: Air Force Platforms, Access and Payloads. The DCWO portfolio provides capabilities by combining these three areas to provide cyber effects to Combatant Commanders. Cyber access capabilities enables a variety of DCWO missions and projects encompass hardware and software development.												
The Access capability provides connectivity and required infrastructure by leveraging industry and other Government/non-Government mission partners' applications and programs.												
Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.												
This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Air Force Distributed Cyber Warfare Operations for emergent or unanticipated 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 0.0M was expended for civilian pay expenses in this program element, and in FY22 0.0M is forecasted for civilian pay expenses in this program element.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
Title: Access									15.550	0.000	0.000	
Description: The Access capability provides connectivity and required infrastructure by leveraging industry and other Government/non-Government mission partners' applications and programs.												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0208087F / <i>Distributed Cyber Warfare Operations</i>				<b>Project (Number/Name)</b> 674542 / <i>Cyber Tech Projects - Access/Infrastructure</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	
<p>- Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.</p> <p><b><i>FY 2022 Plans:</i></b>  Refer to Project Number 674543.  - FY21 was last year to use Project# 674542. Project# 674542 was consolidated to New Project# 674543 starting in FY22.</p> <p><b><i>FY 2023 Plans:</i></b>  Refer to Project Number 674543.  - FY21 was last year to use Project# 674542. Project# 674542 was consolidated to New Project# 674543 starting in FY22.</p> <p><b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b>  N/A</p>											
<b>Accomplishments/Planned Programs Subtotals</b>								15.550	0.000	0.000	
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 834320: C3 Countermeasures	18.782	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	18.782
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
<p>The Distributed Cyber Warfare Operations program office will utilize Concept, Development, Risk Management, Production, or Deployment Plans as part of a streamlined approach to acquisition planning. All plans will contain sufficient information for the Milestone Decision Authority (MDA) to determine readiness to enter into the applicable phase of the acquisition process. Distributed Cyber Warfare Operations will utilize both new and existing contractual vehicles, such as Government-Wide Acquisition Contract (GWAC) vehicles (Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV)), and General Services Administration (GSA) Federal Supply Schedules and a Cyber Indefinite Delivery Indefinite Quantity (IDIQ) contract. The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that should be able to meet many requirements related to Offensive Cyberspace Operations. These multiple-award contractual vehicles have already met the statutory requirements of the Competition in Contracting Act (CICA), which requires a fair opportunity to all contract holders, in accordance with Federal Acquisition Regulation (FAR) 16.505, unless an exception to fair opportunity applies.</p>											

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0208087F / <i>Distributed Cyber Warfare Operations</i>						<b>Project (Number/Name)</b> 674542 / <i>Cyber Tech Projects - Access/Infrastructure</i>			
<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Access Development	Various	Various : Various	-	11.534	Nov 2020	-		-		-		-	0.000	11.534	-
<b>Subtotal</b>			-	11.534		-		-		-		-	0.000	11.534	N/A
<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
DCA - Access Development	TBD	USAF : Hanscom AFB, MA	-	1.600	Oct 2020	-		-		-		-	0.000	1.600	-
<b>Subtotal</b>			-	1.600		-		-		-		-	0.000	1.600	N/A
<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Access Test and Evaluation	PO	47 CTS : San Antonio, TX	-	0.255	Dec 2020	-		-		-		-	0.000	0.255	-
<b>Subtotal</b>			-	0.255		-		-		-		-	0.000	0.255	N/A
<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PSC - Acquisition Support (Various)	Various	Various : San Antonio, TX	-	2.161	Oct 2020	-		-		-		-	0.000	2.161	-
<b>Subtotal</b>			-	2.161		-		-		-		-	0.000	2.161	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	15.550		-		-		-		-	0.000	15.550	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0208087F / <i>Distributed Cyber Warfare Operations</i>		Project (Number/Name) 674542 / <i>Cyber Tech Projects - Access/Infrastructure</i>			
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Remarks</b> In FY2022, PE 0208087F, Distributed Cyber Warfare Operations, Project 674542, Cyber Tech Projects - Access/Infrastructure efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.									

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0208087F / Distributed Cyber Warfare Operations					674542 / Cyber Tech Projects - Access/Infrastructure			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Hydra - AF Unique Access																												
Development																												
Next-Gen Network Attack																												
Development																												
Coral Series - AF Infrastructure																												
Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations	Project (Number/Name) 674542 / Cyber Tech Projects - Access/Infrastructure	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Hydra - AF Unique Access</b>				
Development	1	2021	4	2021
<b>Next-Gen Network Attack</b>				
Development	1	2021	4	2021
<b>Coral Series - AF Infrastructure</b>				
Development	1	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations				Project (Number/Name) 674543 / AF Offensive Cyber Operations			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674543: AF Offensive Cyber Operations	-	0.000	72.487	76.592	0.000	76.592	37.199	24.378	26.850	27.445	0.000	264.951
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

In FY2022, PE 0208087F, Distributed Cyber Warfare Operations, Project 674540, Cyber Tech Products - Payloads; Project 674541, Cyber Tech Projects - Platforms; and Project 674542, Cyber Tech Projects - Access/Infrastructure efforts were all transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.

## A. Mission Description and Budget Item Justification

Distributed Cyber Warfare Operations (DCWO) conducts Research, Development, Testing and Evaluation (RDT&E) leading to operations-ready cyberspace superiority capabilities including the transition of efforts from laboratory, industry, and academia via studies, accelerated prototyping, and technology demonstrations. DCWO consists of a portfolio of programs and projects providing the rapid acquisition of operational cyber capabilities. DCWO effectiveness comes from balancing funding among three capability thrust areas required for cyber warfare operations: Air Force Platforms, Access and Payloads. The DCWO portfolio provides capabilities by combining these three areas to provide cyber effects to Combatant Commanders.

The platform capability provides user interface and controls, the access/infrastructure capability provides connectivity and the payloads capability develops and fields cyber tools and payloads all leveraging industry and other Government/non-Government mission partnered applications and programs.

Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Air Force Distributed Cyber Warfare Operations for emergent or unanticipated 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 0.000M was expended for civilian pay expenses in this program element, and in FY22 1.420M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> AF Cyber Mission Platform (CMP)	0.000	16.767	11.170
<b>Description:</b> The Cyber Mission Platform (CMP) program is an ACAT III program of record that provides a modular, configurable framework for Cyber Operations. The CMP framework is currently being applied to offensive cyber operations and may also be applied to defensive cyber operations in the future as prioritized by CMP stakeholders. CMP uses an Agile acquisition strategy that allows the USAF to dynamically prioritize the delivery of operational capabilities. CMP develops capability enhancements			

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations	Project (Number/Name) 674543 / AF Offensive Cyber Operations		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<p>on a regular cadence and delivers them to operations based on operational need and acceptance timelines. The program office is posturing to work R&amp;D efforts on core capabilities for one more year and then transition those capabilities to sustainment. The platform program office will conduct development activities to integrate a new architecture that supports particular DCWO mission threads that are needed by the Air Force. The new architecture to be integrated is coined CUBE (Converging Universal Battlespace Enabler).</p> <p>Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>- Continue enhancements to the CMP Platform to satisfy prioritized requirements from USAF Distributed Cyber Warfare Operations Mission Threads.</li><li>- Continue to execute a continuous delivery program structure.</li></ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"><li>- Will continue enhancements to the CMP Platform to satisfy prioritized requirements from USAF Distributed Cyber Warfare Operations Mission Threads.</li><li>- Will continue to execute a continuous delivery program structure.</li><li>- Will develop the Converging Universal Battlespace Enabler (CUBE) for specific USAF Distributed Cyber Warfare Operations.</li></ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <ul style="list-style-type: none"><li>- Funding decrease due to requirements transfer of the Joint Cyberspace Access Program to the Army.</li></ul>				
<p><b>Title:</b> Access/Infrastructure</p> <p><b>Description:</b> The Access capability provides connectivity and required infrastructure by leveraging industry and other Government/non-Government mission partners' applications and programs.</p> <p>- Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>- Continue to develop Air Force unique connectivity and required infrastructures across multiple spectrums leveraging industry and other Government/non-Government mission partner's applications and programs.</li></ul>		0.000	14.574	21.602

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208087F / <i>Distributed Cyber Warfare Operations</i>	<b>Project (Number/Name)</b> 674543 / <i>AF Offensive Cyber Operations</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<p>- Continue to develop and transition Offensive Cyber Operations (OCO) quick reaction capabilities for next-generation DCWO weapon system supporting requirements from DCWO Mission Threads.</p> <p><b>FY 2023 Plans:</b></p> <p>- Will continue to develop Air Force unique connectivity and required infrastructures across multiple spectrums leveraging industry and other Government/non-Government mission partner's applications and programs.</p> <p>- Will continue to develop and transition Offensive Cyber Operations (OCO) quick reaction capabilities for next-generation DCWO weapon system supporting requirements from DCWO Mission Threads.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>- Funding increase is due to additional data analytic tools requirements.</p>			
<p><b>Title:</b> Payloads</p> <p><b>Description:</b> The payloads capability develops and fields cyber tools and payloads leveraging industry and other Government/non-Government mission partnered applications and programs.</p> <p>This project includes 37.346M associated with USCYBERCOM foundation tools and will be funded by USCYBERCOM in FY24. FY23 is the last FY for the Air Force to fund USCYBERCOM foundational tools out of 0208087F.</p> <p>- Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.</p> <p><b>FY 2022 Plans:</b></p> <p>- Continue the development of cyber tools and exploits by leveraging industry and other government/non-Government mission partnered developed applications and programs.</p> <p>- Will continue to expand USCYBERCOM-funded efforts to produce prioritized family of foundational tools.</p> <p><b>FY 2023 Plans:</b></p> <p>- Will continue the development of cyber tools and exploits by leveraging industry and other government/non-Government mission partnered developed applications and programs.</p> <p>- Will continue to expand USCYBERCOM-funded efforts to produce prioritized family of foundational tools.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>- Funding increased due to inflationary adjustment.</p>		0.000	41.146
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	72.487

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208087F / <i>Distributed Cyber Warfare Operations</i>	<b>Project (Number/Name)</b> 674543 / <i>AF Offensive Cyber Operations</i>	

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 Line Item 834320: C3 Countermeasures	0.000	16.848	29.051	-	29.051	25.216	12.068	2.885	2.961	0.000	89.029

**Remarks**

In FY2022, PE 0208087F, Distributed Cyber Warfare Operations, Project 674540, Cyber Tech Products - Payloads; Project 674541, Cyber Tech Projects - Platforms; and Project 674542, Cyber Tech Projects - Access/Infrastructure efforts were all transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.

**D. Acquisition Strategy**

The Distributed Cyber Warfare Operations program office will utilize Concept, Development, Risk Management, Production, or Deployment Plans as part of a streamlined approach to acquisition planning. All plans will contain sufficient information for the Milestone Decision Authority (MDA) to determine readiness to enter into the applicable phase of the acquisition process. Distributed Cyber Warfare Operations will utilize both new and existing contractual vehicles, such as Government-Wide Acquisition Contract (GWAC) vehicles (Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV)), and General Services Administration (GSA) Federal Supply Schedules and a Cyber Indefinite Delivery Indefinite Quantity (IDIQ) contract. The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that should be able to meet many requirements related to Offensive Cyberspace Operations. These multiple-award contractual vehicles have already met the statutory requirements of the Competition in Contracting Act (CICA), which requires a fair opportunity to all contract holders, in accordance with Federal Acquisition Regulation (FAR) 16.505, unless an exception to fair opportunity applies.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208087F / <i>Distributed Cyber Warfare Operations</i>				Project (Number/Name) 674543 / <i>AF Offensive Cyber Operations</i>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Platform Development	Various	Various : Various	-	-		12.500	Nov 2021	7.640	Nov 2022	-		7.640	Continuing	Continuing	-
Access Development	Various	Various : Various	-	-		11.476	Nov 2021	18.025	Nov 2022	-		18.025	Continuing	Continuing	-
Payload Development	Various	Various : Various	-	-		34.329	Nov 2021	36.020	Nov 2022	-		36.020	Continuing	Continuing	-
Subtotal			-	-		58.305		61.685		-		61.685	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DCA - AF Offensive Cyber Operations Development	TBD	USAF : Hanscom AFB, MA	-	-		1.420	Oct 2021	2.400	Oct 2022	-		2.400	Continuing	Continuing	-
Subtotal			-	-		1.420		2.400		-		2.400	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	PO	47 CTS : San Antonio, TX	-	-		3.100	Dec 2021	2.827	Dec 2022	-		2.827	Continuing	Continuing	-
Subtotal			-	-		3.100		2.827		-		2.827	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSC - Acquisition Support (Various)	Various	Various : San Antonio, TX	-	-		9.662	Nov 2021	9.680	Nov 2022	-		9.680	Continuing	Continuing	-
Subtotal			-	-		9.662		9.680		-		9.680	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022						
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations					Project (Number/Name) 674543 / AF Offensive Cyber Operations							
					Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals					-	-		72.487		76.592		-		76.592	Continuing	Continuing	N/A

**Remarks**

In FY2022, PE 0208087F, Distributed Cyber Warfare Operations, Project 674540, Cyber Tech Products - Payloads, Project 674541, Cyber Tech Projects - Platforms, and Project 674542, Cyber Tech Projects - Access/Infrastructure efforts were transferred to PE 0208087F, Distributed Cyber Warfare Operations, Project 674543, AF Offensive Cyber Operations, to consolidate prototyping and development of offensive cyber operations capabilities.

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0208087F / <i>Distributed Cyber Warfare Operations</i>			<b>Project (Number/Name)</b> 674543 / <i>AF Offensive Cyber Operations</i>

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Cyber Mission Platform (CMP)</b>																												
CMP-H (Incrementally Delivered Each Quarter)																												
Build Infrastructure Tracking System (BITS)																												
<b>Access/Infrastructure</b>																												
Hydra - AF Unique Access																												
Next-Gen Network Attack																												
Data Analytics																												
<b>Payloads</b>																												
Payloads - Neptune Rumble																												
Payloads - Saturn Crash																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208087F / Distributed Cyber Warfare Operations	Project (Number/Name) 674543 / AF Offensive Cyber Operations	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Cyber Mission Platform (CMP)</b>				
CMP-H (Incrementally Delivered Each Quarter)	1	2022	4	2027
Build Infrastructure Tracking System (BITS)	1	2022	3	2022
<b>Access/Infrastructure</b>				
Hydra - AF Unique Access	1	2022	4	2027
Next-Gen Network Attack	1	2022	4	2027
Data Analytics	1	2022	4	2027
<b>Payloads</b>				
Payloads - Neptune Rumble	1	2022	4	2027
Payloads - Saturn Crash	1	2022	3	2022

### Note

Cyber Mission Platform (Delivers increments on a quarterly frequency)

#### Access/Infrastructures:

- Access projects are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.

#### Payloads

- Neptune Rumble and Saturn Crash each develop payloads against a specific series of targets.

- Payload projects are classified and will be provided on a need to know basis. For further information please contact AFLCMC/HNCO, 210-925-6614.

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0208088F / <i>AF Defensive Cyberspace Operations</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	29.255	18.449	8.367	0.000	8.367	7.305	7.444	7.603	7.786	Continuing	Continuing
677820: <i>Computer Security RDTE: Firestarter</i>	-	21.469	8.527	0.274	0.000	0.274	0.386	0.395	0.407	0.429	Continuing	Continuing
677821: <i>Cyberspace Vulnerability Assessment</i>	-	6.160	8.288	7.798	0.000	7.798	6.618	6.742	6.883	7.037	Continuing	Continuing
677822: <i>Cyber Defense Analysis</i>	-	0.279	0.281	0.295	0.000	0.295	0.301	0.307	0.313	0.320	Continuing	Continuing
677823: <i>AFCERT</i>	-	1.347	1.353	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

## Note

In FY23, the DAF realigned 240.9M from Program Element (PE) 0208088F AF Defensive Cyberspace Operations (AFDCO) to PE 0308605F AF Defensive Cyber Systems (AFDCS) in order to consolidate efforts under a single Budget Activity 8 (BA08) Software and Digital Technology Pilot Program. This consolidation helps accelerate integration and modernization required to address the evolving cyber threat. Prior to FY23, funding was contained in PE 0208088F Projects 677821; 677822; 677823; Operations & Maintenance (O&M) AG/SAGs 12D/11V, and Other Procurement Line Item 834320.

PE 0208088F Project 677820 Computer Security RDTE: Firestarter will continue to remain in PE 0208088F Project 677820 Computer Security RDTE: Firestarter.

FY23 to FY27 Project 677820 Firestarter funding incorrect due to a database error. Project 677820 Firestarter funding should equal FY23:8.367M; FY24: \$7.305M; FY25: \$7.444M; FY26: \$7.603M; FY27: \$7.786M;

Projects 677821, 677822, and 677823 should equal \$0.0M; no funding requested for these projects in FY23.

## A. Mission Description and Budget Item Justification

AF Defensive Cyberspace Operations (AF DCO) consists of Air Force Defensive Cyber Systems (AFDCS) and Firestarter to provide defensive cyber capabilities that protect the AFNET and DoD network enclaves, to include their associated computer systems, software applications and sensitive operational information against unauthorized intrusion, corruption, and/or destruction. The emphasis of the program is directed toward defensive cyberspace capabilities, computer and network systems security, damage assessment and recovery, cyber threat recognition, attribution, and mitigation, and active response methodologies in response to evolving threats and changes to cyber environment. These areas of emphasis are realized through research and development, test and acquisition in the areas of proactive defense, defensive counter cyberspace, cyberspace intelligence, surveillance and reconnaissance, command and control situational awareness, persistent network operations, as well as decision support, recovery, and digital forensics.

Firestarter utilizes cyber and Information Assurance (IA) technology investments by US Cyber Command, the Defense Advanced Research Projects Agency (DARPA), the National Security Agency (NSA), Director of National Intelligence (DNI), Intelligence Advanced Research Projects Activity (IARPA), the Department of Homeland

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022		
<table><tr><td>Appropriation/Budget Activity 3600: Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</td><td>R-1 Program Element (Number/Name) PE 0208088F I AF Defensive Cyberspace Operations</td></tr></table>			Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0208088F I AF Defensive Cyberspace Operations
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0208088F I AF Defensive Cyberspace Operations			
<p>Security (DHS), and various government research laboratories, to jump-start its development of solutions to existing Air Force cyber and IA requirements. This program supports AF Cyberspace strategic direction in support of Cyber Defense which provides capabilities to 16th AF, as AF component to US Cyber Command (USCYBERCOM), Defense Information Systems Agency (DISA), National Security Agency (NSA), and other services to ensure Global Information Grid (GIG) cyber and IA requirements are being met. Activities performed include those designed to identify, analyze, test, rapidly acquire, and integrate emerging IA and cyber technology and defensive cyberspace weapons systems and capabilities into all regions of the GIG - terrestrial, airborne, and space systems. In addition, this effort will support implementation of DoD Enterprise-wide IA &amp; Computer Network Defense (CND) Solutions Steering Group (ESSG) solutions. Current Air Force systems, such as the AFNET NIPRNet Gateways, SIPRNet Modernization program, and Host Based Security System leverage this technology to meet their information assurance and defensive cyberspace needs/requirements.</p> <p>In FY23, the DAF realigned \$240.9M from Program Element (PE) 0208088F AF Defensive Cyberspace Operations (AFDCO) to PE 0308605F AF Defensive Cyber Systems (AFDCS) in order to consolidate efforts under a single Budget Activity 8 (BA08) Software and Digital Technology Pilot Program. This consolidation helps accelerate integration and modernization required to address the evolving cyber threat. Prior to FY23, funding was contained in PE 0208088F Projects 677821; 677822; 677823; Operations &amp; Maintenance (O&amp;M) AG/SAGs 12D/11V, and Other Procurement Line Item 834320. The FY18 NDAA Sections 873/874 directed OSD to streamline software development. The Air Force Defensive Cyber Systems (AFDCS) effort is an OSD pilot initiative in which all lifecycle funding will be tracked under BA08, Software and Digital Technology Pilot Programs. Pilot programs will allow the DAF to execute modern software development practices encompassing development, procurement, modification and maintenance activities within a single appropriation.</p> <p>Air Force Defensive Cyber Systems (AFDCS) sustains, enhances, and integrates three defensive cyber weapon systems: Cyberspace Vulnerability Assessment/Hunter (CVA/H); Cyber Defense Analysis (CDA); and AFCERT (ACD). AFDCS provides and equips USAF operational units, predominantly Cyber Protection Teams, Mission Defense Teams, and network defenders with the capabilities required to protect USAF networks and systems. End users comprise over 2,000 operators across the country from across the Total Force - Active Duty (AD), Air National Guard (ANG), and Air Force Reserve Command(AFRC). AFDCS coordinates and executes resources needed to assess, analyze, and respond to Air Force network security incidents, intrusive activity, malicious logic (i.e., viruses) and vulnerabilities. AFDCS provides continuous monitoring and defense of Cybersecurity Service Provider (CSSP) assigned to the Department of Defense (DoD), AF classified, and unclassified computer networks. AFDCS conducts defensive cyberspace operations by monitoring, collecting, analyzing, and reporting on sensitive information released from friendly unclassified systems, such as computer networks, telephones, email, and USAF websites. AFDCS conducts vulnerability assessments, network intrusion analysis, systems vulnerability analysis, and protects against the advanced persistent threat through fielded Hunter teams. Hunter teams provide worldwide defensive cyberspace operations on AF classified and unclassified networks.</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, 0605832F, 0605833F, 0605898F, 0606398F. In PY \$0.103M was expended for civilian pay expenses in this program element and in CY \$0.228M 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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0208088F I AF Defensive Cyberspace Operations			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	30.108	18.449	0.000	0.000	0.000
Current President's Budget	29.255	18.449	8.367	0.000	8.367
Total Adjustments	-0.853	0.000	8.367	0.000	8.367
• 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	-0.853	0.000			
• Other Adjustments	0.000	0.000	8.367	0.000	8.367
<b>Congressional Add Details (\$ in Millions, and Includes General Reductions)</b>					
Project: 677820: Computer Security RDTE: Firestarter Congressional Add: Critical Infrastructure Cyber Security				FY 2021	FY 2022
				15.000	0.000
				15.000	0.000
Congressional Add Subtotals for Project: 677820				15.000	0.000
Congressional Add Totals for all Projects				15.000	0.000
<b>Change Summary Explanation</b>					
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.					
FY23, PE 0208088F, BPAC 677821, BPAC 677822, BPAC 677823, Transfer to PE 0308605F Air Force Defensive Cyber Systems (AFDCS), Project Number 682001, AFDCS Continuous Capability Development, to participate in the DoD's Software & Digital Technology Pilot Program.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations				Project (Number/Name) 677820 / Computer Security RDTE: Firestarter			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
677820: Computer Security RDTE: Firestarter	-	21.469	8.527	0.274	0.000	0.274	0.386	0.395	0.407	0.429	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

FY23 to FY27 Project 677820 Firestarter funding incorrect due to a database error. Project 677820 Firestarter funding should equal FY23:\$8.367M; FY24:\$7.305M; FY25:\$7.444M; FY26:\$7.603M; FY27:\$7.786M;

**A. Mission Description and Budget Item Justification**

The Firestarter program provides newly improved capabilities and technical transition opportunities for Cyber Defense and Information Assurance (IA) technologies and tools needed to defend Air Force Command, Control, Communications, Computer, and Intelligence (C4I) systems from cyber attacks, while ensuring recovery in the event of an attack. The emphasis of the program is directed toward defensive cyberspace capabilities; computer and network systems security; damage assessment and recovery; cyber threat recognition, attribution, and mitigation; and active response methodologies in response to evolving threats and changes to cyber environment. These areas of emphasis are realized through research and development, test and acquisition in the areas of proactive defense, defensive counter cyberspace, cyberspace intelligence, surveillance and reconnaissance & situational awareness, persistent network operations, as well as decision support, recovery, and digital forensics. Current Air Force systems, such as the AFNET NIPRNet Gateways, SIPRNet Modernization program, and Host Based Security System leverage this technology to meet their information assurance and defensive cyberspace needs/requirements.

Firestarter utilizes cyber and IA technology investments by US Cyber Command, the Defense Advanced Research Projects Agency (DARPA), the National Security Agency (NSA), Director of National Intelligence (DNI), Intelligence Advanced Research Projects Activity (IARPA), and the Department of Homeland Security (DHS), and various government research laboratories, to jump-start its development of solutions to existing Air Force cyber and IA requirements. This program supports AF Cyberspace strategic direction in support of Cyber Defense which provides capabilities to 16th AF, as AF component to US Cyber Command (USCYBERCOM), Defense Information Systems Agency (DISA), National Security Agency (NSA), and other services to ensure Global Information Grid (GIG) cyber and IA requirements are being met. Activities performed include those designed to identify, analyze, test, rapidly acquire, and integrate emerging IA and cyber technology and defensive cyberspace weapons systems and capabilities into all regions of the GIG - terrestrial, airborne, and space systems. In addition, this effort will support implementation of DoD Enterprise-wide Information Assurance (IA) & Computer Network Defense (CND) Solutions Steering Group (ESSG) solutions.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Cyber Forensic Tools & Methodologies	1.400	0.000	0.000	0.000	0.000
<b>Description:</b> Cyber forensic tools & methodologies. Includes initial metrics for reliable info assurance; secure coalition cyber data management, collaboration and visualization; analysis of cyber security bots					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations		Project (Number/Name) 677820 / Computer Security RDTE: Firestarter		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY 2022 Plans: N/A						
FY 2023 Base Plans: N/A						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: N/A - Activities were consolidated into Transition of Cyber Information Assurance Technologies in FY 2022 to more accurately represent program efforts.						
Title: Cyber Threat Recognition		1.599	0.000	0.000	0.000	0.000
Description: Enhancing cyber platform technology to identify zero-day threats in real time.						
FY 2022 Plans: N/A						
FY 2023 Base Plans: N/A						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: N/A - Activities were consolidated into Transition of Cyber Information Assurance Technologies in FY 2022 to more accurately represent program efforts.						
Title: Cyber Threat Attribution & Mitigation		0.815	0.000	0.000	0.000	0.000
Description: Includes risk mitigation techniques for wireless networks and systems; active response, dynamic policy enforcement and computer/net attack attribution efforts.						
FY 2022 Plans: N/A						
FY 2023 Base Plans:						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022					
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations		Project (Number/Name) 677820 / Computer Security RDTE: Firestarter				
B. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A								
FY 2023 OCO Plans: N/A								
FY 2022 to FY 2023 Increase/Decrease Statement: N/A - Activities were consolidated into Transition of Cyber Information Assurance Technologies in FY 2022 to more accurately represent program efforts.								
Title: Transition of Cyber and Information Assurance Technologies				2.655	8.527	0.274	0.000	0.274
Description: Transition of advanced cyber defense technologies that support AF Defensive Cyber Operations architecture. Includes space systems cyber solutions; terrestrial net defense technology development; airborne IP network cyber and IA tools; IA/cyber modeling & simulation; secure interoperable distributed agent computing, and others that relate to defending the AF networks.								
FY 2022 Plans: - Continue enhancing and transitioning customer funded cyber and IA technology to operational USAF components in accordance with rapid requirements documentation								
FY 2023 Base Plans: - Will continue enhancing and transitioning customer funded cyber and IA technology to operational USAF components in accordance with rapid requirements documentation								
FY 2023 OCO Plans: N/A								
FY 2022 to FY 2023 Increase/Decrease Statement: FY23 to FY27 Project 677820 Firestarter funding incorrect due to a database error. Project 677820 Firestarter funding should equal FY23:\$8.367M;								
Accomplishments/Planned Programs Subtotals				6.469	8.527	0.274	0.000	0.274
				FY 2021	FY 2022			
Congressional Add: Critical Infrastructure Cyber Security				15.000	0.000			
FY 2021 Accomplishments: - Crafted and executed Critical Infrastructure Cyber Security research and development plan								

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208088F / AF Defensive Cyberspace Operations	<b>Project (Number/Name)</b> 677820 / Computer Security RDTE: Firestarter	
		<b>FY 2021</b>	<b>FY 2022</b>
- Performed research; developed test plans, exercises, and security configurations; conducted assessments; and completed technical reports on a variety of Air Force critical infrastructure and interfaces  <b>FY 2022 Plans:</b> N/A			
<b>Congressional Adds Subtotals</b>		15.000	0.000

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

**Remarks**  
Beginning in FY22, all planned programs realigned to Transition of Cyber and Information Assurance Technologies in order to more accurately represent planned activities.

**D. Acquisition Strategy**  
Firestarter conducts late stage Science and Technology (S&T) for tech demo and tech transition to warfighter employment. All contracts within this project are awarded using full and open competition and utilize evolutionary capability and incremental development. Where appropriate, collaborative efforts are conducted with services and agencies within the USAF to result in more robust and cost effective solutions. Contracting activities are primarily done through other agencies when deemed more advantageous. All aspects of the Firestarter project are managed by the Air Force Research Laboratory.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations				Project (Number/Name) 677820 / Computer Security RDTE: Firestarter					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Firestarter Development	C/CPFF	Various : Various	-	18.370	Jan 2021	4.511	Jan 2022	0.152	Jan 2023	-		0.152	Continuing	Continuing	-
Firestarter Integration	C/CPFF	Various : Various	-	1.499	Jan 2021	1.929	Jan 2022	0.062	Jan 2023	-		0.062	Continuing	Continuing	-
Subtotal			-	19.869		6.440		0.214		-		0.214	Continuing	Continuing	N/A
Remarks															
Multiple contractors and multiple universities reflect on-going efforts with over a dozen contractors and universities. Each has a different contract date depending on when that particular contract was awarded.															
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Firestarter Testing	C/CPFF	Various : Various	-	1.375	Jan 2021	1.862	Jan 2022	0.060	Jan 2023	-		0.060	Continuing	Continuing	-
Subtotal			-	1.375		1.862		0.060		-		0.060	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Firestarter PMA	C/CPAF	Various : Various	-	0.225	Jan 2021	0.225	Jan 2022	-		-		-	0.000	0.450	-
Subtotal			-	0.225		0.225		-		-		-	0.000	0.450	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	21.469		8.527		0.274		-		0.274	Continuing	Continuing	N/A
Remarks															
FY23 funding incorrect due to database error. Firestarter Development should equal \$4.65M; Firestarter Integration should equal \$1.89M; and Firestarter Testing should equal \$1.83M; Project total for FY23 should equal \$8.367M.															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0208088F / AF Defensive Cyberspace Operations		<b>Project (Number/Name)</b> 677820 / Computer Security RDTE: Firestarter	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Firestarter</b>																												
Cyber Forensic Tools & Methodologies																												
Cyber Threat Recognition																												
Cyber Threat Attribution & Mitigation																												
Transition of Cyber/IA Technologies																												
Critical Infrastructure Cyber Security																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677820 / Computer Security RDTE: Firestarter	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Firestarter</i>				
Cyber Forensic Tools & Methodologies	1	2021	4	2021
Cyber Threat Recognition	1	2021	4	2021
Cyber Threat Attribution & Mitigation	1	2021	4	2021
Transition of Cyber/IA Technologies	1	2021	4	2027
Critical Infrastructure Cyber Security	1	2021	4	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations				Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
677821: Cyberspace Vulnerability Assessment	-	6.160	8.288	7.798	0.000	7.798	6.618	6.742	6.883	7.037	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

FY23 to FY27 Project 677821 Cyberspace Vulnerability Assessment funding incorrect due to database system error.

Project 677821 Cyberspace Vulnerability Assessment should equal \$0.0M as budget controls have been realigned from Air Force Program Element (PE) 0208088F Projects 677821, 677822, 677823, Operations & Maintenance (O&M) AG/SAG 11V/12D, and Other Procurement Line Item 834320 and consolidated into Budget Activity 8 in PE 0308605F, Project 682001, Air Force Defensive Cyber Systems (AFDCS) in order to participate in the DoD's Software & Digital Technology Pilot Program.

**A. Mission Description and Budget Item Justification**

In FY23, the DAF realigned \$240.9M from Program Element (PE) 0208088F AF Defensive Cyberspace Operations (AFDCO) to PE 0308605F AF Defensive Cyber Systems (AFDCS) in order to consolidate efforts under a single Budget Activity 8 (BA08) Software and Digital Technology Pilot Program. This consolidation helps accelerate integration and modernization required to address the evolving cyber threat. Prior to FY23, funding was contained in PE 0208088F Projects 677821; 677822; 677823; Operations & Maintenance (O&M) AG/SAGs 12D/11V, and Other Procurement Line Item 834320.

This requirement supports the Cyberspace Vulnerability Assessment/Hunter Team (CVA/H) weapon system development of new capabilities to provide Air Force Cyber Command (AFCYBER) and Combatant Commanders additional mobile precision in addition to currently fielded protection capabilities to identify, pursue, and mitigate cyberspace threats. The CVA/H weapon system performs defensive sorties world-wide via remote or on-site access. CVA/H executes Hunter missions on AF and DoD networks & systems. Hunter operations characterize and then eliminate threats for the purpose of mission assurance. The Hunter mission focuses on the capability to find, fix, track, target, engage, and assess (F2T2EA) the advanced persistent threat (APT). This effort funds development efforts to enhance command and control situational awareness and to expand the capability of the current weapon system to meet scope and scale of the USCYBERCOM directed Cyber Protection Teams and AF Mission Defense Teams.

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 \$0.103M was expended for civilian pay expenses in this program element, and in CY \$0.228M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Cyber Threat Mitigation	0.400	0.718	0.826	0.000	0.826

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations		Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Description:</b> Cyber Threat Mitigation includes vulnerability, compliance, defense and non-technical assessments, best practice reviews, penetration testing and supports Cyberspace Vulnerability Assessment/Hunter (CVA/H) missions in support of Air Force Cyber Command and Combatant Commanders.</p> <p><b>FY 2022 Plans:</b> - Continue development and integration of technologies to conduct vulnerability assessments, network intrusion analysis and systems vulnerability analysis</p> <p><b>FY 2023 Base Plans:</b> See PE 0308605F, Air Force Defensive Cyber Systems (AFDCS), Project Number 682001, AFDCS Continuous Capability Delivery.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Database error. FY23 funds should equal \$0.0M. Funds realigned to Budget Activity 8 in PE 0308605F, Project 682001, Air Force Defensive Cyber Systems (AFDCS) in order to participate in the DoD's Software &amp; Digital Technology Pilot Program.</p>						
<p><b>Title:</b> Defensive Next Generation Development</p> <p><b>Description:</b> Development and integration of solutions supporting defensive cyber modernization and AF Cyber Needs Forms in the area of DCO capabilities and technologies to meet capability gaps required by Cyber Protection Teams and Mission Defense Teams.</p> <p><b>FY 2022 Plans:</b> - Continue development and integration to support modernization of DCO capabilities and technologies to support Cyber Protection Teams and Mission Defense Teams</p> <p><b>FY 2023 Base Plans:</b> See PE 0308605F, Air Force Defensive Cyber Systems (AFDCS), Project Number 682001, AFDCS Continuous Capability Delivery.</p> <p><b>FY 2023 OCO Plans:</b></p>		5.188	6.570	6.572	0.000	6.572

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force							Date: April 2022				
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations				Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment				
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A											
FY 2022 to FY 2023 Increase/Decrease Statement: Database error. FY23 funds should equal \$0.0M. Funds realigned to Budget Activity 8 in PE 0308605F, Project 682001, Air Force Defensive Cyber Systems (AFDCS) in order to participate in the DoD's Software & Digital Technology Pilot Program.											
Title: Test & Evaluation							0.572	1.000	0.400	0.000	0.400
Description: Test and Evaluation											
Description: Test and Evaluation provides both developmental testing of new capabilities and the test environments for validating the capabilities.											
FY 2022 Plans: - Continue development testing for DCO capability products and technologies prior to fielding											
FY 2023 Base Plans: See PE 0308605F, Air Force Defensive Cyber Systems (AFDCS), Project Number 682001, AFDCS Continuous Capability Delivery.											
FY 2023 OCO Plans: N/A											
FY 2022 to FY 2023 Increase/Decrease Statement: Database error. FY23 funds should equal \$0.0M. Funds realigned to Budget Activity 8 in PE 0308605F, Project 682001, Air Force Defensive Cyber Systems (AFDCS) in order to participate in the DoD's Software & Digital Technology Pilot Program.											
Accomplishments/Planned Programs Subtotals							6.160	8.288	7.798	0.000	7.798
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 834320: C3 Countermeasures	22.616	27.770	-	-	-	-	-	-	-	Continuing	Continuing

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208088F / AF Defensive Cyberspace Operations	<b>Project (Number/Name)</b> 677821 / Cyberspace Vulnerability Assessment	

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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**Remarks**

In FY23, the DAF realigned \$240.9M from Program Element (PE) 0208088F AF Defensive Cyberspace Operations (AFDCO) to PE 0308605F AF Defensive Cyber Systems (AFDCS) in order to consolidate efforts under a single Budget Activity 8 (BA08) Software and Digital Technology Pilot Program. This consolidation helps accelerate integration and modernization required to address the evolving cyber threat. Prior to FY23, funding was contained in PE 0208088F Projects 677821; 677822; 677823; Operations & Maintenance (O&M) AG/SAGs 12D/11V, and Other Procurement Line Item 834320.

**D. Acquisition Strategy**

The Cyberspace Vulnerability Assessment Hunter (CVA/H) program office will utilize Concept, Development, Risk Management, or Production and Deployment Plans as part of a phased approach to acquisition planning. All plans will contain sufficient information for the Milestone Decision Authority (MDA) to determine readiness to enter into the applicable phase of the acquisition process. CVA/H Program office will utilize both new and existing contractual vehicles, in addition to existing Government-Wide Acquisition Contract (GWAC) vehicles such as Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV), and General Services Administration (GSA) Federal Supply Schedules, Network-Centric Solutions (NETCENTs).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations				Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Cyber Threat Mitigation - Threat Intelligence	C/CPFF	Various : Various	-	0.400	Jan 2021	0.680	Jan 2022	0.826	Jan 2023	-		0.826	Continuing	Continuing	-
Defensive Next Gen - Data & Analysis	C/CPFF	Various : Various	-	0.613	Mar 2021	0.800	Mar 2022	0.882	Mar 2023	-		0.882	Continuing	Continuing	-
Defensive Next Gen - Sensor Optimization	C/FFP	Various : Various	-	1.005	May 2021	1.100	May 2022	1.300	May 2023	-		1.300	Continuing	Continuing	-
Defensive Next Gen - Training Simulator	C/FFP	Various : Various	-	0.570	Apr 2021	1.440	Apr 2022	0.000	Apr 2023	-		0.000	Continuing	Continuing	-
Defensive Next Gen - Data Collection and Correlation	C/FFP	Various : Various	-	0.542	Mar 2021	0.648	Mar 2022	0.710	Mar 2023	-		0.710	Continuing	Continuing	-
Defensive Next Gen - Intrusion Prevention Capabilities	C/FFP	Various : Various	-	0.656	Aug 2021	0.700	Aug 2022	0.820	Aug 2023	-		0.820	Continuing	Continuing	-
Subtotal			-	3.786		5.368		4.538		-		4.538	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Authority Civilian Pay	TBD	USAF : Hanscom AFB, MA	-	0.103	Oct 2020	0.228	Oct 2021	-		-		-	Continuing	Continuing	-
Subtotal			-	0.103		0.228		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test Support	MIPR	46 Test Squadron : Eglin, FL	-	0.572	Oct 2020	1.000	Oct 2021	0.400	Oct 2022	-		0.400	Continuing	Continuing	-
Subtotal			-	0.572		1.000		0.400		-		0.400	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations				Project (Number/Name) 677821 / Cyberspace Vulnerability Assessment					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PMA - Engineering & Technical Assistance Support Services (ETASS & FFRDC)	Various	AFLCMC/PZ : Bedford, MA	-	1.699	Jan 2021	1.692	Jan 2022	2.860	Jan 2023	-		2.860	Continuing	Continuing	-
Subtotal			-	1.699		1.692		2.860		-		2.860	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	6.160		8.288		7.798		-		7.798	Continuing	Continuing	N/A
Remarks															
FY23 funding incorrect due to database error. Correct funding should equal \$0.0M; no funding requested for these projects in FY23.															
In FY23, the DAF realigned \$240.9M from Program Element (PE) 0208088F AF Defensive Cyberspace Operations (AFDCO) to PE 0308605F AF Defensive Cyber Systems (AFDCS) in order to consolidate efforts under a single Budget Activity 8 (BA08) Software and Digital Technology Pilot Program. This consolidation helps accelerate integration and modernization required to address the evolving cyber threat. Prior to FY23, funding was contained in PE 0208088F Projects 677821; 677822; 677823; Operations & Maintenance (O&M) AG/SAGs 12D/11V, and Other Procurement Line Item 834320.															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0208088F / AF Defensive Cyberspace Operations			<b>Project (Number/Name)</b> 677821 / Cyberspace Vulnerability Assessment

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Cyber Vulnerability Assessment</b>																												
Test and Evaluation																												
Cyber Threat Mitigation																												
Defensive Next Generation Development (Data & Analysis)																												
Defensive Next Generation (Data Collection and Correlation)																												
Defensive Next Generation Sensor Optimization																												
Defensive Next Generation (Training Simulator)																												
Defensive Next Generation (Cloudshield Capabilities)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208088F / <i>AF Defensive Cyberspace Operations</i>	<b>Project (Number/Name)</b> 677821 / <i>Cyberspace Vulnerability Assessment</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Cyber Vulnerability Assessment</i></b>				
Test and Evaluation	1	2021	4	2022
Cyber Threat Mitigation	1	2021	4	2022
Defensive Next Generation Development (Data & Analysis)	1	2021	4	2022
Defensive Next Generation (Data Collection and Correlation)	1	2021	4	2022
Defensive Next Generation Sensor Optimization	1	2021	4	2022
Defensive Next Generation (Training Simulator)	1	2021	4	2022
Defensive Next Generation (Cloudshield Capabilities)	1	2021	4	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations				Project (Number/Name) 677822 / Cyber Defense Analysis			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
677822: Cyber Defense Analysis	-	0.279	0.281	0.295	0.000	0.295	0.301	0.307	0.313	0.320	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note												
FY23 to FY27 Project 677822 Cyber Defense Analysis funding incorrect due to database system error. FY23 to FY27 funding should be \$0.0M.												
Project 677822 Cyber Defense Analysis should equal \$0.0M as budget controls have been realigned from Air Force Program Element (PE) 0208088F Projects 677821, 677822, 677823, Operations & Maintenance (O&M) AG/SAG 11V/12D, and Other Procurement Line Item 834320 and consolidated into Budget Activity 8 in PE 0308605F, Project 682001, Air Force Defensive Cyber Systems (AFDCS) in order to participate in the DoD's Software & Digital Technology Pilot Program.												
A. Mission Description and Budget Item Justification												
In FY23, the DAF realigned \$240.9M from Program Element (PE) 0208088F AF Defensive Cyberspace Operations (AFDCO) to PE 0308605F AF Defensive Cyber Systems (AFDCS) in order to consolidate efforts under a single Budget Activity 8 (BA08) Software and Digital Technology Pilot Program. This consolidation helps accelerate integration and modernization required to address the evolving cyber threat. Prior to FY23, funding was contained in PE 0208088F Projects 677821; 677822; 677823; Operations & Maintenance (O&M) AG/SAGs 12D/11V, and Other Procurement Line Item 834320.												
Cyberspace Defense Analysis (CDA): The CDA weapon system conducts Defensive Cyberspace Operations (DCO) during peace time and contingency operations and network defense by monitoring, collecting, analyzing, and reporting sensitive information transiting or residing on the AFNet. CDA assessments of non-secure telecommunications determine type and amount of sensitive and/or classified information that may have been disclosed to our adversaries and encompasses several mission subsets, including: Telephony Communications, Radio Frequency (RF) Communications, Email Communications, Internet based Capabilities (IbC), and Cyber Operations Risk Assessment (CORA). The CDA weapon system protects the AF's critical information such as PII, OPSEC, and other sensitive information through passive monitoring and active Data Loss Protection (DLP). CDA shows its true capability in the force protection realm, OPSEC, DLP, etc. and helps ensure our adversaries are not provided early warning of our plans, capabilities, or limitations.												
Without proper funding the CDA Operators will not be able to determine potential impacts and operational adjustments resulting from information disclosures or identify compromised information from network intrusions. There will be a decreased assurance of network defense and an increase in the amount of lost PII, OPSEC, and other sensitive information. Continuing funding is essential in developing new capabilities to combat the rapidly evolving cyber threats.												
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 \$0.000M was expended for civilian pay expenses in this program element, and in CY \$0.000M is forecasted for civilian pay expenses in this program element.												

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force						Date: April 2022				
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations			Project (Number/Name) 677822 / Cyber Defense Analysis				
B. Accomplishments/Planned Programs (\$ in Millions)						FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Title:</b> Cyber Defense Analysis</p> <p><b>Description:</b> Engineering support to conduct Cyberspace Defense Analysis (CDA) assessment of non-secure telecommunications during peace time and contingency operations.</p> <p><b>FY 2022 Plans:</b> - Continue support of development of data loss prevention technologies and support to insider threat detection capabilities. Support technology areas that prevent adversaries' attempts to get into our networks.</p> <p><b>FY 2023 Base Plans:</b> See PE 0308605F, Air Force Defensive Cyber Systems (AFDCS), Project Number 682001, AFDCS Continuous Capability Delivery.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Database error. FY23 funds should equal \$0.0M. Funds realigned to Budget Activity 8 in PE 0308605F, Project 682001, Air Force Defensive Cyber Systems (AFDCS) in order to participate in the DoD's Software &amp; Digital Technology Pilot Program.</p>						0.279	0.281	0.295	0.000	0.295
Accomplishments/Planned Programs Subtotals						0.279	0.281	0.295	0.000	0.295
C. Other Program Funding Summary (\$ in Millions)										
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete Total Cost
• OPAF 03 834320: C3 Countermeasures	1.699	10.374	-	-	-	-	-	-	-	Continuing Continuing
Remarks										
In FY23, the DAF realigned \$240.9M from Program Element (PE) 0208088F AF Defensive Cyberspace Operations (AFDCO) to PE 0308605F AF Defensive Cyber Systems (AFDCS) in order to consolidate efforts under a single Budget Activity 8 (BA08) Software and Digital Technology Pilot Program. This consolidation helps accelerate integration and modernization required to address the evolving cyber threat. Prior to FY23, funding was contained in PE 0208088F Projects 677821; 677822; 677823; Operations & Maintenance (O&M) AG/SAGs 12D/11V, and Other Procurement Line Item 834320.										

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677822 / Cyber Defense Analysis
<b>D. Acquisition Strategy</b> <p>The Cyberspace Defense Analysis (CDA) Weapon System development of new capabilities to provide additional information protection capabilities to monitor, collect, analyze, and report cyberspace threats and compromised data. These capabilities encompass the support to OPSEC protection as well. The CDA program will utilize various contractual vehicles when necessary such as Government-Wide Acquisition Contract (GWAC), Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV), and General Services Administration (GSA) Federal Supply Schedules, Network-Centric Solutions (NETCENTS) and competitive contract (if required). The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that should be able to meet requirements related to Defensive Cyberspace Operations.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations				Project (Number/Name) 677822 / Cyber Defense Analysis					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
CDA PMA - Engineering & Technical Assistance Support Services (ETASS & FFRDC)	Various	AFLCMC/PZ : Hanscom, MA	-	0.279	Jan 2021	0.281	Jan 2022	0.295	Jan 2023	-		0.295	Continuing	Continuing	-
Subtotal			-	0.279		0.281		0.295		-		0.295	Continuing	Continuing	N/A
Remarks															
Provides program office subject matter expertise, engineering continuity, technical maturation and expertise, and access to an extensive professional network for future capabilities.															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.279		0.281		0.295		-		0.295	Continuing	Continuing	N/A
Remarks															
FY23 funding incorrect due to database error. FY23 funding should equal \$0.0M.															
In FY23, the DAF realigned \$240.9M from Program Element (PE) 0208088F AF Defensive Cyberspace Operations (AFDCO) to PE 0308605F AF Defensive Cyber Systems (AFDCS) in order to consolidate efforts under a single Budget Activity 8 (BA08) Software and Digital Technology Pilot Program. This consolidation helps accelerate integration and modernization required to address the evolving cyber threat. Prior to FY23, funding was contained in PE 0208088F Projects 677821; 677822; 677823; Operations & Maintenance (O&M) AG/SAGs 12D/11V, and Other Procurement Line Item 834320.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations		Project (Number/Name) 677822 / Cyber Defense Analysis	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cyber Defense Analysis																												
Cyber Defense Analysis (FFRDC)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677822 / Cyber Defense Analysis

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Cyber Defense Analysis				
Cyber Defense Analysis (FFRDC)	1	2021	4	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations				Project (Number/Name) 677823 / AFCERT			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
677823: AFCERT	-	1.347	1.353	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Project 677823 AFCERT budget controls have been realigned from Air Force Program Element (PE) 0208088F Projects 677821, 677822, 677823, Operations & Maintenance (O&M) AG/SAG 11V/12D, and Other Procurement Line Item 834320 and consolidated into Budget Activity 8 in PE 0308605F, Project 682001, Air Force Defensive Cyber Systems (AFDCS) in order to participate in the DoD's Software & Digital Technology Pilot Program.

**A. Mission Description and Budget Item Justification**

In FY23, the DAF realigned \$240.9M from Program Element (PE) 0208088F AF Defensive Cyberspace Operations (AFDCO) to PE 0308605F AF Defensive Cyber Systems (AFDCS) in order to consolidate efforts under a single Budget Activity 8 (BA08) Software and Digital Technology Pilot Program. This consolidation helps accelerate integration and modernization required to address the evolving cyber threat. Prior to FY23, funding was contained in PE 0208088F Projects 677821; 677822; 677823; Operations & Maintenance (O&M) AG/SAGs 12D/11V, and Other Procurement Line Item 834320.

The AF Cyberspace Defense (ACD) weapon system is designed to prevent, detect, and respond to adversarial penetration into AF unclassified and classified networks. ACD supports Air Force and Combatant Commanders by conducting synchronized Defensive Cyber Operations (DCO) and providing 24/7/365 monitoring and defense of USAF and US Central Command Secure/Non-secure Internet Protocol Router Network (SIPRNET/NIPRNET) systems against hostile attack. Daily intrusions to the AF network are analyzed in a forensics manner to identify a multitude of counter defensive and defensive tools and techniques that are required to truly strengthen cyber security. The Air Force Research Laboratory (AFRL), Air Force CyberWorx, and other Federal R&D entities often have cutting edge solutions, that, with Research and Development funding, take them to the technology readiness level (TRL) needed for rapid deployment as new capabilities to counter critical cyber weapon system vulnerabilities. AFCERT funding for this effort will focus on development of capability, capacity, and potential modifications to increase the utility of the ACD weapon system to the warfighter as well as testing requirements for new 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 PY 00.000M was expended for civilian pay expenses in this program element, and in CY 00.000M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Cyberspace Defense Development	1.347	1.353	0.000	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0208088F / AF Defensive Cyberspace Operations		<b>Project (Number/Name)</b> 677823 / AFCERT	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Description:</b> AF Cyberspace Defense (ACD) weapon system to prevent, detect, and respond to adversarial penetration in AF networks  <b>FY 2022 Plans:</b> - Continue to develop and test technologies for the AF Cyberspace Defense (ACD) weapon system to prevent, detect, and respond to adversarial penetration in AF networks  <b>FY 2023 Base Plans:</b> See PE 0308605F, Air Force Defensive Cyber Systems (AFDCS), Project Number 682001, AFDCS Continuous Capability Delivery.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A - Funding realigned to BA8 PE 0308605F Project 682001.					
<b>Accomplishments/Planned Programs Subtotals</b>	1.347	1.353	0.000	0.000	0.000

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 834320: C3 Countermeasures	23.860	35.463	0.000	-	0.000	-	-	-	-	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The AF Cyberspace Defense (ACD) weapon system office will utilize existing contractual vehicles such as Massachusetts Institute of Technology Research and Engineering (MITRE), General Services Administration (GSA) Federal Supply Schedules, Air Force Research Laboratory (AFRL), Advisory and Assistance Services (A&AS) as well as various Test and Evaluation Enterprises. The ACD weapon system office also intends to utilize the commercial contracting community to lead the Development, Test and Integration of future Cyberspace Defense capabilities. The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that should be able to meet many requirements related to the ACD mission.

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0208088F / AF Defensive Cyberspace Operations				<b>Project (Number/Name)</b> 677823 / AFCERT				

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ACD Cyberspace Defense Development	C/CPAF	Various : Various	-	1.347	Oct 2020	1.353	Oct 2021	0.000	Oct 2022	-		0.000	Continuing	Continuing	-
<b>Subtotal</b>			-	1.347		1.353		0.000		-		0.000	Continuing	Continuing	N/A

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	1.347	1.353	0.000	-	0.000	Continuing	Continuing	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022							
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations								Project (Number/Name) 677823 / AFCERT			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Integrated Cyber Aggregation Tool																												
Cyberspace Defense Development																												
Test and Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations	Project (Number/Name) 677823 / AFCERT

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Integrated Cyber Aggregation Tool</i>				
Cyberspace Defense Development	1	2021	4	2022
Test and Evaluation	1	2021	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0208097F I Joint Cyber Command and Control (JCC2)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	35.060	79.079	80.740	0.000	80.740	13.933	0.000	0.000	0.000	Continuing	Continuing
676045: Foundational Efforts	-	35.060	79.079	80.740	0.000	80.740	13.933	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2022, PE 0604250D8Z, Advanced Innovative Technologies, Project IKE requirements and funding were transferred to PE 0208097F, Joint Cyber Command and Control (JCC2), Project 676045, Foundational Efforts, in order to operationalize prototype battlespace management capabilities into JCC2 program.

**A. Mission Description and Budget Item Justification**

Joint Cyber Command and Control (JCC2) provides Combatant Commanders, Joint Force Commanders and Service Component Commanders with enhanced situational awareness and battle management for cyberspace operations missions and forces. JCC2 establishes congressionally directed focal point to provide integrated JCC2 solutions to all echelons for execution of cyberspace operations to enable and accelerate planning/collaboration between Cyber Mission Forces and Combatant Commands (CCMD).

It will integrate Cyber Command and Control (C2) with Joint, Coalition and inter-agency C2 to enhance multi-domain operations, reduce planning time, improve decision quality and speed resulting in a shorter kill chain. Capabilities will be developed to address the Cyber Mission Forces used to conduct cyber operations. Additionally, it will leverage and utilize a Continuous Infrastructure/Continuous Development (CI/CD) Framework to pace development with warfighter need. JCC2 development activities include, but are not limited to: rapid prototyping, development of software/hardware systems; integration and transition of lab developed cyber capabilities to the warfighter; testing and evaluation; program management, studies, analysis, pilots, and demonstrations; risk reduction for emerging technologies; and development and assessment of operational systems for inclusion into JCC2 to meet capability requirements.

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 \$1.792M was expended for civilian pay expenses in this program element, and in FY22 \$3.700M 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0208097F I Joint Cyber Command and Control (JCC2)				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	38.410	79.079	0.000	0.000	0.000	
Current President's Budget	35.060	79.079	80.740	0.000	80.740	
Total Adjustments	-3.350	0.000	80.740	0.000	80.740	
• 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	-2.000	0.000				
• SBIR/STTR Transfer	-1.350	0.000				
• Other Adjustments	0.000	0.000	80.740	0.000	80.740	
Change Summary Explanation						
In FY 2021, \$2.000 million were rephased for higher DoD priorities.						
In FY 2022, PE 0604250D8Z, Advanced Innovative Technologies, Project IKE requirements and funding were transferred to PE 0208097F, Joint Cyber Command and Control (JCC2), Project 676045, Foundational Efforts, in order to operationalize prototype battlespace management capabilities into JCC2 program.						
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Foundational Efforts				35.060	79.079	80.740
Description: Foundational Efforts are program activities, at multiple operating locations, supporting development and evaluations activities and JCC2 baseline efforts to provide capability. Actions include system and software engineering, risk management, developmental framework management, and the execution of acquisition activities.						
FY 2022 Plans:						
- Develop application programming interfaces for development and integration of data sources						
- Enhance threat detection and network awareness for Combatant Commands						
- Enhance automation for mapping/monitoring of mission relevant terrain at all domains						
- Migrate capabilities to cloud service to streamline scaling and support faster delivery						
- Prototype tools that automate cyber threat data sharing						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0208097F <i>I Joint Cyber Command and Control (JCC2)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- Develop, integrate, and build training current mission threads, such as, user-defined operational picture, incident response, significant activity reporting, Defensive Cyber Operations threat indicator and scoring tools, and J3 operational mission requirements</li> <li>- Complete Situational Awareness and Battle Management Minimum Viable Capability Releases and begin integration</li> <li>- Develop a framework for expedient and flexible requirements gathering, processing, and capability delivery</li> <li>- Scale and deliver capability through an agile development model, delivering operational capabilities as determined by governance process</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Will develop Mission Relevant Terrain in Cyberspace</li> <li>- Will create, deliver, and integrate the Force Readiness/Presentation capability</li> <li>- Will develop/improve tools to increase shared situational/battle space awareness, cyber ops planning and cyber sensing capabilities based on real-world use during offensive/defensive cyber operations</li> <li>- Will develop a capability to use a common framework for cyber risk assessments</li> <li>- Will create and execute support contract for Help Desk and IT Service Management services</li> <li>- Will continue to develop API interface for development and integration of data sources</li> <li>- Will continue to develop a framework for expedient and flexible requirements gathering, processing, and capability delivery</li> <li>- Will continue to migrate capabilities to cloud service to streamline scaling and support faster delivery</li> <li>- Will continue to enhance automation for mapping/monitoring of mission relevant terrain at all domains</li> <li>- Will continue to integrate Situational Awareness and Battle Management Minimum Viable Capability Releases coupled with the incorporation of JCWA components</li> <li>- Will continue to scale and deliver capability through an agile development model, delivering operational capabilities as determined by governance process</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to inflationary adjustments.</p>				
<b>Accomplishments/Planned Programs Subtotals</b>		35.060	79.079	80.740
<b>D. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0208097F I Joint Cyber Command and Control (JCC2)	
<p><b>E. Acquisition Strategy</b></p> <p>JCC2 is in the Software Acquisition Execution Phase which enables continuous integration and delivery of software capability at the speed of relevance. JCC2 will apply agile acquisition tenants to the programmatic, design/engineering, test, and delivery aspects to provide an ability to deliver Situational Awareness/C2 capabilities to the warfighter in a rapid manner. JCC2 is transitioning from a collection of distinct, special-purpose tools to an integrated joint C2 capability to reduce overall lifecycle costs, improve interoperability, and increase information sharing across the CCMDs.</p> <p>The JCC2 program office is utilizing new and existing contract vehicles and concept, development, risk management, production, or deployment plans as part of a streamlined approach. The JCC2 program office has established a continuous integration/continuous development pipeline to facilitate the rapid development, integration, and fielding of capabilities to remain responsive to evolving warfighter requirements. The JCC2 program will execute the agile development requirements provided by the Army, Navy, Marine Corps, Air Force, and USCYBERCOM stakeholders in accordance with the prioritization provided by the multi-Service JCC2 governance structure.</p> <p>The JCC2 program office is integrating several C2 mission systems for battle management and situational awareness. Most of the programs are using Agile development efforts, making rapid changes and upgrades to the applications and/or prototypes. In addition to converging the contracting efforts, the multiple mission systems, or applications, will eventually converge onto a shared C2 hosting and transit cloud infrastructure created by the PMO under the new Software Acquisition Pathway program. This approach will deliver an integrated JCC2 capability for Battle Management (BM) and Situational Awareness (SA). The JCC2 baseline capability relies on extensive development and evaluation efforts to analyze integration constraints and opportunities of Service-specific cyber capabilities.</p>		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0208097F / Joint Cyber Command and Control (JCC2)						<b>Project (Number/Name)</b> 676045 / Foundational Efforts			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
JCC2 CI/CD Infrastructure	Various	Multiple : Multiple	-	2.720	Apr 2021	3.604	Mar 2022	4.432	Feb 2023	-		4.432	Continuing	Continuing	-
JCC2 Agile Capability Development	Various	Multiple : Multiple	-	28.768	Mar 2021	69.300	Mar 2022	65.286	Feb 2023	-		65.286	Continuing	Continuing	-
<b>Subtotal</b>			-	31.488		72.904		69.718		-		69.718	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Direct Cite Authority Civilian Pay	TBD	USAF : Hanscom AFB, MA	-	1.792	Oct 2020	3.700	Oct 2021	5.992	Oct 2022	-		5.992	Continuing	Continuing	-
<b>Subtotal</b>			-	1.792		3.700		5.992		-		5.992	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Test and Evaluation	C/CPAF	Not specified. : TBD	-	-		-		2.000	Oct 2022	-		2.000	Continuing	Continuing	-
<b>Subtotal</b>			-	-		-		2.000		-		2.000	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
JCC2 Acquisition Support	Various	Multiple : Multiple	-	1.780	Nov 2020	2.475	Nov 2021	3.030	Nov 2022	-		3.030	Continuing	Continuing	-
<b>Subtotal</b>			-	1.780		2.475		3.030		-		3.030	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
<b>Project Cost Totals</b>			-	35.060	79.079		80.740		-		80.740	Continuing	Continuing	N/A	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0208097F / Joint Cyber Command and Control (JCC2)			Project (Number/Name) 676045 / Foundational Efforts				
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks CI/CD - Continuous Integration/Continuous Delivery										

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208097F / Joint Cyber Command and Control (JCC2)					Project (Number/Name) 676045 / Foundational Efforts			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Foundational Events																												
Transition DOD pilot systems to USAF																												
JCC2 CI/CD Infrastructure																												
JCC2 Agile Capability Development																												
- JCC2 Agile Capability Development of Situational Awareness (SA) MVCR																												
- JCC2 Agile Capability Development of Battle Management (BM) MVCR																												
JCC2 Acquisition Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208097F / Joint Cyber Command and Control (JCC2)	Project (Number/Name) 676045 / Foundational Efforts	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Foundational Events</b>				
Transition DOD pilot systems to USAF	1	2021	4	2023
JCC2 CI/CD Infrastructure	1	2021	4	2024
JCC2 Agile Capability Development	1	2021	4	2024
- JCC2 Agile Capability Development of Situational Awareness (SA) MVCR	1	2021	4	2023
- JCC2 Agile Capability Development of Battle Management (BM) MVCR	1	2021	4	2023
JCC2 Acquisition Support	1	2021	4	2024

### Note

In response to Section 1507 of the FY22 NDAA, the FY24+ funds for PE 0208097F will be transferred to USCYBERCOM to be responsible for the planning, programming, budgeting, and execution of the resources.

Transition DOD pilot systems to USAF references that the USAF was designated the lead service via being named the Executive Agent. The pilot systems transferred currently have operational users and are being evaluated for best of breed features and architecture to be further developed into the overarching JCC2 capability requirements.

Situational Awareness (SA) Minimum Viable Capability Release (MVCR):

Development of features that enable automation of data between network, mission, and threat domains.

Battle Management (BM) MVCR:

Development of features that enable Planning, Directing, Monitoring and Assessment capabilities in support of cyberspace operations at all levels of war.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0208099F I Unified Platform (UP)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	91.886	91.893	107.548	0.000	107.548	0.000	0.000	0.000	0.000	Continuing	Continuing
672281: Foundational Efforts	-	91.886	91.893	107.548	0.000	107.548	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

Unified Platform provides the Cyber Mission Forces, U.S. Cyber Command (USCYBERCOM), AF Major Commands, and Service cyber components a Joint cyber operations infrastructure enabling full spectrum cyberspace operations at the operational through tactical levels of warfare as part of USCYBERCOM (JCWA) Joint Cyber Warfare Architecture. The DoD, AF, and the Cyber Mission Force require an interconnected and interoperable cyber infrastructure to conduct integrated planning and execution of cyberspace operations to meet Combatant Commander requirements. Unified Platform delivers this capability through the integration of disparate firing platforms, existing or evolving systems, infrastructure, mission capabilities, data analytics, and programs used for military cyber operations to build interoperable and scalable network for cyber capabilities. A common, Unified Platform allows the DoD to achieve and maintain decision and operational superiority, the key to successful cyber operations within the highly dynamic cyberspace domain.

Foundational Efforts provide for the research, development, prototype maturation, integration, enhancement, delivery, and enduring product support of the Unified Platform capability to ensure responsiveness to warfighter requirements within operationally relevant timeframes. With the government as the lead integrator, Unified Platform Foundational Efforts provide a flexible—yet disciplined—agile development/security/operations (DevSecOps) capability to generate new capabilities, integrate existing and emerging technologies, incorporate rapid prototyping efforts, and evolve the Unified Platform baseline on an agile basis. Foundational efforts include both the management of the DevSecOps capabilities including systems engineering, risk management, contracting, test, and program management as well as the active research and capability development to be conducted for the Unified Platform baseline.

The Secretary of the Air Force leads the Unified Platform effort as Executive Agent on behalf of the Department of Defense. Unified Platform directly supports the Joint Network Attack Initial Capabilities Document (ICD), the National Military Strategy for Cyberspace Operations (NMS-CO), USCYBERCOM operational directives, the latest MAJCOM Offensive Cyberspace Operations System Flight Plan, and other formal requirements documents.

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, \$2.842M was expended for civilian pay expenses in this program element, and in FY22, \$8.077M 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0208099F I Unified Platform (UP)				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	84.491	101.893	0.000	0.000	0.000	
Current President's Budget	91.886	91.893	107.548	0.000	107.548	
Total Adjustments	7.395	-10.000	107.548	0.000	107.548	
• Congressional General Reductions	0.000	0.000				
• Congressional Directed Reductions	0.000	-10.000				
• Congressional Rescissions	0.000	0.000				
• Congressional Adds	0.000	0.000				
• Congressional Directed Transfers	0.000	0.000				
• Reprogrammings	9.900	0.000				
• SBIR/STTR Transfer	-2.505	0.000				
• Other Adjustments	0.000	0.000	107.548	0.000	107.548	
Change Summary Explanation						
The FY 2022 funding reduced by \$10.000M due to Congressional directed reduction for unjustified growth.						
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.						
In FY 2021, PE 0208099F (Unified Platform) received \$9.900M as a Below Threshold Reprogramming (BTR) to develop an integrated delivery system that provides a collaborative development environment capable of delivering full stack automation tools, services, and a standards as-a-service.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Foundational Efforts				91.886	91.893	107.548
Description: Foundational Efforts ensure the perpetual capability development, integration, and delivery of the Unified Platform capability through the rapid and agile development of requirements via a DevSecOps pipeline. Unified Platform requirements are warfighter-derived under the framework of validated Unified Platform requirement documents and met using agile development teams, integration of Service and U.S. Cyber Command capabilities, or external prototyping activities.						
Unified Platform capabilities are developed within the government-lead Unified Platform Continuous Integration/Continuous Deployment DevSecOps pipeline, leveraging a common pipeline baseline maintained by Platform One. This pipeline provides a common system development, integration, and staging environment to permit collaborative development. Developmental efforts will be continuously verified for security compliance and continually tested to ensure development meets established security and performance criteria.						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development						R-1 Program Element (Number/Name) PE 0208099F I Unified Platform (UP)						
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2021	FY 2022	FY 2023
Foundational Efforts also include program office expertise at multiple operating locations in the areas of cyberspace, systems engineering, risk management framework, scaled agile framework, contracting, and program management to ensure that agile acquisition development planning and frequent customer engagement is accomplished.												
FY 2022 Plans: - Deliver distributed query and data analytics across joint service, multi-classification level Big Data Platforms (BDP) supporting defensive and offensive Cyber Mission Force (CMF) operations - Increase data types/sources available to CMF and provide data foundation for all JCWA components - Improve enterprise services across BDP enterprise to better support cyberspace operators - Provide automated tools for improved Offensive/Defensive Cyber actions - Build operational infrastructure required for future AI/ML workloads - Leverage agile model to scale/deliver operational capabilities as determined by governance process - Develop new capabilities, modernize infrastructure, and prototype activities for Cyber Mission Force (CMF) - Provide DevSecOps platform for continuous integration/continuous delivery (CI/CD) of UP and other JCWA programs												
FY 2023 Plans: - Will integrate forward deployed operations with enterprise data and analytics - Will enable threat data collaboration with federal and commercial entities - Will extend integration and interoperability with multinational partners - Will develop and connect AI/ML models with cyber data sets - Will continue to Leverage agile model to scale/deliver operational capabilities as determined by governance process - Will continue to develop new capabilities, modernize infrastructure, and prototype activities for Cyber Mission Force (CMF) - Will continue to provide DevSecOps platform for CI/CD of UP and other JCWA programs												
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased to modernize data architecture and tools enabling AI/ML, develop data fabric for multi-echelon cyber operations, develop analytics to protect against foreign malicious cyber actors, and develop services required to rapidly ingest CMF data.												
Accomplishments/Planned Programs Subtotals										91.886	91.893	107.548
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• RDTE 04 0208099F: Unified Platform (UP)	5.979	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.979	

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development						R-1 Program Element (Number/Name) PE 0208099F I Unified Platform (UP)					
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 835080: AFNET	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPAF 03 834320: C3 Countermeasures	3.156	4.904	5.013	-	5.013	0.000	0.000	0.000	0.000	Continuing	Continuing
Remarks											
Beginning in FY21 associated OPAF realigned from Line Item 835080 (AFNET) to Line Item 834320 (C3 Countermeasures) for clarity in reporting.											
BA4 Prototyping effort ended in FY21.											
E. Acquisition Strategy											
Unified Platform represents a flexible, interoperable, and scalable warfighter capability to be employed by the Army, Navy, Marine Corps, and Air Force in conjunction with U.S. Cyber Command (USCYBERCOM). In order to match the speed of need of the highly dynamic cyberspace domain, the Service-agnostic Unified Platform implements an agile development framework to facilitate the rapid development, integration, and fielding of capabilities to remain responsive to evolving warfighter requirements. The Unified Platform program develops capability in response to requirements provided by the Army, Navy, Marine Corps, Air Force, and USCYBERCOM stakeholders in accordance with the prioritization provided by the multi-Service Unified Platform governance structure.											
The initial Unified Platform capability delivered a minimum viable product (MVP) for immediate deployment and operational use by the Cyber Mission Force. Subsequent build iterations continue to deliver enhanced capabilities, incrementally building the Unified Platform capability to match warfighter needs and requirements to achieve cyberspace dominance. Development of the Unified Platform baseline capability relies agile software sprints to analyze integration constraints and opportunities of Service-specific cyber capabilities to realize the Unified Platform MVP and inform the future Unified Platform baseline an enduring foundational Unified Platform thrust area supports the development and maturation of Unified Platform baseline, integrates successful prototyping activities, and implements an agile development/security/operations (DevSecOps) construct to rapidly evolve and enhance the Unified Platform capability to match warfighter requirements.											
The Unified Platform program office utilizes Concept, Development, Risk management, Production, and Deployment Plans as part of a streamlined approach to agile acquisition planning. All plans contain sufficient information to inform acquisition decisions (i.e., authorities to proceed), within the agile framework, to determine readiness to enter into the applicable phase of the acquisition process. Unified Platform will utilize both new and existing contractual vehicles, such as Government-Wide Acquisition Contract (GWAC) vehicles (Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV), and General Services Administration (GSA) Federal Supply Schedules, a Cyber Indefinite Delivery Indefinite Quantity (IDIQ) contract, Other Transaction Authority (OTA), DoD Enterprise Software Initiative (ESI), Commercial Solution Openings (CSO), Partnership Intermediary Agreements (PIA), Small Business Innovative Research (SBIR) contracts, and Small Disadvantaged Business 8(a) contracts. The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that will meet any future requirements related to Unified Platform.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208099F / Unified Platform (UP)				Project (Number/Name) 672281 / Foundational Efforts					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
UP System Technical Coordination	C/T&M	Northrop Grumman : San Antonio, TX	-	12.426	Oct 2020	-		-		-		-	Continuing	Continuing	29.647
UP System Technical Coordination Follow On	C/TBD	TBD : San Antonio, TX	-	-		5.000	Oct 2021	5.426	Oct 2022	-		5.426	Continuing	Continuing	-
Cloud Compute and Store	Various	TBD : San Antonio, TX	-	13.127	Oct 2020	5.714	Oct 2021	14.554	Oct 2022	-		14.554	Continuing	Continuing	-
Agile Capability Development	Various	Multiple: Various : TBD	-	27.875	Oct 2020	43.129	Oct 2021	47.129	Oct 2022	-		47.129	Continuing	Continuing	169.123
Distributed Common Computing Environment	Various	Multiple: Various : TBD	-	9.744	Feb 2021	12.258	Feb 2022	12.325	Feb 2023	-		12.325	Continuing	Continuing	30.402
Subtotal			-	63.172		66.101		79.434		-		79.434	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Authority Civilian Pay	TBD	Not specified. : TBD	-	2.842	Oct 2020	8.077	Oct 2021	8.150	Oct 2022	-		8.150	Continuing	Continuing	-
Platform One Core Capabilities	Various	Multiple Various : TBD	-	9.900		-		-		-		-	Continuing	Continuing	-
Subtotal			-	12.742		8.077		8.150		-		8.150	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	Various	Multiple: Various : TBD	-	1.563	Jan 2021	1.600	Jan 2022	1.700	Jan 2023	-		1.700	Continuing	Continuing	6.593
Subtotal			-	1.563		1.600		1.700		-		1.700	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208099F / Unified Platform (UP)				Project (Number/Name) 672281 / Foundational Efforts					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Systems Engineering	Various	Various : TBD	-	10.697	Dec 2020	11.449	Dec 2021	11.082	Dec 2022	-		11.082	Continuing	Continuing	28.504
Acquisition Support	Various	Various : TBD	-	2.515	Dec 2020	3.163	Dec 2021	3.167	Dec 2022	-		3.167	Continuing	Continuing	7.846
Program Mgmt Office Overhead Costs	Various	Various : TBD	-	1.197	Dec 2020	1.503	Dec 2021	4.015	Dec 2022	-		4.015	Continuing	Continuing	3.732
Subtotal			-	14.409		16.115		18.264		-		18.264	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	91.886		91.893		107.548		-		107.548	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)			Project (Number/Name)				
3600 / 7					PE 0208099F / Unified Platform (UP)			672281 / Foundational Efforts				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Foundational Efforts																												
UP System Technical Coordination																												
UP Agile Capability Development																												
Distributed Common Computing Environment																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208099F / Unified Platform (UP)	Project (Number/Name) 672281 / Foundational Efforts	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Foundational Efforts				
UP System Technical Coordination	1	2021	4	2023
UP Agile Capability Development	1	2021	4	2023
Distributed Common Computing Environment	1	2021	4	2023

**Note**  
In response to Section 1507 of the FY22 NDAA, the FY24+ funds for PE 28099F will be transferred to USCYBERCOM to be responsible for the planning, programming, budgeting, and execution of the resources.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0208288F I Intel Data Applications							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	1.224	0.493	1.065	0.000	1.065	0.965	0.982	1.002	1.022	0.000	6.753
67A051: Space Superiority - Advanced Intelligence Systems	-	1.224	0.493	1.065	0.000	1.065	0.965	0.982	1.002	1.022	0.000	6.753
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Funds the application of Intelligence data as datasets/databases, model and simulations, and analysis for combat and combat support users. Provides for the communications infrastructures required to support Intelligence data applications. May include software and contract assistance to ensure system interoperability for Intelligence data discovery, retrieval, and dissemination. Includes manpower, procurement, and operations and maintenance funding.

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 00.000 M was expended for civilian pay expenses in this program element, and in CY 00.000M 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	1.224	0.493	0.000	0.000	0.000
Current President's Budget	1.224	0.493	1.065	0.000	1.065
Total Adjustments	0.000	0.000	1.065	0.000	1.065
• 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	1.065	0.000	1.065

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0208288F / <i>Intel Data Applications</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Radar Dynamic Cueing <b>Description:</b> Develop algorithm to dynamically cue radar assets to increase collection capability and data relevance. <b>FY 2022 Plans:</b> Funding supports dynamic radar targeting work <b>FY 2023 Plans:</b> Continue dynamic radar targeting efforts <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to requirements.		1.224	0.493	1.065
<b>Accomplishments/Planned Programs Subtotals</b>		1.224	0.493	1.065
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> This effort will be supported via the NASIC ATEP II contract.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0208288F / Intel Data Applications				Project (Number/Name) 67A051 / Space Superiority - Advanced Intelligence Systems					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
NASIC ATEP II	TBD	NASIC : Dayton, OH	-	1.224	Apr 2021	0.493	Apr 2022	1.065	Apr 2023	-		1.065	Continuing	Continuing	-
Subtotal			-	1.224		0.493		1.065		-		1.065	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.224		0.493		1.065		-		1.065	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0208288F / Intel Data Applications		
			Project (Number/Name) 67A051 / Space Superiority - Advanced Intelligence Systems		

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Radar Dynamic Cueing																												
Algorithm Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208288F / Intel Data Applications	Project (Number/Name) 67A051 / Space Superiority - Advanced Intelligence Systems

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Radar Dynamic Cueing</i>				
Algorithm Development	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0301025F I GeoBase							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	2.782	2.928	0.000	2.928	2.988	0.000	0.000	0.000	Continuing	Continuing
673280: Ceit01	-	0.000	2.782	2.928	0.000	2.928	2.988	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

FY21 funding was returned to the AF. The funds could not be used for NexGen IT Development since the description was for GeoBase RDT&E efforts. The funding starting in FY22 will allow the AF to modernize NexGen IT and develop interfaces with other CE data systems.

**A. Mission Description and Budget Item Justification**

Funds the research and development of AF Civil Engineer (CE) NexGen IT systems for all Total Force installations. The purpose for the funds are to develop/modernize NexGen IT, a Commercial-Off-The-Shelf (COTS) system; specifically to develop a Space Management/Utilization capability as well as new interfaces with other Civil Engineer data systems (i.e. Builder SMS). NexGen IT provides an integrated asset management system for the CE community with the capability to support cost accounting, Operations (Work Management and Material Control), Real Property, Project Management, and Energy Management. NexGen IT replaces several Legacy IT systems that lack the capability to meet present and future mission requirements and the ability to be compliant with Congressionally-mandated Financial Audit Improvement Readiness (FIAR).

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 emergent or unanticipated civilian pay expenses required to manage, execute, and deliver NexGen IT development/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 0207479F.

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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0301025F I GeoBase				
B. Program Change Summary (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		2.762	2.782	0.000	0.000	0.000
Current President's Budget		0.000	2.782	2.928	0.000	2.928
Total Adjustments		-2.762	0.000	2.928	0.000	2.928
• 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		-2.762	0.000	2.928	0.000	2.928
Change Summary Explanation FY21 funding was returned to the AF. The funds could not be used for NexGen IT Development since the description was for GeoBase RDT&E efforts. The funding starting in FY22 will allow the AF to modernize NexGen IT and develop interfaces with other CE data systems.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: NexGen IT Development				0.000	2.782	2.928
Description: Develop a Space Management/Space Utilization capability within NexGen IT; develop interfaces between NexGen IT and other CE data systems (a COTS program).						
FY 2022 Plans: Develop a Space Management/Space Utilization capability within NexGen IT; develop interfaces between NexGen IT and other CE data systems (a COTS program).						
Not applicable						
FY 2023 Plans: Develop a Space Management/Space Utilization capability within NexGen IT; develop interfaces between NexGen IT and other CE data systems (a COTS program).						
FY 2022 to FY 2023 Increase/Decrease Statement: The increase in funding from FY22 to FY23 due to standard inflation.						
Accomplishments/Planned Programs Subtotals				0.000	2.782	2.928

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0301025F / <i>GeoBase</i>	
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>E. Acquisition Strategy</b> The requirement will be executed thru the Air Force Life Cycle Management Center Enterprise Information Systems Directorate (AFLCMC/HIM) on an existing contract vehicle.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0301025F / GeoBase				Project (Number/Name) 673280 / Ceit01					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Develop CE NexGen IT	C/CPFF	Not specified. : TBD	-	-		2.782	Jun 2022	2.928		-		2.928	Continuing	Continuing	-
Subtotal			-	-		2.782		2.928		-		2.928	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		2.782		2.928		-		2.928	Continuing	Continuing	N/A
Remarks															
FY21 funding was returned to the AF. The funds could not be used for NexGen IT Development since the description was for GeoBase RDT&E efforts. The funding in FY22 and out will allow the AF to modernize NexGen IT and develop interfaces with other CE data systems.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022				
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)				
3600 / 7					PE 0301025F / GeoBase					673280 / Ceit01				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Develop Civil Engineer NexGen IT																												
Develop Civil Engineer NexGen IT																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301025F / GeoBase	Project (Number/Name) 673280 / Ceit01

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Develop Civil Engineer NexGen IT</i>				
Develop Civil Engineer NexGen IT	3	2022	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0301112F I Nuclear Planning and Execution System (NPES)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	31.576	15.120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
673768: Nuclear Planning and Execution System (NPES)	0.000	28.613	14.062	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
674212: NLCC Decision Support System	0.000	2.963	1.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.021

## **A. Mission Description and Budget Item Justification**

Nuclear Planning and Execution System (NPES): NPES develops and delivers a software system to conduct nuclear command and control (NC2) adaptive planning and execution at fixed and mobile sites in real time. NPES an automated information system that supports all phases of nuclear conflict and provides for various levels of support of all command and control software engineering (C2SES) projects. NPES Legacy encompassed cyber related investments necessary for a successful operational application/system delivery, for fixed command centers, distributive sites and mobile platforms. NPES Recapitalization (Recap) succeeded NPES Legacy and provides communication interfaces with software development, data management, software re-engineering and operations to include requirements validation and training. NPES Recap modernizes decision support, knowledge management, information visualization, an integrated-fused depiction of global battle space, and common missile event picture.

Decision Support System (DSS): DSS will develop and deliver software that directly supports POTUS. DSS will improve situational awareness, aggregate strategic-level information, and provide a common visual display that is resilient and mobile.

This is a Section 804 Alpha Phase rapid software prototyping effort. This effort includes decomposing system, functional and non-functional requirements in order to design, build, and field a new NPES application software baseline via agile, development operations (DevOps), and user-centered design principles. Further, the effort includes developing written artifacts to document system / software engineering elements appropriate for an Agile/DevOps software development effort.

No FY23 funding is requested. FY23 project efforts are detailed in PE 0608158F BA-08, Strategic Mission Planning and Execution System (SMPES).

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 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-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0301112F I Nuclear Planning and Execution System (NPES)			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	32.699	0.000	0.000	0.000	0.000
Current President's Budget	31.576	15.120	0.000	0.000	0.000
Total Adjustments	-1.123	15.120	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	15.120			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.123	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000
Change Summary Explanation					
FY21 reduction due to SBIR transfer.					
FY22 funding was returned from PE 0608158F after entrance into BA-08 Pilot program was denied.					
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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0301112F / Nuclear Planning and Execu tion System (NPES)				Project (Number/Name) 673768 / Nuclear Planning and Execution System (NPES)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
673768: Nuclear Planning and Execution System (NPES)	0.000	28.613	14.062	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Nuclear Planning and Execution System: NPES develops and delivers a software system to conduct nuclear command and control (NC2) adaptive planning and execution at fixed and mobile sites in real time. NPES an automated information system that supports all phases of nuclear conflict and provides for various levels of support of all command and control software engineering (C2SES) projects.

NPES Legacy encompassed cyber related investments necessary for a successful operational application/system delivery, for fixed command centers, distributive sites and mobile platforms. NPES Recapitalization (Recap) succeeded NPES Legacy and provides communication interfaces with software development, data management, software re-engineering and operations to include requirements validation and training. NPES Recap modernizes decision support, knowledge management, information visualization, an integrated-fused depiction of global battle space, and common missile event picture.

This is a Section 804 Alpha Phase rapid software prototyping effort. This effort includes decomposing system, functional and non-functional requirements in order to design, build, and field a new NPES application software baseline via agile, development operations (DevOps), and user-centered design principles. Further, the effort includes developing written artifacts to document system / software engineering elements appropriate for an Agile/DevOps software development effort.

No FY 2023 funding requested; FY 2023 project efforts are detailed in PE 0608158F BA-08, Strategic Mission Planning and Execution System (SMPES).

This program element may include necessary civilian pay expenses required to manage, execute, and deliver NPES weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605833F, 0605832F, and 0605898F.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Nuclear Planning and Execution System (NPES) Modernization	28.613	14.062	0.000	-	0.000
<b>Description:</b> - The NPES program will use proven and mature software engineering, technologies, and design tenets to provide a modern, secure, interoperable and reliable Nuclear Command and Control (NC2) capability for USSTRATCOM and other users as appropriate. - It will update and/or replace existing system software and improve reliability and sustainability.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0301112F / <i>Nuclear Planning and Execution System (NPES)</i>		<b>Project (Number/Name)</b> 673768 / <i>Nuclear Planning and Execution System (NPES)</i>	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
- It will also seek to reduce total ownership cost.					
<b><i>FY 2022 Plans:</i></b> -FY22 the NPES Recap developer will produce sufficient new software capability to enable the user representatives to conduct operational testing & evaluation. -FY22 will be the fourth year of SW development with plans to reduce the NPES Recap SW developer teams. -FY22 NPES Recap will fund AFLCMC/HBC in house software development resources to promote competition, a secure developmental environment, and enable developers to build and integrate software at the Top Secret level as part of the agile software development effort.  No OCO requested.  <b><i>FY 2023 Base Plans:</i></b> No Budget Year FY23 funds requested.  <b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding was returned from PE 0608158F after entrance into BA-08 Pilot program was denied.					
<b>Accomplishments/Planned Programs Subtotals</b>	28.613	14.062	0.000	-	0.000

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 833140: <i>Strategic Command and Control</i>	2.358	2.401	2.443	-	2.443	2.487	-	-	-	Continuing	Continuing
<b>Remarks</b>											

<b>D. Acquisition Strategy</b> NPES will develop, test, and field a renewed Nuclear Command and Control (NC2) capability for combatant commanders using an evolutionary acquisition approach with development contracts that are negotiated and awarded in a competitive environment. Additionally, select government agencies will be used to conduct relevant analyses and provide other required support. NPES will exploit AFLCMC/HBC agile software development economies of scale to enable developers to build and integrate software at the Top Secret level vice paying to build duplicate capabilities at other government or contractor facilities.											
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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301112F / <i>Nuclear Planning and Execution System (NPES)</i>	Project (Number/Name) 673768 / <i>Nuclear Planning and Execution System (NPES)</i>
<p>This is a Section 804 Alpha Phase rapid software prototyping effort. This effort includes decomposing system, functional and non-functional requirements in order to design, build, and field a new NPES application software baseline via agile, development operations (DevOps), and user-centered design principles. Further, the effort includes developing written artifacts to document system / software engineering elements appropriate for an Agile/DevOps software development effort.</p> <p>Funds agile software development activities and a secure software development environment. Software development environment will meet classification/security regulations/criteria, which will promote competition.</p> <p>The Air Force Life Cycle Management Center at Hanscom AFB, (AFLCMC/HB) and the 55th CONS at Offutt AFB will be the contracting authorities for NPES and provide necessary program management, contracts, legal, and financial management support.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
3600 / 7						PE 0301112F / Nuclear Planning and Execution System (NPES)				673768 / Nuclear Planning and Execution System (NPES)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Primary Development	Various	NG : Offutt AFB, NE	0.000	24.673	Nov 2020	14.062	Nov 2021	-		-		-	Continuing	Continuing	-
Development Suites & Infrastructure	C/TBD	NG : Offutt AFB, NE	0.000	-		-		-		-		-	Continuing	Continuing	-
Subtotal			0.000	24.673		14.062		-		-		-	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DevOps Support	Various	Various : Offutt AFB, NE	0.000	1.791	Feb 2021	-		-		-		-	Continuing	Continuing	-
Technical Engineering Services	Various	Various : Offutt AFB, NE	0.000	1.701	Nov 2020	-		-		-		-	Continuing	Continuing	-
Subtotal			0.000	3.492		-		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
T&E	Various	Various : Offutt AFB, NE	0.000	0.448	Feb 2021	-		-		-		-	Continuing	Continuing	-
Subtotal			0.000	0.448		-		-		-		-	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	28.613		14.062		-		-		-	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0301112F / Nuclear Planning and Execution System (NPES)					673768 / Nuclear Planning and Execution System (NPES)			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NPES																												
Alpha Phase - Rapid Prototyping																												
Beta Phase Rapid Fielding																												
Delta Phase - Continuous Product Improvement																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301112F / Nuclear Planning and Execution System (NPES)	Project (Number/Name) 673768 / Nuclear Planning and Execution System (NPES)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NPES				
Alpha Phase - Rapid Prototyping	1	2021	2	2021
Beta Phase Rapid Fielding	2	2021	4	2022
Delta Phase - Continuous Product Improvement	4	2022	4	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0301112F / Nuclear Planning and Execu tion System (NPES)				Project (Number/Name) 674212 / NLCC Decision Support System			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674212: NLCC Decision Support System	0.000	2.963	1.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.021
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Decision Support System (DSS): DSS will develop and deliver software that directly supports POTUS. DSS will improve situational awareness, aggregate strategic-level information, and provide a common visual display that is resilient and mobile.												
No FY 2023 funding requested; FY 2023 project efforts are detailed in PE 0608158F BA-08, Strategic Mission Planning and Execution System (SMPES).												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: DSS Development								2.963	1.058	0.000	0.000	0.000
Description: Product Development												
FY 2022 Plans:												
- Complete development of prototype												
- Begin rapid fielding												
- Continue development updates IAW Agile developmental principles												
- Continue Back-end development and data integration												
- Continue integration with required IT infrastructure												
- Refine and Implement cybersecurity requirements IAW cybersecurity plan												
No OCO requested.												
FY 2023 Base Plans:												
No Budget Year FY23 funds requested.												
FY 2023 OCO Plans:												
No OCO requested												
FY 2022 to FY 2023 Increase/Decrease Statement:												
Funding was returned from PE 0608158F due to BA-08 Pilot Program denial.												
Accomplishments/Planned Programs Subtotals								2.963	1.058	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0301112F / <i>Nuclear Planning and Execution System (NPES)</i>	<b>Project (Number/Name)</b> 674212 / <i>NLCC Decision Support System</i>
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>D. Acquisition Strategy</b> DSS will develop, test, and field a decision support system capability for use from the combatant commander and above. DSS will use agile development to rapidly prototype, develop software, and field the solutions. DSS will use existing government contract vehicles when advantageous or create development contracts that are negotiated and awarded in a competitive environment. Funds agile software development activities and a secure software development environment, located in existing space at Offutt AFB. Software development environment will meet classification/security regulations/criteria, which will promote competition. This program will be using the Section 804 acquisitions process to accelerate delivery of a finished product. Section 804 outlines authority granted to DoD in the FY2016 National Defense Acquisitions Act to rapidly prototype/field capabilities distinct from the traditional DoD 5000 acquisition system.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
3600 / 7						PE 0301112F / Nuclear Planning and Execution System (NPES)				674212 / NLCC Decision Support System					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Prototype Development	C/T&M	NG : Offutt AFB, NE	0.000	1.555	Mar 2021	-		-		-		-	0.000	1.555	-
Visualization Development	C/Various	Various : Offutt AFB, NE	0.000	0.706	Oct 2021	0.097	Apr 2022	-		-		-	0.000	0.803	-
Subtotal			0.000	2.261		0.097		-		-		-	0.000	2.358	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DevOps Support	Various	TBD : Offutt AFB, NE	0.000	0.235	Feb 2021	0.309	Feb 2022	-		-		-	0.000	0.544	-
Engineering/Test Support	C/CPAF	KBR Wyle : Offutt AFB, NE	0.000	0.152	May 2021	0.309	May 2022	-		-		-	0.000	0.461	-
Engineering Support	SS/ Various	MITRE : Offutt AFB, NE	0.000	0.315	Nov 2020	0.295	Nov 2021	-		-		-	0.000	0.610	-
Subtotal			0.000	0.702		0.913		-		-		-	0.000	1.615	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Management Services	C/TBD	TBD : Offutt AFB, NE	0.000	-		0.048	Apr 2022	-		-		-	0.000	0.048	-
Subtotal			0.000	-		0.048		-		-		-	0.000	0.048	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	2.963		1.058		-		-		-	0.000	4.021	N/A
Remarks															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0301112F / Nuclear Planning and Execution System (NPES)

## Project (Number/Name)

674212 / NLCC Decision Support System

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>DSS Development</b>																												
DSS Strategic Study																												
Senior Leader Visualization (SLV) Prototype Evaluation																												
Prototype Development																												
Disconnected Intermittent Low-Bandwidth (DIL) prototype evaluation																												
DSS IT Infrastructure and Cybersecurity																												
Data Integration																												
Minimal Viable Product Delivery 1																												
Minimal Viable Product Delivery 2																												
Minimal Viable Product Delivery 3																												
Prototype Continuous Software Delivery																												
Limited Operational Capability (LOC)																												
Rapid Fielding																												
Rapid Fielding Continuous Software Delivery																												
IOC																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301112F / Nuclear Planning and Execution System (NPES)	Project (Number/Name) 674212 / NLCC Decision Support System	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>DSS Development</b>				
DSS Strategic Study	3	2021	1	2022
Senior Leader Visualization (SLV) Prototype Evaluation	3	2021	3	2021
Prototype Development	4	2021	1	2022
Disconnected Intermittent Low-Bandwidth (DIL) prototype evaluation	3	2021	1	2022
DSS IT Infrastructure and Cybersecurity	2	2021	4	2022
Data Integration	4	2021	4	2022
Minimal Viable Product Delivery 1	1	2021	1	2021
Minimal Viable Product Delivery 2	3	2021	3	2021
Minimal Viable Product Delivery 3	4	2021	4	2021
Prototype Continuous Software Delivery	4	2021	1	2022
Limited Operational Capability (LOC)	1	2022	1	2022
Rapid Fielding	2	2022	4	2024
Rapid Fielding Continuous Software Delivery	2	2022	4	2024
IOC	4	2024	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0301113F I Cyber Security Intelligence Support							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	5.224	8.972	0.000	8.972	9.711	11.042	10.946	11.190	Continuing	Continuing
671931: TECH SURVEIL COUNTER MEAS EQPT	-	0.000	5.224	8.972	0.000	8.972	9.711	11.042	10.946	11.190	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

Mission Description: Provides funding to the Air Force owned DoD Cyber Crime Center to fund continued development and modifications of cybersecurity tools and activities to support DoD-wide military intelligence efforts to include CADO-IS (formerly CI-PED) and STORMSYSTEM. Activities include but are not limited to development of software/hardware systems, integration and transition of lab-developed cyber capabilities, developmental testing, operational evaluation, manpower, studies, analysis, pilots, demonstrations, and risk reduction efforts to improve protection of critical technologies.

In FY 2022, PE 0305103F, Cyber Security Initiative, Project 671931, Tech Surveillance Counter Measures, efforts were transferred to PE 03031113F, Cyber Security Intelligence Support, Project 671931, Tech Surveillance Counter Measurement Equipment, in order to more appropriately categorize the funding according to purpose.

The total cost of the AHFRM Middle Tier of Acquisition effort is \$156.9 million, including RDT&E and procurement of prototype units. AHFRM 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

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, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0.0M was expended for civilian pay expenses in this program element, and in FY22 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0301113F I Cyber Security Intelligence Support				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	0.000	5.224	0.000	0.000	0.000	
Current President's Budget	0.000	5.224	8.972	0.000	8.972	
Total Adjustments	0.000	0.000	8.972	0.000	8.972	
• 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	8.972	0.000	8.972	
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 FY 2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Cyber Security Intelligence Support				0.000	5.224	8.972
Description: Provides funding to the Air Force DoD Cyber Crime Center to fund continued development and modifications of cybersecurity tools and activities to support DoD-wide military intelligence efforts to include CADO-IS (formerly CI-PED) and STORMSYSTEM. Activities include but are not limited to development of software/hardware systems, integration and transition of lab-developed cyber capabilities, developmental testing, operational evaluation, manpower, studies, analysis, pilots, demonstrations, and risk reduction efforts to improve protection of critical technologies.						
FY 2022 Plans:						
- Provide professional and technical subject matter expertise to the development and modification of cybersecurity tools and activities to support DoD-wide military intelligence efforts.						
- Design and maintain enhanced ability to support research, prototyping, development, and testing of cybersecurity tools to synchronize collection, focus operational activity, and rapidly share intelligence to support DoD-wide military intelligence efforts.						
FY 2023 Plans:						
- Continue to provide professional and technical subject matter expertise to the development and modification of cybersecurity tools and activities to support DoD-wide military intelligence efforts.						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0301113F <i>I Cyber Security Intelligence Support</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
- Continue to design and maintain enhanced ability to support research, prototyping, development, and testing of cybersecurity tools to synchronize collection, focus operational activity, and rapidly share intelligence to support DoD-wide military intelligence efforts.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increased requirements				
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	5.224	8.972
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> Utilize a tailorable acquisition strategy that facilitates the rapid update and delivery of material and nonmaterial solutions to operational military intelligence efforts. This approach allows flexibility for solutions to enter the acquisitions process at any phase of the acquisition life cycle. Cyber Security Intelligence Support provides the rapid development environment and DevOps capacity to meet urgent operational needs/requirements in the protection of critical technologies.				

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0301113F / <i>Cyber Security Intelligence Support</i>						<b>Project (Number/Name)</b> 671931 / <i>TECH SURVEIL COUNTER MEAS EQPT</i>			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Cyber Security Intelligence Support	TBD	TBD : TBD	-	-		5.224	Oct 2021	8.972	Oct 2022	-		8.972	Continuing	Continuing	-
<b>Subtotal</b>			-	-		5.224		8.972		-		8.972	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	-		5.224		8.972		-		8.972	Continuing	Continuing	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0301113F / Cyber Security Intelligence Support					Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cyber Security Intelligence Support																												
Design and Maintain Enhanced Research, Prototyping, Development and Testing of Cybersecurity Tools																												
Research, Prototype, Develop, and Test Cybersecurity Tools to Synchronize Collection, Focus Operational Activity, and Rapidly Share Intelligence																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301113F / Cyber Security Intelligence Support	Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Cyber Security Intelligence Support</b>				
Design and Maintain Enhanced Research, Prototyping, Development and Testing of Cybersecurity Tools	1	2022	4	2023
Research, Prototype, Develop, and Test Cybersecurity Tools to Synchronize Collection, Focus Operational Activity, and Rapidly Share Intelligence	1	2022	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 0301401F I Air Force Space and Cyber Non-Traditional ISR for Battlespace Awareness							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	1.404	2.463	3.069	0.000	3.069	3.367	55.864	57.042	58.308	0.000	181.517
67A051: Space Superiority - Advanced Intelligence Systems	-	1.404	2.463	3.069	0.000	3.069	3.367	55.864	57.042	58.308	0.000	181.517
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Cross Domain Tactical OPIR Processing delivers a mechanism providing reach-back support for battlespace awareness functions and manages the timely transfer of newly developed tools to operational users.

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.

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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	1.382	2.463	0.000	0.000	0.000
Current President's Budget	1.404	2.463	3.069	0.000	3.069
Total Adjustments	0.022	0.000	3.069	0.000	3.069
• 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	0.022	0.000	3.069	0.000	3.069

**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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0301401F <i>I Air Force Space and Cyber Non-Traditional ISR for Battlespace Awareness</i>			
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> TAC OPIR Processing  <b>Description:</b> Develop tactical OPIR processing comprised of software development, controlled multi-level security interface that provides data access and processing services for a robust and flexible network architecture.  <b>FY 2022 Plans:</b> Funding will support tactical OPIR processing  <b>FY 2023 Plans:</b> Continue to work tactical OPIR processing  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase based on RDTE schedule.		1.404	2.463	3.069
<b>Accomplishments/Planned Programs Subtotals</b>		1.404	2.463	3.069
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> All contracts funded in this program will be awarded using competitive procedures to the maximum extent possible.				

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0301401F / Air Force Space and Cyber Non-Traditional ISR for Battlespace Awareness				<b>Project (Number/Name)</b> 67A051 / Space Superiority - Advanced Intelligence Systems				

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Cross Domain OPIR	C/CPFF	NASIC : Dayton, OH	-	1.404	Oct 2021	2.463	Oct 2021	3.069	Oct 2022	-		3.069	Continuing	Continuing	-
<b>Subtotal</b>			-	1.404		2.463		3.069		-		3.069	Continuing	Continuing	N/A

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	1.404	2.463	3.069	-	3.069	Continuing	Continuing	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0301401F / Air Force Space and Cyber Non-Traditional ISR for Battlespace Awareness		
			Project (Number/Name) 67A051 / Space Superiority - Advanced Intelligence Systems		

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cross Domain OPIR																												
Algorithm Development																												
Tactical OPIR Processing																												
Hardware Purchases, Software Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0301401F / Air Force Space and Cyber Non-Traditional ISR for Battlespace Awareness	Project (Number/Name) 67A051 / Space Superiority - Advanced Intelligence Systems	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Cross Domain OPIR</b>				
Algorithm Development	1	2021	4	2027
<b>Tactical OPIR Processing</b>				
Hardware Purchases, Software Development	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0302015F I E-4B National Airborne Operations Center (NAOC)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	3.940	26.331	25.701	0.000	25.701	21.212	3.579	0.000	0.000	0.000	80.763
674777: E-4B Aircraft Modernization	-	3.940	26.331	25.701	0.000	25.701	21.212	3.579	0.000	0.000	0.000	80.763
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The four (4) aircraft E-4B National Airborne Operations Center (NAOC) fleet satisfies the military need for an airborne operations center with communications capabilities permitting military and civilian leadership to monitor and control military and civil national assets during all phases of conflict (nuclear and non-nuclear) or natural disaster. The E-4B NAOC fleet also satisfies the military requirement to provide a highly survivable node of the National Military Command System (NMCS).

This program's developmental modifications include, but are not limited to, upgrades and enhancements to aircraft structures, propulsion system, fuel system, environmental control system, electrical generation and distribution systems, flight safety and navigation systems (with their associated communications equipment), Flight deck simulator, and Systems Integration Lab. Additionally, modifications may enhance the aircraft's operations center facilities, to include but not limited to those necessary for the Senior Leadership Command, Control and Communications System (SLC3S), National Leadership Command Capability (NLCC), Nuclear Command, Control, and Communications (NC3) and other communications necessary for the E-4B fleet to execute its mission. Funds may also be used to explore and develop modifications, upgrades, and future systems required to meet evolving mission requirements. This budget supports the following developmental modifications and studies/projects currently underway or planned for accomplishment:

- The Mobile User Objective System (MUOS) program upgrades the E-4B's Ultra-High Frequency (UHF) Radio transmitters to be MUOS capable to meet E-4B Capability Development Document (CDD) and CJCSI 6250.01F requirements. MUOS provides securable data and full duplex voice communications while simultaneously monitoring a second frequency. The MUOS upgrade will provide interoperability with MUOS waveforms for voice and data communications and with other nuclear and national command and control (C2) centers and aircraft by replacing the legacy USC-42 UHF SATCOM radios with a MUOS capable radio. FY22 was the last year of funding for this program.

- Survivable Super High Frequency (SSHF) will upgrade and replace portions of the E-4B's Jam-Resistant Secure Communications (JRSC) system to meet existing Presidential Policy Directive (PPD)-35 and National Security Presidential Directive (NSPD)-51/Homeland Security Presidential Directive (HSPD)-20 requirements and to ensure continued connectivity and interoperability as satellite and communications infrastructure evolves. Expected modifications include, but are not limited to, component and sub-system upgrades and replaces of portions of the current SHF system that are obsolete or near end of service life. A replacement to the SHF system is required as secure, survivable communications capability transitions from the Defense Satellite Communications System (DSCS). A risk-reduction study was completed in FY19 to further define the acquisition strategy of the SSHF program. The program will be acquired in 2 increments: Increment 1 will include technical solutions such as upgrading the existing modems, systems integration lab, and Ka-band system. Increment 2 will include new modem technology, new Ku-band system, common workstation, and upgrades to the X-band system.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>
<p>- E-4B Full Motion Flight Deck Simulator program will develop an E-4B full motion 747-200 flight crew simulator, configured to represent the E-4B cockpit configuration for the pilot and flight engineer stations and be representative of day and night aerial refueling with simulation of fuel on-load characteristics. This capability will fill a critical training gap for pilots and flight engineers once the already limited current training options are decommissioned (Sep 24). This training capability shortfall will directly impact E-4B flight operations and aircraft availability as use of the aircraft for this purpose reduces already limited aircraft availability required for operational missions resulting in insufficient flight time for pilots to maintain certifications. FY20 new start approved in Sep 20. FY22 was the last year of funding for this program.</p> <p>- The Low Frequency Transmit System (LFTS) program replaces the E-4B's legacy Very Low Frequency/Low Frequency (VLF/LF) Transmit System, which is over 35 years old and is past its useful life. This capability is required to comply with Presidential Policy Directive (PPD)-35 to ensure there is assured connectivity between civilian and military leadership and military forces during all stages of conflict and/or national emergencies. The transmit system consists of three primary equipment groups: a Control/Monitor group, a Power Amplifier/Coupler (PA/C) group, and a Trailing Wire Antenna (TWA) group. The LFTS System requires a trainer to allow the users to become proficient in operating the system and to certify all operators. FY22 was the last year of funding for this program.</p> <p>The total cost of the E-4B SSHF Inc 2 Rapid Prototyping Middle Tier of Acquisition effort is \$172.5 million, including RDT&amp;E and procurement of prototype units. E-4B SSHF Inc 2 Rapid Prototyping 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.</p> <p>This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver E-4B weapon system capability 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 FY21 \$0.0M was expended for civilian pay expenses in this program element, and in FY22 \$0.0M 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0302015F I E-4B National Airborne Operations Center (NAOC)				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	3.462	26.331	0.000	0.000	0.000	
Current President's Budget	3.940	26.331	25.701	0.000	25.701	
Total Adjustments	0.478	0.000	25.701	0.000	25.701	
• 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	0.600	0.000				
• SBIR/STTR Transfer	-0.122	0.000				
• Other Adjustments	0.000	0.000	25.701	0.000	25.701	
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: E-4B Mobile User Objective System (MUOS)				0.000	0.050	0.000
Description: The MUOS program upgrades E-4B Ultra-High Frequency (UHF) Radio transmitters to be MUOS capable to meet the E-4B CDD and CJCSI 6250.01F. MUOS provides securable data and full duplex voice communications while simultaneously monitoring a second frequency. The MUOS upgrade will provide interoperability with MUOS waveforms for voice and data communications and with other nuclear and national C2 centers and aircraft by replacing the legacy USC-42 UHF Satellite Communication (SATCOM) radio system.						
FY 2022 Plans: Includes PMA/Travel. Complete development and test efforts in support of first prototype installation.						
FY 2023 Plans: No FY23 efforts						
FY 2022 to FY 2023 Increase/Decrease Statement: FY22 is the final year of funding for this program.						
Title: Survivable SHF				3.940	25.581	25.701

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> Survivable Super High Frequency (SSHF) will upgrade and replace portions of the E-4B's Jam-Resistant Secure Communications (JRSC) system to meet existing Presidential Policy Directive (PPD)-35 and National Security Presidential Directive (NSPD)-51/Homeland Security Presidential Directive (HSPD)-20 requirements and to ensure continued connectivity and interoperability as satellite and communications infrastructure evolves. Expected modifications include, but are not limited to, component and sub-system upgrades and replaces of portions of the current SHF system that are obsolete or near end of service life. A replacement to the SHF system is required as secure, survivable communications capability transitions from the Defense Satellite Communications System (DSCS). A risk-reduction study was completed in FY19 to further define the acquisition strategy of the SSHF program. The program will be acquired in 2 increments: Increment 1 will include technical solutions such as upgrading the existing modems, systems integration lab, and Ka-band system. Increment 2 will include new modem technology, new Ku-band system, common workstation, and upgrades to the X-band system.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Begin Increment 2 development activities.</li> <li>- Start design of new common workstation.</li> <li>- Initiate development of new modem technology.</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue Increment 2 development activities.</li> <li>- Continue design common workstation.</li> <li>- Continue development of new modem technology.</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY22 to FY23 increase continues work from previous year.</p>				
<p><b>Title:</b> E-4B Full Motion Flight Deck Simulator</p> <p><b>Description:</b> E-4B Full Motion Flight Deck Simulator program will develop an E-4B full motion 747-200 flight crew simulator, configured to represent the E-4B cockpit configuration for the pilot and flight engineer stations and be representative of day and night aerial refueling with simulation of fuel on-load characteristics. The Simulator is necessary to meet operational flight training requirements and fill a critical training gap for pilots and flight engineers once the already limited current training options are decommissioned. This training capability shortfall will directly impact E-4B flight operations and aircraft availability as use of the aircraft for this purpose reduces already limited aircraft availability required for operational missions resulting in insufficient flight time for pilots to maintain certifications.</p> <p><b>FY 2022 Plans:</b></p>		0.000	0.450	0.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>						

  

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Delivery of Flight Simulator  <b>FY 2023 Plans:</b> No FY23 efforts  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY22 is the final year of funding for this program.			
<b>Title:</b> Low Frequency Transmit System (LFTS)  <b>Description:</b> Replaces the E-4B's legacy Very Low Frequency/Low Frequency (VLF/LF) Transmit System, which is over 35 years old and is past its useful life. This capability is required to comply with Presidential Policy Directive (PPD)-35 to ensure there is assured connectivity between civilian and military leadership and military forces during all stages of conflict and/or national emergencies.  <b>FY 2022 Plans:</b> -Complete data analysis of LFTS testing/certification to meet IOC requirement and other contract closeout actions. -Initiate design and development of LFTS Trainer.  <b>FY 2023 Plans:</b> No FY23 efforts  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY22 is the final year of funding for this program.	0.000	0.250	0.000
<b>Accomplishments/Planned Programs Subtotals</b>	3.940	26.331	25.701

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item E00400: <i>E-4B Nat Airborne Ops Center (NAOC)</i>	44.140	19.081	5.973	-	5.973	20.618	38.828	43.063	43.996	Continuing	Continuing
• APAF 06 Line Item 000999: <i>Initial Spares/Repair Parts</i>	0.339	0.339	5.000	-	5.000	0.363	0.369	0.375	0.383	0.000	7.168
<b>Remarks</b>											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0302015F I E-4B National Airborne Operations Center (NAOC)	
<b>E. Acquisition Strategy</b> Acquisition Strategy: The acquisition strategy for each specific modification differs based on the urgency of the requirement, definition of the capability, and technology readiness level of the components.  The Acquisition Strategy for Survivable SHF is a Section 804 Middle Tier Acquisition (MTA). Increment 1 Rapid Prototype MTA was approved in April 2019. Increment 2 Rapid Prototype MTA was approved in December 2021.  Management Strategy: Program management for all aircraft modifications is executed by the Commercial Derivative Aircraft Division at Tinker AFB, Oklahoma. The Program Executive Officer (PEO) for Presidential and Executive Airlift, at Wright Patterson, Ohio provides management oversight.  Contracting Strategy: The contracting strategy differs for each individual modification, but normally includes an initial engineering study contract followed by a development contract. Production installations and sustainment are typically accomplished with the E-4B Contractor Logistics Support (CLS) contract.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0302015F / E-4B National Airborne Operations Center (NAOC)				Project (Number/Name) 674777 / E-4B Aircraft Modernization					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MUOS	SS/CPIF	Raytheon : Largo, FL	-	-		0.050	Sep 2022	-		-		-	0.000	0.050	13.000
E-4B Full Motion Flight Deck Simulator	SS/FFP	CymSTAR : Broken Arrow, OK	-	-		0.450	Dec 2021	-		-		-	0.000	0.450	9.450
Survivable SHF	C/CPFF	L-3 : SLC, UT	-	3.940	Dec 2021	25.581	Apr 2022	25.701	Jan 2023	-		25.701	0.000	55.222	120.000
LFTS Development	SS/CPIF	Boeing : OKC, OK	-	-		0.250	Mar 2022	-		-		-	0.000	0.250	0.250
Subtotal			-	3.940		26.331		25.701		-		25.701	0.000	55.972	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	3.940		26.331		25.701		-		25.701	0.000	55.972	N/A
Remarks															
FY21, FY22, & FY23 SSHF funding supports development, integration, and test of prototype SSHF system under L-3Harris contract.															
FY22 LFTS funding supported contract closeout of integration and test of prototype LFTS system under Boeing's ESS contract.															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>			<b>Project (Number/Name)</b> 674777 / <i>E-4B Aircraft Modernization</i>

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>E-4B Aircraft Modernization</i></b>																												
MUOS Modification Integration and Testing																												
MUOS Modification Milestone Decision C																												
Survivable SHF Rapid Prototype Decision Inc 1																												
Survivable SHF Inc 1 Integration and Testing																												
Survivable SHF Inc 1 Prototype Modification Decision																												
Survivable SHF Inc 1 Rapid Fielding Decision																												
Survivable SHF Rapid Prototype Decision Inc 2																												
Survivable SHF Inc 2 Integration and Testing																												
Survivable SHF Inc 2 Prototype Modification Decision																												
Survivable SHF Inc 2 Rapid Fielding Decision																												
E-4B Full Motion Flight Deck Simulator Ready For Training																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0302015F / E-4B National Airborne Operations Center (NAOC)	Project (Number/Name) 674777 / E-4B Aircraft Modernization	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>E-4B Aircraft Modernization</b>				
MUOS Modification Integration and Testing	1	2021	4	2022
MUOS Modification Milestone Decision C	1	2023	1	2023
Survivable SHF Rapid Prototype Decision Inc 1	2	2021	2	2021
Survivable SHF Inc 1 Integration and Testing	1	2021	4	2022
Survivable SHF Inc 1 Prototype Modification Decision	3	2022	3	2022
Survivable SHF Inc 1 Rapid Fielding Decision	1	2023	1	2023
Survivable SHF Rapid Prototype Decision Inc 2	1	2022	1	2022
Survivable SHF Inc 2 Integration and Testing	1	2022	4	2024
Survivable SHF Inc 2 Prototype Modification Decision	1	2024	1	2024
Survivable SHF Inc 2 Rapid Fielding Decision	4	2024	4	2024
E-4B Full Motion Flight Deck Simulator Ready For Training	3	2022	3	2022

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b>					<b>R-1 Program Element (Number/Name)</b>							
3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					PE 0303131F <i>I Minimum Essential Emergency Communications Network (MEECN)</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	38.298	58.165	41.171	0.000	41.171	11.754	11.456	11.420	7.593	Continuing	Continuing
672832: <i>MEECN System Improvements</i>	-	0.281	0.971	1.023	0.000	1.023	1.045	1.065	1.087	0.008	Continuing	Continuing
672835: <i>Common VLF/LF Receiver Inc 2</i>	-	17.032	37.465	20.766	0.000	20.766	10.709	10.391	10.333	7.585	Continuing	Continuing
676030: <i>Global ASNT Inc 2</i>	-	20.985	19.729	19.382	0.000	19.382	0.000	0.000	0.000	0.000	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

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.

The Minimum Essential Emergency Communications Network (MEECN) portfolio modernizes the systems necessary to effectively provide assured communications connectivity between the President and the strategic deterrence forces in stressed environments.

MEECN System Improvements (MSI) is a long-range planning process with users (Air Force Global Strike Command (AFGSC), Air Combat Command (ACC), United States Space Force (USSF), Air Mobility Command (AMC), Air Force Special Operations Command (AFSOC), US Strategic Command (USSTRATCOM), and the US Navy (USN)) to monitor and assess the performance of existing NC3 systems and develop recommendations for strategic and tactical architecture upgrades, requirements, and issues based on available and emerging technologies. MSI is used to conduct technology testing; analyze technology strategies; conduct requirement trade space analysis, technology maturation and risk reduction efforts, and mission analysis; and build technology roadmaps as proactive support to the NC3 community. MSI performs analysis, integration, and testing activities for the NC3 Weapon System.

Common Very Low Frequency/Low Frequency (VLF/LF) Receiver (CVR) Increment 2 (CVR Inc 2) Program will develop and produce an open systems architecture (OSA) compliant, advanced, adaptable VLF/LF receiver for the NC3 weapon system, AN/USQ-225. The program will continue new MEECN waveform specification maturation for USAF and USN implementation to VLF systems to improve reception range and accuracy while ultimately shortening required transmission time. As the USAF VLF receiver integrator, the VLF Enterprise Program Office will assume responsibility for VLF sustainment to include configuration management of the CVR Increment 1 (CVRi1) materiel solution while also providing management support to the B-52 VLF Modernization Program for its procurement and production of the directed VLF receiver. The VLF Enterprise Program Office will provide the same management support to other legacy NC3 platforms' VLF receiver requirements. The Program will complete its investment in pre-EMD VLF modernization activities as directed by the VLF Enterprise Program Office to advance technology maturation to be made available for incorporation into current and next generation VLF reception architectures and integrated with Joint All Domain Command and Control (JADC2).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0303131F I Minimum Essential Emergency Communications Network (MEECN)	
<p>Global Aircrew Strategic Network Terminal (Global ASNT) program replaces inadequate, unsustainable strategic communications equipment at bomber, tanker and reconnaissance Wing Command Posts (WCPs), Nuclear Task Forces and Munitions Support Squadrons (MUNSS) and for Mobile Support Teams (MSTs). Global ASNT is a ground-based system that will provide survivable, secure communication paths to receive Emergency Action Messages (EAMs), Force Management messages, and Force Direction messages and disseminate them to bomber, tanker, and reconnaissance aircrews.</p> <p>Global ASNT is being fielded in separate capability increments. Global ASNT Increment 1 (Inc. 1) includes early system engineering support for the planning and development for the future Global ASNT Increments.</p> <p>Global ASNT Inc. 1 fields required Extremely High Frequency/Advanced Extremely High Frequency (EHF/AEHF) capabilities and replaces inadequate, unsustainable strategic mobile and fixed-site Single Channel Anti-jam Man-Portable (SCAMP) terminals and Secure, Mobile, Anti-Jam, Reliable, Tactical - Terminal (SMART-T) equipment. FY19 was the last year of RDT&amp;E funding.</p> <p>Global ASNT Increment 2 delivers a replacement Aircrew Alerting System (AAS) consisting of personal and general area alerting as well as Ultra High Frequency (UHF) line of sight (LOS) voice communications to bomber, tanker, and reconnaissance aircraft. Increment 2 replaces aging legacy Electromagnetic Pulse Hardened Dispersal Communication (EHDC) and Aircrew Alerting Communications Electromagnetic Pulse (AACE) systems.</p> <p>The total cost of the Global ASNT Inc 2 Middle Tier of Acquisition effort is 105 million, including RDT&amp;E and procurement of prototype units. The Global ASNT Inc 2 is fully funded across the Future Years Defense Program.</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 elements 0605831F and 0605833F. In FY2021 1.593M was expended for civilian pay expenses in this program element, in FY22 1.229M 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0303131F I <i>Minimum Essential Emergency Communications Network (MEECN)</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	44.640	20.700	0.000	0.000	0.000
Current President's Budget	38.298	58.165	41.171	0.000	41.171
Total Adjustments	-6.342	37.465	41.171	0.000	41.171
• 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	37.465			
• Reprogrammings	-4.885	0.000			
• SBIR/STTR Transfer	-1.457	0.000			
• Other Adjustments	0.000	0.000	41.171	0.000	41.171

**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.

FY21: -4.885M omnibus reprogramming; -1.457M SBIR reduction

FY22: AF requested transfer of \$37.465M via technical adjustment from Line #46 (SAOC) to CVRi2

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)				Project (Number/Name) 672832 / MEECN System Improvements			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672832: MEECN System Improvements	-	0.281	0.971	1.023	0.000	1.023	1.045	1.065	1.087	0.008	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
MSI is a long-range planning process with users (Air Force Global Strike Command (AFGSC), Air Combat Command (ACC), United States Space Force (USSF), Air Mobility Command (AMC), Air Force Special Operations Command (AFSOC), US Strategic Command (USSTRATCOM), and the US Navy) to monitor and assess the performance of existing NC3 systems and develop recommendations for strategic and tactical architecture upgrades, requirements, and issues based on available and emerging technologies. MSI is used to conduct technology testing; analyze technology strategies; conduct requirement trade space analysis, technology maturation and risk reduction efforts, and mission analysis; and build technology Roadmaps as proactive support to the NC3 community. MSI performs analysis, integration, and testing activities for the NC3 Weapon System.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
Title: MEECN System Improvements									0.281	0.971	1.023	
Description: MSI is used to conduct technology testing, analyze technology strategies, conduct requirement trade space analysis, technology maturation and risk reduction efforts, and mission analysis, and build technology Roadmaps as proactive support to the NC3 community. MSI may also be used to execute test bed activities and exercise participation related to Advanced Battle Management System (ABMS) and JADC2 demonstrations and execute contracts in support of next generation NC3 systems and sub-systems												
FY 2022 Plans:												
- Conduct analysis of the performance/condition of NC3 platforms' VLF receiver Group A elements (e.g., antennas, power source, cabling/wiring, human machine interface (HMI), etc.)												
- Continue to refresh NC3 Architecture Roadmap												
- Award and execute Johns Hopkins University/Advanced Physics Laboratory (JHU/APL) VLF studies (3)												
(1) VLF ground characterization study of several B-2 aircraft in an operational environment												
(2) Characterization of VLF/LF antenna performance through Modeling & Simulation (M&S) for Transverse Magnetic (TM) only antenna vs Transverse Magnetic (TM) /Transverse Electric (TE) antennas in benign and disturbed environments												
(3) Establish methodology for an in-depth cyber evaluation study of the fielded CVRi1 radio												
- Continue development for project Lofted Antenna Emergency Relay Node (LANTERN) with MIT LL												
- Complete MSI Summary Report												
- Perform analysis of engineering issues and technology insertion												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	<b>Project (Number/Name)</b> 672832 / <i>MEECN System Improvements</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>- Conduct technology maturation and risk reduction activities</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Conduct analysis of the performance/condition of NC3 platforms' VLF receiver Group A elements (e.g., antennas, power source, cabling/wiring, human machine interface (HMI), etc.)</li> <li>- Continue to refresh NC3 Architecture Roadmap</li> <li>- Continue development of Project LANTERN with MIT/LL</li> <li>- Complete MSI Summary Report</li> <li>- Perform analysis of engineering issues and technology insertion</li> <li>- Conduct technology maturation and risk reduction activities</li> <li>- Evaluate integrated technology, representative modes, and prototype systems</li> <li>- Perform analysis, integration, and testing activities</li> <li>- Conduct NC3 Connectivity Performances updates</li> <li>- Develop messaging, waveform, mode, and system standards and documentation</li> <li>- Conduct studies, analysis, proof-of-concept, and prototyping for the assessment and modernization of the AF NC3 Weapon System (AN/ USQ-225)</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to inflation</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		0.281	0.971
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> MSI will continue to evaluate the performance of the NC3 Weapon System by assessing performance and technology areas for improvement with the assistance of expert technical support from FFRDCs, UARCs, and may include competitively awarded technical support contracts with industry. MITRE, Massachusetts Institute of Technology (MIT) Lincoln Labs, and Johns Hopkins University/Applied Physics Laboratory (JHU/APL) will continue to support NC3 Weapon System Architecture Roadmap updates.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)				Project (Number/Name) 672832 / MEECN System Improvements					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MSI NC3 Roadmap / NC3 Connectivity Performances Update	Various	JHU/APL : Laurel, MD	-	0.000	Sep 2021	0.374	Jun 2022	0.345	Jan 2023	-		0.345	Continuing	Continuing	-
Antenna Study	Various	MIT/LL : Lexington, MA	-	0.131	Mar 2021	0.400	Jun 2022	0.300	Jan 2023	-		0.300	Continuing	Continuing	-
Subtotal			-	0.131		0.774		0.645		-		0.645	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Support	Various	Various : Various	-	0.150	Nov 2020	0.194	Apr 2022	0.375	Apr 2023	-		0.375	Continuing	Continuing	-
Subtotal			-	0.150		0.194		0.375		-		0.375	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MSI PSC (Eng/Acq Spt/Travel/IMPAC)	Various	Various : Various	-	0.000	Nov 2020	0.003	Mar 2022	0.003	Mar 2023	-		0.003	Continuing	Continuing	-
Subtotal			-	0.000		0.003		0.003		-		0.003	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.281		0.971		1.023		-		1.023	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)										Project (Number/Name) 672832 / MEECN System Improvements									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>MEECN System Improvement</i></b>																												
MEECN System Improvement																												
MSI Summary Report - FY22																												
MSI Summary Report - FY23																												
MSI Summary Report - FY24																												
MSI Summary Report - FY25																												
MSI Summary Report - FY26																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)	Project (Number/Name) 672832 / MEECN System Improvements	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MEECN System Improvement				
MEECN System Improvement	1	2022	4	2027
MSI Summary Report - FY22	1	2023	1	2023
MSI Summary Report - FY23	1	2024	1	2024
MSI Summary Report - FY24	1	2025	1	2025
MSI Summary Report - FY25	1	2026	1	2026
MSI Summary Report - FY26	1	2027	1	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)				Project (Number/Name) 672835 / Common VLF/LF Receiver Inc 2			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672835: Common VLF/LF Receiver Inc 2	-	17.032	37.465	20.766	0.000	20.766	10.709	10.391	10.333	7.585	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Common Very Low Frequency/Low Frequency (VLF/LF) Receiver (CVR) Increment 2 (CVR Inc 2) Program will develop and produce an open systems architecture (OSA) compliant, advanced, adaptable VLF/LF receiver for the NC3 weapon system, AN/USQ-225. The program will also lead development of the interoperable New MEECN waveform specification for USAF and USN implementation to VLF systems to improve reception range and accuracy while ultimately shortening required transmission time. As the USAF VLF receiver integrator, the VLF Enterprise Program Office will assume responsibility for VLF sustainment to include configuration management of the CVR Increment 1 (CVRi1) materiel solution while also providing management support to the B-52 VLF Modernization Program for its procurement and production of the directed VLF receiver. The VLF Enterprise Program Office will provide the same management support to other legacy NC3 platforms' VLF receiver requirements. The program will complete its investment in pre-EMD VLF modernization activities as directed by the VLF Enterprise Program Office to advance technology maturation to be made available for incorporation into current and next generation VLF reception architectures and integrated with Joint All Domain Command and Control (JADC2).

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 elements 0605831F and 0605833F. In FY2021 \$1.593M was expended for civilian pay expenses in this program element. In FY2022 \$1.229M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> CVR Inc 2	17.032	37.465	20.766
<b>Description:</b> Post-MDD and progression to prototype development employing a Middle Tier Acquisition (MTA) approach.			
<b>FY 2022 Plans:</b>			
- Evaluate industry proposals for CVRi2			
- Award Delivery Order and execute contract			
- Complete Final Test and Evaluation Strategy (TES) and initiate Test Planning			
- Hold System Requirements Review (SRR)/System Functional Review (SFR)			
<b>FY 2023 Plans:</b>			
- Hold CVRi2 Preliminary Design Review (PDR)			
- Provide CVRi2 digital models to lead platform (Survivable Airborne Operations Center (SAOC)) for its Milestone B/Contract Award			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>			<b>Project (Number/Name)</b> 672835 / <i>Common VLF/LF Receiver Inc 2</i>				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>		
- Begin Integrated Test Phase for Developmental Testing - Hold CVRi2 Critical Design Review (CDR)											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease due to less PSC requirements in FY23											
<b>Accomplishments/Planned Programs Subtotals</b>							17.032	37.465	20.766		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 03031313F: CVRi2	0.000	0.000	0.000	-	0.000	0.000	0.000	0.080	4.080	Continuing	Continuing
<b>Remarks</b> N/A											
<b>D. Acquisition Strategy</b> Employing a Middle Tier Acquisition (MTA) Rapid Prototyping (RP) approach, CVR Inc 2 will use the Advanced Battle Management Systems (ABMS) Indefinite Delivery/ Indefinite Quantity (IDIQ) Broad Area Announcement (BAA) to release a fair opportunity proposal request (FOPR) in order to award a delivery order to develop an Open Systems Architecture (OSA)-compliant, advanced VLF/LF receiver prototype. The Survivable Airborne Operations Center (SAOC) is lead platform, and the system will be adaptable to other NC3 platforms. The program plans to transition to an MTA Rapid Fielding (RF) phase to compete a contract for production and fielding to meet SAOC timeline requirements. Acquisition Strategy approved 27 Sep 21.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)				Project (Number/Name) 672835 / Common VLF/LF Receiver Inc 2					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Early Development (TMRR/prototyping)	Various	Various : TBD	-	5.994	Jun 2021	18.934	Jun 2022	16.949	Jun 2023	-		16.949	Continuing	Continuing	-
Prime Contract ECOs	Various	Various : TBD	-	-		2.379	Jun 2022	-		-		-	Continuing	Continuing	-
MITRE (DMS)	Various	Various : Bedford, MA	-	1.791	Feb 2021	2.920	Sep 2022	0.000		-		0.000	Continuing	Continuing	-
GFE	Various	Various : Various	-	0.046		0.046	Aug 2022	-		-		-	Continuing	Continuing	-
NSA Certification	Various	Various : Fort Meade, MD	-	0.400	Jun 2021	0.355	Aug 2022	0.000		-		0.000	Continuing	Continuing	-
Subtotal			-	8.231		24.634		16.949		-		16.949	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Various : Hanscom, MA	-	1.105	Sep 2021	1.331	Sep 2022	1.654	Sep 2023	-		1.654	Continuing	Continuing	-
Subtotal			-	1.105		1.331		1.654		-		1.654	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	C/CPAF	Various : 96TW	-	0.234	Aug 2021	0.840	Feb 2023	0.843	Feb 2024	-		0.843	Continuing	Continuing	-
Subtotal			-	0.234		0.840		0.843		-		0.843	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)				Project (Number/Name) 672835 / Common VLF/LF Receiver Inc 2					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSC (Eng/Acq Spt/Travel/IMPAC)	Various	Various : Hanscom, MA	-	5.041	Mar 2021	7.405	Apr 2022	1.320	Apr 2023	-		1.320	Continuing	Continuing	-
MITRE (PSC)	Various	Various : Bedford, MA	-	2.421	Mar 2021	3.255	Sep 2022	0.000		-		0.000	Continuing	Continuing	-
Subtotal			-	7.462		10.660		1.320		-		1.320	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	17.032		37.465		20.766		-		20.766	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)

## Project (Number/Name)

672835 / Common VLF/LF Receiver Inc 2

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>CVR Inc. 2</b>																												
CVRi2 MTA ASP Rapid Prototyping				■																								
New WF Interoperability Demonstration							■																					
Fair Opportunity Proposal Request Release							■																					
CVRi2 Receive Proposals							■																					
CVRi2 Proposal Evaluation							■	■																				
CVRi2 Delivery Order Award								■																				
ADM Program Start								■																				
CVRi2 Rapid Prototyping Development								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
CVRi2 SRR/SFR								■																				
CVRi2 Preliminary Design Review (PDR)										■																		
CVRi2 Critical Design Review (CDR)											■																	
Technical Readiness Level 7 Demonstration																			■									
ADM Program Complete																			■									

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)

## Project (Number/Name)

672835 / Common VLF/LF Receiver Inc 2

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>CVR Inc. 2</b>				
CVRi2 MTA ASP Rapid Prototyping	4	2021	4	2021
New WF Interoperability Demonstration	2	2022	2	2022
Fair Opportunity Proposal Request Release	2	2022	2	2022
CVRi2 Receive Proposals	2	2022	2	2022
CVRi2 Proposal Evaluation	2	2022	3	2022
CVRi2 Delivery Order Award	3	2022	3	2022
ADM Program Start	3	2022	3	2022
CVRi2 Rapid Prototyping Development	3	2022	4	2025
CVRi2 SRR/SFR	4	2022	4	2022
CVRi2 Preliminary Design Review (PDR)	2	2023	2	2023
CVRi2 Critical Design Review (CDR)	4	2023	4	2023
Technical Readiness Level 7 Demonstration	4	2025	4	2025
ADM Program Complete	4	2025	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)				Project (Number/Name) 676030 / Global ASNT Inc 2			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
676030: Global ASNT Inc 2	-	20.985	19.729	19.382	0.000	19.382	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Global ASNT Inc 2 replaces aging legacy strategic communications equipment at bomber, tanker and reconnaissance Wing Command Posts (WCPs), Nuclear Task Forces, Munitions Support Squadrons (MUNSS), and Mobile Support Teams (MSTs). Global ASNT Inc 2 is a ground-based system that will provide survivable, secure communication paths to disseminate Emergency Action Messages (EAMs) to bomber, tanker, and reconnaissance aircrews.												
Global ASNT Inc 2 is being fielded in 3 separate capability incremental blocks; all 3 blocks are High-Altitude Electro-Magnetic Pulse (HEMP) and Radiation Hazard (RADHAZ) protected.												
Global ASNT Inc 2 Block 1 delivers a replacement Aircrew Alerting System (AAS) consisting of Ultra High Frequency (UHF) personal and general alerting equipment replacing EHDC and AACE systems. Global ASNT Inc 2 Blocks 2 and 3 provide High Frequency (HF) capabilities and other enhancements, Block 2 and 3 requirements are currently deferred to focus on the highest priority needs.												
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 elements 0605831F and 0605833F. In FY2021 1.593M was expended for civilian pay expenses in this program element, in FY22 1.229M is forecasted for civilian pay expenses in this program element.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
Title: Global ASNT Inc 2, Block 1									20.985	19.729	19.382	
Description: Middle Tier Acquisition - Rapid Prototyping												
FY 2022 Plans:												
- Begin and complete Phase 1 (Non-HEMP) prototype development												
- Non-HEMP DT and OT unit development and delivery												
- Non-HEMP unit training												
- Non-HEMP environmental qualification												
- Non HEMP DT and OT Testing												
- Begin Phase 2 (HEMP) prototype development												
- Complete Phase 1 (Non-HEMP) site prep in support of first two fixed site installs												
FY 2023 Plans:												

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force								Date: April 2022			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)				Project (Number/Name) 676030 / Global ASNT Inc 2			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	
HEMP DT and OT unit development and delivery Non-HEMP retrofit kit development HEMP DT and OT Testing											
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding decrease due to transition to production/fielding in FY23.											
<b>Accomplishments/Planned Programs Subtotals</b>								20.985	19.729	19.382	
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 05 0303131F: Minimum Essential Emergency Communications Network (MEECN)	0.000	0.000	14.805	-	14.805	43.635	81.754	55.128	0.010	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
GASNTi2 Block 1 is leveraging the Rapid Prototyping MTA pathway for development and the program plans to transition to a Rapid Fielding MTA.											
Pending success of Block 1, Blocks 2 and 3 will utilize the same MTA Prototype acquisition approach to continue rapid development and delivery of capabilities to the warfighter.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0303131F / Minimum Essential Emergency Communications Network (MEECN)						Project (Number/Name) 676030 / Global ASNT Inc 2			
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Various : Bedford, MA	-	13.965	Aug 2021	13.475	Dec 2021	12.966	Dec 2022	-		12.966	Continuing	Continuing	-
Subtotal			-	13.965		13.475		12.966		-		12.966	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Various : Bedford, MA	-	0.488	Oct 2020	1.229	Oct 2021	1.255	Oct 2022	-		1.255	Continuing	Continuing	-
Information Assurance	SS/CPAF	Booz Allen Hamilton : Bedford, MA	-	0.082	Jul 2021	0.080	Mar 2022	0.082	Apr 2023	-		0.082	Continuing	Continuing	-
Subtotal			-	0.570		1.309		1.337		-		1.337	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test Planning	PO	96 TW : Eglin AFB, FL	-	0.351	May 2021	0.653	Apr 2022	0.841	Mar 2023	-		0.841	Continuing	Continuing	-
Subtotal			-	0.351		0.653		0.841		-		0.841	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSC - (Eng/Acq Support, Travel)	C/CPAF	Various : Bedford, MA	-	2.434	Oct 2020	2.054	Oct 2021	2.065	Oct 2022	-		2.065	Continuing	Continuing	-
PSC-MITRE	C/CPAF	Not specified. : TBD	-	3.665	Oct 2020	2.238	Oct 2021	2.173	Oct 2022	-		2.173	Continuing	Continuing	-
Subtotal			-	6.099		4.292		4.238		-		4.238	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force										<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>					<b>Project (Number/Name)</b> 676030 / <i>Global ASNT Inc 2</i>			
	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
<b>Project Cost Totals</b>	-	20.985		19.729		19.382		-		19.382	Continuing	Continuing	N/A
<b>Remarks</b>													

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force Date: April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>	<b>Project (Number/Name)</b> 676030 / <i>Global ASNT Inc 2</i>
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Global ANST Inc 2</b>																												
ASP Approved																												
Solicitation Released																												
Proposal Evaluations Completed																												
Agreement Award																												
RDT&E (Non-HEMP)																												
RDT&E (HEMP)																												
Production																												
RAA IOC (Non-HEMP)																												
RAA IOC (HEMP)																												
RAA FOC (HEMP)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0303131F / <i>Minimum Essential Emergency Communications Network (MEECN)</i>		<b>Project (Number/Name)</b> 676030 / <i>Global ASNT Inc 2</i>

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Global ANST Inc 2</i></b>				
ASP Approved	1	2021	1	2021
Solicitation Released	2	2021	2	2021
Proposal Evaluations Completed	2	2021	3	2021
Agreement Award	4	2021	4	2021
RDT&E (Non-HEMP)	1	2022	4	2022
RDT&E (HEMP)	1	2022	2	2024
Production	1	2023	3	2026
RAA IOC (Non-HEMP)	1	2024	1	2024
RAA IOC (HEMP)	3	2025	3	2025
RAA FOC (HEMP)	3	2026	3	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0303140F I Information Systems Security Program							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	9.592	8.032	70.582	0.000	70.582	62.897	64.072	65.422	66.878	Continuing	Continuing
675100: Cryptographic Modernization	-	9.592	8.032	70.582	0.000	70.582	62.897	64.072	65.422	66.878	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Information Systems Security Program (ISSP) - Includes resources, manpower authorizations, necessary facilities and equipment required to perform INFOSEC research and development, to provide INFOSEC services, to procure INFOSEC products required to secure telecommunications and information systems when such products are separately procurable from host systems, and to provide INFOSEC maintenance and support. Also includes costs associated with the protection afforded to telecommunications and information systems which process sensitive data and efforts to ensure confidentiality, integrity, and availability of the information and the system.

The ISSP Element provides centrally-funded cradle-to-grave research, development, acquisitions, supply, sustainment, depot maintenance, and demilitarization of the Air Force (AF) cryptographic and key distribution/management systems. ISSP delivers on rising national, DoD, and AF priorities to address cyber security threats and increasing war-fighter dependence on cyberspace. The AF and the DoD require the capability to securely collect, process, store, and disseminate an uninterrupted flow of information, while denying an adversary the ability to intercept, collect, destroy, interpret, or manipulate our information flows. Secure communication allows the DoD to achieve and maintain decision superiority, the key to successful application of the military instrument of national power in modern, high-tempo, full-spectrum operations. AF Communications Security (COMSEC) equipment protects information such as war-fighter positions, mission planning, target strikes, commanders' orders, intelligence, force strength, and force readiness. When an adversary is capable of interpretation, manipulation, or destruction of the information used by the war-fighter, DoD military forces will suffer significant and/or devastating mission degradation that can result in loss of life and resources and/or exceptionally grave damage to national security.

The overall focus of the Research, Development, Test, and Evaluation (RDT&E) efforts within this program is to transform electronic key delivery and cryptographic devices to meet the next generation war-fighting requirements. These efforts are driven by the National Security Agency's (NSA) mandates to address decertifications, new requirements, and end of life issues. NSA requires an inventory of cryptographic devices that are more robust, modular, scalable, capable, net-centric, and durable. This enables more effective and efficient performance including reduced inventory, expanded data rates, simplified upgrades, lower life cycle costs, and ensured global information grid-compatibility.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver ISSP 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 CY 0.780M was expended for civilian pay expenses in this program element, and in BY 0.300M is forecasted 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0303140F / <i>Information Systems Security Program</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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	10.351	8.032	0.000	0.000	0.000
Current President's Budget	9.592	8.032	70.582	0.000	70.582
Total Adjustments	-0.759	0.000	70.582	0.000	70.582
• Congressional General Reductions	-0.019	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	-0.437	0.000			
• SBIR/STTR Transfer	-0.303	0.000			
• Other Adjustments	0.000	0.000	70.582	0.000	70.582

**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. FY2023 funding increased significantly to address expanding quantum resilient and cyber security requirements including Technology Development, IFF Mode 5, and Classified Data at Rest (CDAR).

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program				Project (Number/Name) 675100 / Cryptographic Modernization			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675100: Cryptographic Modernization	-	9.592	8.032	70.582	0.000	70.582	62.897	64.072	65.422	66.878	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The AF Cryptographic Modernization (CM) effort modernizes cryptographic devices protecting critical national security information across multi-domain operations. This AF effort supports an integrated effort across the cyber domain to transform to next-generation cryptographic capabilities. It provides U.S. forces and multinational and interagency partners the multi-domain security needed to protect the flow and exchange of strategic, operational, and tactical information in accordance with national and international policy/standards, and the validated requirements of decision makers, warfighters, and the intelligence community. The AF Cryptographic Modernization 2 (CM2) effort is required by Chairman Joint Chiefs of Staff Notice (CJCSN) 6510 and NSA Decertification Messages (CED-31-15/037-21/032-16) for the need to add quantum resistance to the existing high assurance cryptographic products. This effort will allow protection against advanced & evolving quantum computing threats. All existing crypto devices will be vulnerable and must be modernized to be quantum resilient. The majority of the development effort includes hardware changes to the existing crypto devices.

The CM effort is a holistic AF-wide "modern" cryptographic strategy to provide long-term, evolving protection of NC3, ISR, PKI, KME, and nearly all AF platforms and ground networks. CM will provide the required enhanced security for all AF voice, data, and video capabilities on the battlefield and throughout the DoD enterprise, and will enable the integration of new capabilities to AF users through development of a new DoD Cryptographic Modernization 2 (CM2) Initial Capabilities Document (ICD) dated 15 July 2021.

To accomplish this effort, it is executed in three phases: replacement, modernization, and transformation. The replacement phase of the program focused on updating and/or replacing out-of-date algorithms along with unsustainable cryptographic products. The modernization phase provides crypto devices with common solutions that are more robust, modular, scalable, and provide durability to existing cryptographic end items, as well as updating midterm aging/unsupportable crypto equipment. The third phase, transformation, provides common joint solutions which enable secure, transparent, multi-domain, network-centric capabilities. Activities also include studies and analysis to support both current program planning/execution and future program planning.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver ISSP 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 CY 0.780M was expended for civilian pay expenses in this program element, and in BY 0.300M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Technology Development (TD)	0.291	0.414	41.292

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program	Project (Number/Name) 675100 / Cryptographic Modernization		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023
<p><b>Description:</b> Technology Development (TD) provides the initial development efforts needed to tackle the current and upcoming quantum computing threat for Crypto Modernization 2. TD will stand up all acquisition efforts for over 13 devices to become quantum resilient, reprogrammable architecture to ensure long service life. Capabilities slated for modernization include classified data at rest if data storage is comprised or captured; NC2 and NC3 requirements, secure voice and data, and remote rekey.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>- Work with stakeholders and ACC HQ on 1067 modifications to establish and conduct pre-contract award activities for standing up approximately three acquisition programs for contract award</li><li>- Work with NSA on new algorithms standards to share with defense contractors on CM2 efforts</li><li>- Enable artificial intelligence and machine learning capabilities for the Joint All Domain Command and Control (JADC2) by developing and delivering NSA Approved cryptologic solutions to secure communications and data storage for tactical and strategic level data</li></ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"><li>- Will finalize contract actions and posture for quick contract awards for development / modification of crypto devices incorporating quantum resilience. Efforts include KG-3XA, KY-280/280A, Small Diameter Bomb II and a Crypto Enterprise Management tool.</li><li>- Will conduct architectural modeling and simulation efforts that drive rapid algorithm and capability evolution to defend against advanced and evolving threats. These digital engineering efforts will provide the standardization across the AF. These efforts include Remote ReKey-Next Gen, Multifunction and Hi-Speed Crypto.</li></ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>Funding increased to accelerate development efforts to defend against evolving quantum threats.</p>					
<p><b>Title:</b> IFF Mode 5</p> <p><b>Description:</b> Modernization of the Identification Friend or Foe (IFF) Mode 5 devices enables the warfighter to engage and accurately identify friendly or enemy forces as friend or foe. It prevents fratricide during target engagements and provides authentication and encryption/decryption services. The modernized devices will be quantum resilient and prevent enemy disruption of IFF functions. They will enhance the needed security for interrogations and response. These encryption devices operate within military aircraft, fixed, and transportable ground stations when connected to an interrogator and/or transponder. The Identification Friend or Foe (IFF) Mode 5 crypto models KIV-77 and KIV-78 require permanent modification. The modification of these devices are required to address quantum threats, produce-ability and algorithm re-programmability mandated by the National Security Agency (NSA) and the 2019 Chairman of the Joint Chiefs of Staff Notice (CJCSN) 6510.</p> <p><b>FY 2022 Plans:</b></p>			4.822	3.852	13.820

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program	Project (Number/Name) 675100 / Cryptographic Modernization		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<div>- Complete development of the KIV-78A IFF Mode 5 device to address quantum threats, produce-ability and algorithm re-programmability and obtain NSA certification</div> <div>- Pre-award development activities to execute for the permanent modification of the KIV-77A IFF Mode 5 device</div> <div><b>FY 2023 Plans:</b></div> <div>- Will award development contract for the KIV-77 IFF Mode 5 device to address quantum threats, produce-ability and algorithm re-programmability and obtain NSA certification in support of the CM2 ICD (dated Jul 2021)</div> <div><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></div> <div>- Funding increased due to awarding development contract for the KIV-77 IFF Mode 5 device</div>				
<div><b>Title:</b> Space Modular Common Crypto (SMCC)</div> <div><b>Description:</b> Space Modular Common Crypto (SMCC) provides Information Assurance (IA) services for new satellite architectures via a family of common crypto solutions that integrate Tracking, Telemetry, &amp; Commanding (TT&amp;C), Mission Data (MD), and/or Transmission Security (TRANSEC) key stream functions for the Air Force and Intelligence Community space systems.</div> <div><b>FY 2022 Plans:</b></div> <div>- Assess performance</div> <div><b>FY 2023 Plans:</b></div> <div>- Will continue performance assessments</div> <div><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></div> <div>N/A</div>		0.100	0.100	0.100
<div><b>Title:</b> Algorithm Transition Compliance and Support</div> <div><b>Description:</b> Supports Air Combat Command (AF lead for Cyber Superiority) in Algorithm Transition Compliance and provides Information Assurance (IA) support by investigating and analyzing all utilized cryptographic algorithms and hundreds of cryptographic equipment types to support the transformation effort in becoming quantum resilient. This includes the development of prototyping efforts to include the development of a software program of a centralized near real-time accountability of AF COMSEC equipment that reports compliance to AF/DoD Leadership. In addition, it will provide automated software updates to crypto devices (networked &amp; non-networked), and field modernized cryptography, replacing outdated inventory, algorithms, and quantum computing.</div> <div><b>FY 2022 Plans:</b></div>		4.279	3.566	2.989

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022	
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program	Project (Number/Name) 675100 / Cryptographic Modernization	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022
<p>- Continue to work with all the AF platforms to analyze the AF crypto enterprise and provide situational awareness of significant risks related to aging inventory and cryptographic vulnerabilities</p> <p>- Continue to provide analysis of adequacy of COMSEC products in support of NSA requirements, sustainment issues, and the state of technology to all AF platforms</p> <p>- Execute a pathfinder effort for the AF community to assist in annual assessments and long-term efforts to develop enterprise</p> <p><b>FY 2023 Plans:</b></p> <p>- Will continue prototyping efforts to reduce risk on the new algorithm integrations across all crypto devices</p> <p>- Will work across all MAJCOMs to ensure the Department of the Air Force is implementing enterprise crypto solutions to reduce logistical footprints and sustainment costs</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>- Funding decreased due to higher AF priorities</p> <p><b>Title:</b> Classified Data At Rest (CDAR)</p> <p><b>Description:</b> CDAR will provide the capability to render classified data at rest unusable to adversaries if data storage is captured or compromised. The development of CDAR is a NSA approved modernized cryptographic solution(s) for use in ISR, C2, and EW platforms exposed to hostile/uncontrolled environments. The enterprise cryptographic solution will encrypt/decrypt Top Secret and Below (TSAB) data at rest residing in a variety of data storage environments.</p> <p><b>FY 2022 Plans:</b></p> <p>- Begin development of increment 1 of the CDAR enterprise cryptographic solution</p> <p>- Continue market research and preparation for Milestone B and entry into EMD</p> <p>- Continue development of system security documentation</p> <p><b>FY 2023 Plans:</b></p> <p>- Will accelerate pre-contract award activities to posture for a late FY23 contract award</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>Funding increased due to higher priority to protect data on airborne platforms</p>			
		0.100	0.100
			12.381
Accomplishments/Planned Programs Subtotals		9.592	8.032
			70.582

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0303140F / <i>Information Systems Security Program</i>				<b>Project (Number/Name)</b> 675100 / <i>Cryptographic Modernization</i>			
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
			<u>FY 2023</u>	<u>FY 2023</u>	<u>FY 2023</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Complete</u>	<u>Total Cost</u>
• OPAF 03 831010: COMSEC Equipment	50.634	61.761	52.727	-	52.727	53.619	54.618	55.763	56.895	Continuing	Continuing
<b>Remarks</b>											
Remarks: Other Program Funding reflects Crypto Modernization (CM) portion of Information Systems Security Program (ISSP) OPAF total.											
<b>D. Acquisition Strategy</b>											
Implement AF portion of the DoD's Cryptographic Modernization (CM) Initiative through modernization/modification efforts, in varying stages of the acquisition cycle, with focus on minimizing life cycle costs. The CM portfolio of component acquisition projects is executing using a variety of approaches that vary from an evolutionary acquisition strategy using spiral development (for new component development) to incremental improvement leveraging leading-edge, certified non-developmental items (for modernization). Contract type is selected for each of the individual projects based upon its acquisition approach and its unique technology risks. A mixture of fixed-price and cost-reimbursement contracts have been selected which maximize the best value for the Government.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program				Project (Number/Name) 675100 / Cryptographic Modernization					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Tech Development	Various	MULTIPLE : MULTIPLE	-	0.291	Jan 2021	0.414	Jan 2022	37.771	Jan 2023	-		37.771	Continuing	Continuing	-
IFF Mode 5	Various	MULTIPLE : MULTIPLE	-	1.805	Feb 2021	1.955	Feb 2022	13.820	Feb 2023	-		13.820	Continuing	Continuing	-
Space Modular Common Crypto (SMCC)	C/CPIF	MULTIPLE : MULTIPLE	-	0.100	Feb 2021	0.100	Feb 2022	0.100	Feb 2023	-		0.100	0.000	0.300	-
Algorithm Transition Compliance and Support	Various	MULTIPLE : MULTIPLE	-	3.507	Apr 2021	3.466	Apr 2022	2.989	Apr 2023	-		2.989	Continuing	Continuing	-
CDAR	Various	MULTIPLE : MULTIPLE	-	0.100	Feb 2021	0.100	Feb 2022	12.381	Feb 2023	-		12.381	Continuing	Continuing	-
Subtotal			-	5.803		6.035		67.061		-		67.061	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
IFF Mode 5	C/CPAF	Not specified. : TBD	-	0.320	Jan 2021	0.422	Jan 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	0.320		0.422		-		-		-	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 (PMA)	Various	Various : Various	-	3.469	Dec 2020	1.575	Dec 2021	3.521	Dec 2022	-		3.521	Continuing	Continuing	-
Subtotal			-	3.469		1.575		3.521		-		3.521	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	9.592		8.032		70.582		-		70.582	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program			Project (Number/Name) 675100 / Cryptographic Modernization			
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program								Project (Number/Name) 675100 / Cryptographic Modernization			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cryptographic Modernization APPN 3600, BA07, PE 0303140F, BPAC 675100																												
Technology Development																												
IFF Mode 5																												
Space Modular Common Crypto (SMCC)																												
Algorithm Transition Compliance and Support																												
CDAR																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303140F / Information Systems Security Program	Project (Number/Name) 675100 / Cryptographic Modernization

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Cryptographic Modernization APPN 3600, BA07, PE 0303140F, BPAC 675100</b>				
Technology Development	1	2021	4	2027
IFF Mode 5	3	2021	4	2027
Space Modular Common Crypto (SMCC)	1	2021	4	2023
Algorithm Transition Compliance and Support	1	2021	4	2027
CDAR	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0303142F I Global Force Management - Data Initiative							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	1.294	0.452	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.746
676027: Global Force Mgt Initiative	-	1.294	0.452	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.746
Quantity of RDT&E Articles	-	-	1	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Global Force Management Data Initiative (GFM DI) is a Joint Staff and the Office of the Secretary of Defense (OSD) initiative to standardize force structure data, making it visible, accessible, and understandable across the Department of Defense (DoD). This initiative is accomplished through each service's Organizational Server. The Air Force Organizational Server (AFOS) consumes data from various Air Force Authoritative Data Sources (ADSs), validates it, formats it in a consistent force structure data standard, and publishes it for consumption by programs of record that use force structure data. The AFOS is the ADS for Air Force Authorized Force Structure and provides critical unit, billet, crew platform, vehicle, and command relationship data within the Air Force to the Joint Staff (J8) for war and contingency planning, by providing visibility of the entire force structure as a function of time: past, present and future.

The AFOS produces consistent force structure data in the Global Force Management Information Exchange Model format that is well defined, centrally managed, and inter-operable as a standardized representation of the organization's hierarchy in all other programs of record that use force structure data. The GFM-DI AFOS integrates the four force management processes (Assignment, Manpower & Personnel, Readiness, and Allocation), and ensures the data is available to meet the needs of all Air Force, Joint, and DoD planners, warfighters, decision-makers, senior leaders and associated systems and functions.

GFM-DI utilized funding to perform studies and innovative integration efforts for common technology capabilities such as cloud migration, technology development, and mobile application.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapons 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 0.0M was expended for civilian pay expenses in this program element, and in FY22 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0303142F I Global Force Management - Data Initiative				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	1.344	0.452	0.000	0.000	0.000	
Current President's Budget	1.294	0.452	0.000	0.000	0.000	
Total Adjustments	-0.050	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	-0.050	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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Global Force Management - Data Initiative				1.294	0.452	0.000
Description: The GFM-DI is a combination of net-centric services designed to provide access to information on the operational availability of USAF forces and equipment. GFM-DI is part of a Joint GFM, (each service has a GFM-DI), directed by OSD and the JCS.						
FY 2022 Plans:						
- Continue to implement major Joint Staff J8 directed database changes						
- Continue refactor database						
- Continue to implement GFM-DI XSD 4.0 Database Changes						
FY 2023 Plans:						
No funding requested in FY23.						
FY 2022 to FY 2023 Increase/Decrease Statement:						
Funding decreased due to completion of the RDT&E project with transition to sustainment.						
Accomplishments/Planned Programs Subtotals				1.294	0.452	0.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0303142F <i>I Global Force Management - Data Initiative</i>
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>E. Acquisition Strategy</b> <p>The program utilized an evolutionary acquisition strategy resulting in the migration to a Joint Information Environment (JIE) - compliant platform, replacement of system Commercial-Off-the-Shelf (COTS) components with newer, more capable elements, and additional software releases to implement additional requirements.</p> <p>The sustainment structure will be Firm-Fixed Price contract.</p> <p>The Air Force Organizational Server (AFOS) PMO utilizes a mix of Service Level Agreements (SLA) and Interface Requirement Agreements with AFOS stakeholders and support agencies as part of its management strategy. SLAs will be developed with the Lead Developmental Test Organization and the Capabilities Integration Environment at Maxwell AFB-Gunter Annex. The AFOS PMO maintains Memorandum of Agreements (MOAs) with several AFOS input and output systems, including Manpower Programming &amp; Execution Systems, Air Force Directory Services, Air Force Equipment Management System, and Force Structure Data Management.</p>		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0303142F / Global Force Management - Data Initiative						<b>Project (Number/Name)</b> 676027 / Global Force Mgt Initiative			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
GFM-DI AFOS / Development Contract	C/FFP	Appddiction : San Antonio, TX	-	0.229	Mar 2021	0.452	Dec 2021	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.229		0.452		-		-		-	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
CIE Support - NIPR/SIPR Dev Environment	C/FFP	AFLCMC/HNIZ : Montgomery, AL	-	0.173	May 2021	-		-		-		-	Continuing	Continuing	-
EPASS - A&AS	C/CPFF	Oasis : Bedford, MA	-	0.014	Apr 2021	-		-		-		-	Continuing	Continuing	-
Enclave System Admin Services	MIPR	DISA: DECC-OKC : Montgomery, AL	-	0.073	Aug 2021	-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.260		-		-		-		-	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Lead Developmental Test Organization Independent Test & Evalaution	MIPR	AFLCMC/HNIZ : MONTGOMERY, AL	-	0.013	Dec 2020	-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.013		-		-		-		-	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Office Support	Various	AFLCMC/HIB : MONTGOMERY, AL	-	0.792	Oct 2020	-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.792		-		-		-		-	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022				
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303142F / Global Force Management - Data Initiative					Project (Number/Name) 676027 / Global Force Mgt Initiative					
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.294		0.452		-		-		-	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303142F / Global Force Management - Data Initiative					Project (Number/Name) 676027 / Global Force Mgt Initiative									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>GFM-DI Inc 2</b>																												
- Functional/Data Validation																												
- Joint Staff J8 Validation																												
- Refactor Database																												
- GFM-DI XSD 4.0 Database Changes																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0303142F / <i>Global Force Management - Data Initiative</i>		<b>Project (Number/Name)</b> 676027 / <i>Global Force Mgt Initiative</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>GFM-DI Inc 2</b>				
- Functional/Data Validation	1	2021	3	2021
- Joint Staff J8 Validation	1	2021	1	2022
- Refactor Database	2	2022	4	2022
- GFM-DI XSD 4.0 Database Changes	4	2022	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0303248F I All Domain Common Platform							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	64.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
675218: Applications Development	-	0.000	64.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

## Note

In FY 2023, PE 0303248F, All Domain Common Platform (ADCP), Project 675218, Applications Development, was transferred to PE 0308606F, All Domain Common Platform (ADCP), Project 682015, in order to participate in DoD's Budget Activity 08 for Software and Digital Technology Pilot Programs.

## A. Mission Description and Budget Item Justification

The All Domain Common Platform (ADCP) is an extensible cloud-based Infrastructure and Platform as a Service (IaaS/PaaS) hosting platform built to deliver highly resilient C2 mission applications and data to Airmen deployed around the world. The ADCP is a warfighting capability that enables any organization to build, deploy and monitor mission applications to the end state of production. Having applications operational in various environments ensures data is accessible as it is needed across Air Force mission sets. The ADCP's collection of technologies, services and tooling enables warfighter outcomes by abstracting away technical complexity and enabling the deployment of products onto its infrastructure.

This program is part of the overarching Kessel Run portfolio and this foundational Kessel Run system is the primary path to production for modernized C2 systems. ADCP is in collaboration with all primary customers of the platform and environment to include Air Operations Center, Intelligence Programs, the AF Rapid Capabilities Office, and others. This program is USAF's contributing platform to JADC2 for user-facing C2 capability with the resiliency requirements met through the escalating phases of warfare.

Funding directly supports design, development, enablement services, security, continuous authority to operate, engineering, network and platform architecture, prototyping efforts to increase platform, communications and network capabilities, data science, reinforcement learning, machine learning, artificial intelligence, product management and program management to build functionality and scalability of the platform. ADCP develops using agile methodologies and DevSecOps practices to deliver improved capabilities at scale, in support of mission requirements. The ADCP is an evolving, delivered and managed product delivered to customers ensuring the requisite tools and services needed to securely build, deploy and sustain successful C2 mission applications.

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 0.000M was expended for civilian pay expenses in this program element, and in CY 10.395M 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&amp;E Budget Item Justification: PB 2023 Air Force

Date: April 2022

**Appropriation/Budget Activity**3600: Research, Development, Test & Evaluation, Air Force I BA 7:  
Operational Systems Development**R-1 Program Element (Number/Name)**

PE 0303248F I All Domain Common Platform

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	0.000	64.000	0.000	0.000	0.000
Current President's Budget	0.000	64.000	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**

NA

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303248F / All Domain Common Platform				Project (Number/Name) 675218 / Applications Development			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675218: Applications Development	-	0.000	64.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note												
In FY 2023, PE 0303248F, All Domain Common Platform (ADCP), Project 675218, Applications Development, was transferred to PE 0308606F, All Domain Common Platform (ADCP), Project 682015, in order to a participate in DoD's Budget Activity 08 for Software and Digital Technology Pilot Programs.												
A. Mission Description and Budget Item Justification												
The All Domain Common Platform (ADCP) is an extensible cloud-based Infrastructure and Platform as a Service (IaaS/PaaS) hosting platform built to deliver highly resilient C2 mission applications and data to Airmen deployed around the world. The ADCP is a warfighting capability that enables any organization to build, deploy and monitor mission applications to the end state of production. Having applications operational in various environments ensures data is accessible as it is needed across Air Force mission sets. The ADCP's collection of technologies, services and tooling enables warfighter outcomes by abstracting away technical complexity and enabling the deployment of products onto its infrastructure.												
This program is part of the overarching Kessel Run portfolio and this foundational Kessel Run system is the primary path to production for modernized C2 systems. ADCP is in collaboration with all primary customers of the platform and environment to include Air Operations Center, Intelligence Programs, the AF Rapid Capabilities Office, and others. This program is USAF's contributing platform to JADC2 for user-facing C2 capability with the resiliency requirements met through the escalating phases of warfare.												
Funding directly supports design, development, enablement services, security, continuous authority to operate, engineering, network and platform architecture, prototyping efforts to increase platform, communications and network capabilities, data science, reinforcement learning, machine learning, artificial intelligence, product management and program management to build functionality and scalability of the platform. ADCP develops using agile methodologies and DevSecOps practices to deliver improved capabilities at scale, in support of mission requirements. The ADCP is an evolving, delivered and managed product delivered to customers ensuring the requisite tools and services needed to securely build, deploy and sustain successful C2 mission applications.												
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 \$0.000M was expended for civilian pay expenses in this program element, and in CY \$10.395M is forecasted for civilian pay expenses in this program element.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
Title: Applications Development									0.000	64.000	0.000	

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022																									
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0303248F / All Domain Common Platform				Project (Number/Name) 675218 / Applications Development																											
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>  <b>Description:</b> All Domain Common Platform  <b>FY 2022 Plans:</b> - Began construction of resilient production Kubernetes based platform on Unclass, SIPR and JWICS and migrate existing customers - Delivered observability tooling in support of application customers as well as platform - Supported Continuous Integration/Continuous Delivery (CI/CD) pipelines - Migrated to more containerized automated delivery - Automated delivery and deployment operations - Improved C2 mission application resilience and reliability and decrease lead time for new capability delivery  <b>FY 2023 Plans:</b> -See PE 0308606F, All Domain Common Platform (ADCP), Project 682015.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to transfer to PE 0308606F, ADCP, Project Number 682015.										FY 2021	FY 2022	FY 2023																							
<b>Accomplishments/Planned Programs Subtotals</b>										0.000	64.000	0.000																							
<b>C. Other Program Funding Summary (\$ in Millions)</b>  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Line Item</th> <th style="text-align: right;">FY 2021</th> <th style="text-align: right;">FY 2022</th> <th style="text-align: right;">FY 2023 Base</th> <th style="text-align: right;">FY 2023 OCO</th> <th style="text-align: right;">FY 2023 Total</th> <th style="text-align: right;">FY 2024</th> <th style="text-align: right;">FY 2025</th> <th style="text-align: right;">FY 2026</th> <th style="text-align: right;">FY 2027</th> <th style="text-align: right;">Cost To Complete</th> <th style="text-align: right;">Total Cost</th> </tr> </thead> <tbody> <tr> <td>• OPAF 03 833140: Strategic Command And Control</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">3.541</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">-</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">0.000</td> <td style="text-align: right;">-</td> <td style="text-align: right;">Continuing</td> <td style="text-align: right;">Continuing</td> </tr> </tbody> </table>												Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	• OPAF 03 833140: Strategic Command And Control	0.000	3.541	0.000	-	0.000	0.000	0.000	0.000	-	Continuing	Continuing
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost																								
• OPAF 03 833140: Strategic Command And Control	0.000	3.541	0.000	-	0.000	0.000	0.000	0.000	-	Continuing	Continuing																								
<b>Remarks</b>																																			
<b>D. Acquisition Strategy</b> ADCP program is part of the Investment Master List (IML) and is operating as an approved Software Acquisition Pathway (SWAP). The acquisition strategy is to capitalize on market research, continue efforts that are currently funded through PEs 27410F, 27431F, 27438F, and 27601F, transition infrastructure support to a singular entity while maintaining diversity amongst Cloud Services and Engineering Services. ADCP will also use Other Transaction Authority (OTA) to continue commercial best practices for software development and to continue scaling of the modern Infrastructure as a Service/Platform as a Service (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 Laboratory, Federally Funded Research and Development Centers (FFRDC), Academia, and Engineering & Professional Acquisition Support Services contractors as well as commercial industry partners.																																			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
3600 / 7						PE 0303248F / All Domain Common Platform				675218 / Applications Development					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ADCP Development	Various	Various : TBD	-	0.000		40.658	Dec 2021	-		-		-	0.000	40.658	-
ADCP Data Science	C/Various	Various : TBD	-	0.000		7.064	Apr 2022	-		-		-	0.000	7.064	-
Subtotal			-	0.000		47.722		-		-		-	0.000	47.722	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Not specified.	C/CPFF	Various : TBD	-	0.000		5.812	Dec 2021	-		-		-	0.000	5.812	-
Subtotal			-	0.000		5.812		-		-		-	0.000	5.812	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ADCP Engineering Services	Various	Various : TBD	-	0.000		3.565	Oct 2021	-		-		-	0.000	3.565	-
ADCP Program Support	C/Various	Various : TBD	-	0.000		6.901	Dec 2021	-		-		-	0.000	6.901	-
Subtotal			-	0.000		10.466		-		-		-	0.000	10.466	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000		64.000		-		-		-	0.000	64.000	N/A
Remarks															
In FY 2023, ADCP funding was transferred to PE 0308606F, All Domain Common Platform (ADCP), Project 682015.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0303248F / All Domain Common Platform								Project (Number/Name) 675218 / Applications Development			

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303248F / All Domain Common Platform	Project (Number/Name) 675218 / Applications Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AF Command and Control (C2) Common Platform				
All Domain Common Platform	1	2022	4	2022

**Note**  
See PE 0308606F, All Domain Common Platform (ADCP), Project 682015 for continued development events.  
  
See PE 0207410F, Air & Space Operations Center (AOC), Project Number 674596, AOC WS Modifications for prior years development events.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0303260F <i>I Joint Military Deception Initiative</i>
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<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	0.000	0.000	2.588	0.000	2.588	4.671	7.269	7.791	0.000	Continuing	Continuing
674550: <i>Air Base Resiliency</i>	-	0.000	0.000	2.588	0.000	2.588	4.671	7.269	7.791	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Detailed information on Air Base Resiliency remains classified and will be provided on a need-to-know basis.

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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	2.588	0.000	2.588
Total Adjustments	0.000	0.000	2.588	0.000	2.588
• 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	2.588	0.000	2.588

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Air Base Resiliency	-	-	2.588
<b>Description:</b> Detailed information on Air Base Resiliency remains classified and will be provided on a need-to-know basis.			
<b>FY 2023 Plans:</b> Detailed information on Air Base Resiliency remains classified and will be provided on a need-to-know basis.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>			

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0303260F <i>I Joint Military Deception Initiative</i>			
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
This is a FY2023 new start.				
<b>Accomplishments/Planned Programs Subtotals</b>		-	-	2.588
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> N/A				

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0303260F / Joint Military Deception Initiative				<b>Project (Number/Name)</b> 674550 / Air Base Resiliency				

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Air Base Resiliency	TBD	Not specified. : TBD	-	-		-		2.588	Apr 2023	-		2.588	Continuing	Continuing	-
<b>Subtotal</b>			-	-		-		2.588		-		2.588	Continuing	Continuing	N/A

  

			Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			-	-	-	2.588	-	2.588	Continuing	Continuing	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022	
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0303260F / Joint Military Deception Initiative					Project (Number/Name) 674550 / Air Base Resiliency	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Air Base Resiliency																												
2023																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0303260F / Joint Military Deception Initiative	Project (Number/Name) 674550 / Air Base Resiliency

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Air Base Resiliency				
2023	1	2023	4	2026

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0304260F / <i>Airborne SIGINT Enterprise</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	117.859	93.546	108.528	0.000	108.528	120.214	88.975	93.607	95.794	Continuing	Continuing
675180: <i>RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)</i>	-	45.066	42.774	42.439	0.000	42.439	43.345	41.598	45.233	46.344	Continuing	Continuing
675183: <i>Common Development (Airborne SIGINT Development - Common Development)</i>	-	44.824	28.698	42.849	0.000	42.849	59.307	29.483	30.103	30.773	Continuing	Continuing
675185: <i>COMPASS BRIGHT</i>	-	20.484	14.545	15.313	0.000	15.313	9.473	9.652	9.857	10.076	Continuing	Continuing
675186: <i>Special Programs (Airborne SIGINT Development - Special Platforms)</i>	-	7.485	7.529	7.927	0.000	7.927	8.089	8.242	8.414	8.601	Continuing	Continuing

## **Note**

Project 675185, (COMPASS BRIGHT), changed from (Non-Traditional SIGINT (NTS))

## **A. Mission Description and Budget Item Justification**

This program funds multi-domain, multi-Intelligence, Surveillance and Reconnaissance (ISR) research, development, test and evaluation (RDT&E) efforts in support of the National Defense Strategy (NDS), as applied by the Air Force in the Next Generation ISR Dominance Flight Plan. Specifically, Program Element (PE) 0304260F provides authorized and appropriated funding to Signals Intelligence (SIGINT) RDT&E efforts for utilization on airborne platforms.

The future ISR portfolio will consist of multi-domain, multi-intelligence systems to meet emerging ISR threats across the entire conflict spectrum. The Airborne SIGINT Enterprise (ASE) PE is integral to developing the SIGINT component of the multi-domain, multi-ISR system capable of maintaining the warfighter's decision advantage through all ranges of military operations, to include highly contested environments (HCE).

ASE Program funds are distributed to projects based on the development priorities established by the USAF SIGINT Capabilities Working Group (SCWG), which is chartered to guide the ASE capability investment. When required, the USAF may move funds between ASE projects, developing the highest priority projects in response to urgent (e.g., JUON) and emerging (e.g., JEON) warfighter needs.

The ASE Program participates in the development, integration, testing, and implementation of International and Air Force standards (e.g., North Atlantic Treaty Organization (NATO) standardization) to ensure Joint, Allied, and Coalition interoperability with ASE fielded systems. ASE funds lead the modernization efforts including existing airborne platform sensors, and where appropriate, their interfaces with the Air Force Distributed Common Ground System (AF DCGS). The ASE Program approach is a synergistic development effort providing Air Force-wide ISR capabilities consistent with the NDS.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0304260F I Airborne SIGINT Enterprise				
ASE will use the Air Force SIGINT Architecture (AFSA) for planning and decision-making. AFSA is focused on employing open architecture standards whenever possible, to allow maximum effectiveness, efficiency and flexibility of development upgrades with multi-domain interoperability. The primary goal is to produce an open system architecture-based, capability-focused SIGINT investment strategy for the USAF.						
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 0.857M was expended for civilian pay expenses in this program element, and in FY22 1.742M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		127.876	97.546	0.000	0.000	0.000
Current President's Budget		117.859	93.546	108.528	0.000	108.528
Total Adjustments		-10.017	-4.000	108.528	0.000	108.528
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	-4.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	0.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		-10.017	0.000			
• SBIR/STTR Transfer		0.000	0.000			
• Other Adjustments		0.000	0.000	108.528	0.000	108.528
Change Summary Explanation						
FY21 decrease due to approved BTR for higher Air Force priorities and current-for-cancel bill.						
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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675180: RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)	-	45.066	42.774	42.439	0.000	42.439	43.345	41.598	45.233	46.344	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with the integration and modification of the RC-135 SIGINT sensors and their associated air and ground components. Through extensive utilization of commercial-off-the-shelf (COTS) based solutions to field needed capabilities, it also incurs a need for continuous identification of suitable replacements for components affected by Diminishing Manufacturing Sources and integration efforts consistent with the COTS technology cycle. These efforts provide required engineering for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations integrated into the various baseline modifications. These funds will be disbursed among the RC-135V/W RIVET JOINT, the RC-135U COMBAT SENT, and the RC-135S COBRA BALL programs. Funding reflects the SCWG priorities and the accomplishment of other Airborne SIGINT Enterprise initiatives.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> RC-135 SIGINT Development	45.066	42.774	42.439	-	42.439
<b>Description:</b> Non-Recurring Engineering for the RC-135 signals intelligence systems. See Classified Budget Exhibits (PE 0305207F)					
<b>FY 2022 Plans:</b> - Developing SIGINT efforts for the RC-135 fleet to include new signal sets and upgrades to current capabilities. See PE 0305207F for classified details. Classified requirements POC is HAF AF/A2OO (704) 614-7317.					
<b>FY 2023 Base Plans:</b> - Will continue SIGINT development efforts for the RC-135 fleet to include new signal sets and upgrades to current capabilities. See PE 0305207F for classified details. Classified requirements POC is HAF AF/A2OO (704) 614-7317.					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease in funding is due to realignment of funds to higher Air Force priorities.					
<b>Accomplishments/Planned Programs Subtotals</b>	45.066	42.774	42.439	-	42.439

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0304260F / Airborne SIGINT Enterprise			<b>Project (Number/Name)</b> 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)		

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item DARPO1: RC-135	191.332	207.596	212.828	-	212.828	219.499	220.967	224.045	228.860	Continuing	Continuing

**Remarks**

The funds within Program 0305207F procure all necessary aircraft modifications for the RC-135 program and include those funds necessary to field SIGINT capabilities developed under Project 675180 of the ASE. Not all procurement funds in #DARPO1: RC-135 are for ASE SIGINT projects.

**D. Acquisition Strategy**

Aircraft, aircraft sensor systems, and associated ground support system modifications planned include the procurement, fielding and logistical support for future RC-135V/W RIVET JOINT, RC-135U COMBAT SENT and RC-135S COBRA BALL baseline configurations. Development and integration is managed by the Big Safari Systems Group. They employ evolutionary acquisition approaches to field incremental capability improvements.

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0304260F / Airborne SIGINT Enterprise				<b>Project (Number/Name)</b> 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)					

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
RC-135 SIGINT Development	SS/ Various	L3 Harris : Greenville, TX	-	45.066	Jan 2021	42.774	Jan 2022	42.439	Jan 2023	-		42.439	Continuing	Continuing	-
<b>Subtotal</b>			-	45.066		42.774		42.439		-		42.439	Continuing	Continuing	N/A

  

**Remarks**  
 Above contract method/type will be CPFF and FFP

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	45.066	42.774	42.439	-	42.439	Continuing	Continuing	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise						Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Development of RC-135 mission sensors																												
Development of RIVET JOINT mission sensors (see 0305207F for classified details)																												
Development of COMBAT SENT mission sensors (see 0305207F for classified details)																												
Development of COBRA BALL mission sensors (see 0305207F for classified details)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Development of RC-135 mission sensors				
Development of RIVET JOINT mission sensors (see 0305207F for classified details)	1	2021	4	2027
Development of COMBAT SENT mission sensors (see 0305207F for classified details)	1	2021	4	2027
Development of COBRA BALL mission sensors (see 0305207F for classified details)	1	2021	4	2027

**Note**  
Requirements documentation is classified. Classified requirements POC is HAF AF/A2/6UO (703) 614-7317

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675183: Common Development (Airborne SIGINT Development - Common Development)	-	44.824	28.698	42.849	0.000	42.849	59.307	29.483	30.103	30.773	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Common Development project supports airborne SIGINT design studies, engineering analysis, non-recurring engineering (NRE), program management, and other efforts associated with support to the fielded Airborne Signals Intelligence Payload (ASIP) and the development of future SIGINT sensors and their associated air and ground components. The Common Development project also supports the development and integration of new sensor capabilities, quick reaction capabilities, and replacement components affected by Diminishing Manufacturing Sources and Material Shortages (DMSMS).

Development supports the ASIP system and follow-on SIGINT sensors. The ASIP sensor provides a common SIGINT system, allowing for maximum coverage of the electromagnetic spectrum through the use of an integrated high and low band system. Future SIGINT sensors are being developed through the implementation of open architecture concepts, and enabling the rapid integration of new signals of interests. Future SIGINT sensor efforts will address the NDS and Next Generation ISR Dominance Flight Plan identified needs for multi-ISR systems in order to sustain SIGINT operations in a highly contested environment.

This project also supports overarching Airborne SIGINT Enterprise Program common development to include, but not limited to, the Air Force SIGINT Architecture maintenance, SIGINT modeling and simulation efforts, and technology development and risk reduction through the Air Force Research Lab managed Open Architecture Technology Lab (OATL). Capability improvements needed to exploit service identified signals of interest will be identified as priorities by the Air Force SCWG. This project provides the warfighter increased SIGINT combat capability via rapid acquisition. Capability enhancements are implemented as soon as the ASE technology achieves satisfactory risk levels. ASE developed Sensors will be integrated and tested on available platforms, funding permitting.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. The use of such program funds would be in addition to civilian pay expenses budgeted in program element 0605831F. In FY20 0.177M and in FY21 0.246M was expended for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Common SIGINT Development	44.824	28.698	42.849	-	42.849
<b>Description:</b> Develop and test common open architecture compliant SIGINT system for multiple SIGINT platforms, to include ASIP support and follow-on SIGINT sensors using an open system architecture to the					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0304260F / Airborne SIGINT Enterprise	<b>Project (Number/Name)</b> 675183 / Common Development (Airborne SIGINT Development - Common Development)	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>maximum extent possible. Additionally, will advance testing capabilities through the Open Architecture Technology Lab for current and future SIGINT sensors.</p> <p><b><i>FY 2022 Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Continue to develop new signals capabilities and enhancements. Details are classified.</li> <li>- Continue to enhance OATL infrastructure to support future SIGINT sensor development and testing.</li> <li>- Leverage sensor development activities to support off-the-shelf ASIP DMS solution.</li> <li>- Continue to evaluate open architecture compliance of SIGINT sensor prototypes in the OATL.</li> </ul> <p><b><i>FY 2023 Base Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Will continue to develop new signals capabilities and enhancements. Details are classified.</li> <li>- Will continue to enhance OATL infrastructure to support future SIGINT sensor development and testing.</li> <li>- Will Leverage sensor development activities to support off-the-shelf ASIP DMS solutions.</li> <li>- Will continue to evaluate open architecture compliance of SIGINT sensor prototypes in the OATL.</li> </ul> <p><b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b></p> <p>FY23 increase due to continued development, integration and testing of airborne SIGINT Modernization capability, coupled with continued development of OATL. Increase also a factor of FY22 funding rephased to FY23-24 to align funds to program schedule</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	44.824	28.698	42.849	-	42.849

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 Line Item	126.340	117.382	0.000	-	0.000	-	-	-	-	167.265	410.987
HAWK00: RQ-4 Mods											
• RDTE 07 PE	1.840	3.920	0.000	-	0.000	-	-	-	-	0.000	5.760
0305202F: Dragon U-2											

**Remarks**  
Not all Other Program Funding is associated with SIGINT.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)

**D. Acquisition Strategy**

SIGINT capabilities will be developed and integrated onto various platforms using an evolutionary acquisition approach to field incremental capability improvements, leveraging the OATL to incorporate platform agnostic, open system architecture. Requirements as validated and prioritized by the SCWG, will be executed through acquisition strategies employing maximum use of Middle Tier Acquisition (MTA) authorities to include Section 804 rapid prototyping. The ASIP DMS solution will be acquired and delivered by contracting with the appropriate vendor while leveraging any existing USG capabilities that have already been developed.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ASIP Upgrades Increment 2 - Build A; SIL / Cyber Support	SS/CPIF	Northrop Grumman : San Jose, CA	-	1.053	Aug 2021	-		-		-		-	Continuing	Continuing	-
Open Architecture Technology Lab (OATL)	Various	Various : Various	-	8.496	Mar 2021	8.000	Mar 2022	8.000	Mar 2023	-		8.000	Continuing	Continuing	-
Global High-Altitude Open-system Sensor Technology (GHOST)	Various	Various : Various	-	29.471	Mar 2021	0.000	Apr 2022	0.000	Mar 2023	-		0.000	Continuing	Continuing	-
Future SIGINT Programs	Various	Various : Various	-	-		10.412	May 2022	28.363	Dec 2022	-		28.363	Continuing	Continuing	-
Air Force SIGINT Architecture (AFSA)	Various	AECOM : Annapolis Junction, MD	-	4.242	Feb 2021	5.000	Dec 2021	5.000	Dec 2022	-		5.000	Continuing	Continuing	-
Subtotal			-	43.262		23.412		41.363		-		41.363	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PMA	Various	Various : Dayton, OH	-	1.562	Feb 2021	5.286	Jan 2022	1.486	Jan 2023	-		1.486	Continuing	Continuing	-
Subtotal			-	1.562		5.286		1.486		-		1.486	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	44.824		28.698		42.849		-		42.849	Continuing	Continuing	N/A
Remarks															
- Funding increase due to returning to normal funding levels and supports future SIGINT sensor development and potential prototyping efforts ramping up in FY23.															
- ASIP Increment 2 Build A development efforts and support efforts to maintain the ASIP Systems Integration Lab (SIL) and cybersecurity authority to operate were ended in FY21, and have begun transition to the airborne platforms.															
- Open Architecture Technology Lab (OATL) technology development and risk reduction efforts will continue to demonstrate rapid technology insertion.															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0304260F / Airborne SIGINT Enterprise		<b>Project (Number/Name)</b> 675183 / Common Development (Airborne SIGINT Development - Common Development)	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>SIGINT Common Development</i></b>																												
ASIP Upgrades Increment 2 - Build A; SIL / Cyber Support																												
Open Architecture Technology Lab (OATL)																												
Global High-Altitude Open-System Sensor Technology (GHOST)																												
Future SIGINT Programs																												
Air Force SIGINT Architecture (AFSA)																												
ASIP DMS Follow-On Sensor																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0304260F / Airborne SIGINT Enterprise	<b>Project (Number/Name)</b> 675183 / Common Development (Airborne SIGINT Development - Common Development)	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>SIGINT Common Development</i></b>				
ASIP Upgrades Increment 2 - Build A; SIL / Cyber Support	1	2021	1	2022
Open Architecture Technology Lab (OATL)	1	2021	4	2027
Global High-Altitude Open-System Sensor Technology (GHOST)	1	2021	3	2022
Future SIGINT Programs	3	2022	4	2027
Air Force SIGINT Architecture (AFSA)	1	2021	4	2027
ASIP DMS Follow-On Sensor	1	2022	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675185 / COMPASS BRIGHT			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675185: COMPASS BRIGHT	-	20.484	14.545	15.313	0.000	15.313	9.473	9.652	9.857	10.076	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The COMPASS BRIGHT program develops, demonstrates, and rapidly transitions advanced Air Force specific SIGINT and MULTI-INT capabilities against emerging and future target signals of interest. This program pursues SIGINT technologies for program transition, to include Communications Intelligence (COMINT), Electronic Intelligence (ELINT), Audio, Analytics, Special Signals of Interest, and Radio Frequency Measurement and Signature Intelligence (MASINT). Compass Bright will pursue MULTI-INT capabilities such as but not limited to, cross-cue and fusion from other INTs such as GEOINT, in order to create a holistic ISR picture for the warfighter and the IC. The COMPASS BRIGHT program objective is to mature technologies for application in SIGINT and MASINT systems or subsystems. Production and integration of these developed technologies will be conducted by the appropriate programs. COMPASS BRIGHT projects are selected through a data call process, whereby the USAF evaluates proposals from the laboratories, platforms, and other government agencies, to select those projects that are most promising.

Operational Reconnaissance (Ops Recce) is part of the initiative to improve overall USAF intelligence, surveillance, and reconnaissance (ISR) capability through development and use of sensor data from non-traditional ISR platforms and innovative use of sensors. This program pursues Ops Recce capabilities for transition through development, testing, demonstration and implementation efforts across all platforms. The Ops Recce program objective is to provide increased battlespace awareness through the use of sensors/platforms to achieve effects beyond what those sensor/platforms were originally designed.

The program office authority extends to accomplishment of out-of-cycle COMPASS BRIGHT efforts. These tasks may be filtered through the SIGINT Capability Working Group (SCWG) outside the normal vetting process to expedite acquisition of high-end capabilities for the warfighter.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. The use of such program funds would be in addition to civilian pay expenses budgeted in program element 0605831F.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> COMPASS BRIGHT Tech Development	20.484	14.545	15.313	-	15.313
<b>Description:</b> Develops projects in the SIGINT and MASINT areas for transition to the RC-135 fleet, other intelligence, surveillance, and reconnaissance platforms and Ops Recce.					
<b>FY 2022 Plans:</b> - Initiate, continue, and complete various SIGINT projects to include enhanced ELINT exploitation, COMINT, Audio exploitation, Ops Recce, signals of interest prosecution, and Non Traditional ISR (NTISR).					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0304260F / Airborne SIGINT Enterprise		<b>Project (Number/Name)</b> 675185 / COMPASS BRIGHT	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
- FY23 Project selection process initiated.					
<b><i>FY 2023 Base Plans:</i></b> - Will initiate, continue, and complete various SIGINT projects to include enhanced ELINT exploitation, COMINT, Audio exploitation, Ops Recce, signals of interest prosecution, and NTISR.					
- FY24 Project selection process will be initiated.					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> FY23 small increase to support SCWG approved projects and inflation adjustment.					
<b>Accomplishments/Planned Programs Subtotals</b>	20.484	14.545	15.313	-	15.313

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item DARP01: RC-135	191.332	207.596	212.828	-	212.828	219.499	220.967	224.045	228.860	Continuing	Continuing
• APAF 06 Line Item DARP01: RC-135	51.282	51.305	25.661	-	25.661	55.452	55.903	56.741	57.970	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

Air Force Life Cycle Management Center/Intelligence, Surveillance, and Reconnaissance and Special Operations Forces Directorate (AFLCMC/WI) will execute COMPASS BRIGHT and Operational Reconnaissance efforts through technology development and demonstration contracts which leverage existing laboratory relationships and other existing contractual vehicles, with future development projects emphasizing full and open competition.

On an annual basis, the SIGINT Capabilities Working Group (SCWG) reviews developmental technologies against warfighter capabilities and requirements based on strategic roadmaps. Projects advancing the technological maturity of promising sensors and processing capabilities are reviewed and prioritized into a recommended list for senior executive direction to implement for the coming fiscal year.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675185 / COMPASS BRIGHT					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
COMPASS BRIGHT	Various	Multiple : Various	-	18.986	Nov 2020	11.107	Nov 2021	11.813	Nov 2022	-		11.813	Continuing	Continuing	-
Ops Recce	Various	Multiple : Various	-	0.000	Dec 2020	0.600	Jan 2022	0.600	Jan 2023	-		0.600	Continuing	Continuing	-
Subtotal			-	18.986		11.707		12.413		-		12.413	Continuing	Continuing	N/A
Remarks															
On an annual basis, the SIGINT Capabilities Working Group (SCWG) reviews developmental technologies against warfighter capabilities and requirements based on strategic roadmaps. Projects advancing the technological maturity of promising sensors and processing capabilities are reviewed and prioritized into a recommended list for senior executive direction to implement for the coming fiscal year.															
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Compass Bright PMA	Various	Various : Various, OH	-	1.001	Nov 2020	2.438	Jan 2022	2.500	Jan 2023	-		2.500	Continuing	Continuing	-
OPS Recce PMA	C/CPAF	Not specified. : TBD	-	0.497	Jan 2021	0.400	Jan 2022	0.400	Jan 2023	-		0.400	Continuing	Continuing	-
Subtotal			-	1.498		2.838		2.900		-		2.900	Continuing	Continuing	N/A
			Prior Years	FY 2021	FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			-	20.484	14.545		15.313		-		15.313	Continuing	Continuing	N/A	
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0304260F / Airborne SIGINT Enterprise					675185 / COMPASS BRIGHT			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
COMPASS BRIGHT																												
SIGINT Technologies																												
- ELINT Programs																												
- COMINT Programs																												
- Special Signals Programs																												
- Audio Programs																												
- Analytics Programs																												
Ops Recce Efforts																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675185 / COMPASS BRIGHT	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>COMPASS BRIGHT</b>				
SIGINT Technologies	1	2021	4	2027
- ELINT Programs	1	2021	4	2027
- COMINT Programs	1	2021	4	2027
- Special Signals Programs	1	2021	4	2027
- Audio Programs	1	2021	4	2027
- Analytics Programs	1	2021	4	2027
Ops Recce Efforts	1	2021	4	2027

### Note

On an annual basis, the SCWG reviews developmental technologies against warfighter capabilities and requirements based on strategic roadmaps. Projects advancing the technological maturity of promising sensors and processing capabilities are reviewed and prioritized into a recommended list for senior executive direction to implement for the coming fiscal year. As a result, the USAF will move funds between projects periodically to develop the highest priority projects in response to urgent and emerging warfighter needs.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675186: Special Programs (Airborne SIGINT Development - Special Platforms)	-	7.485	7.529	7.927	0.000	7.927	8.089	8.242	8.414	8.601	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
This project supports special SIGINT studies as well as the development and integration of advanced SIGINT capabilities for special programs including, but not limited to: quick reaction capability sensors, the processing, exploitation, and dissemination associated with these systems, and other efforts approved by the USAF SCWG. Development efforts will include, but are not limited to: new signal sets, antenna improvements, sensitivity upgrades, and data distribution upgrades, and new/advanced deployment capabilities. This project provides the war fighter with near term combat capabilities with increased capability improvements accomplished as technologies and risks achieve satisfactory levels. Sensors will be integrated and tested on various platforms including the MQ-9A remotely piloted aircraft as funding permits.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: SIGINT Development								7.485	7.529	7.927	0.000	7.927
Description: Develop, update, and test SIGINT capabilities for QRC and normalized special programs SIGINT projects.												
FY 2022 Plans: - Modernizing SIGINT systems used by the MQ-9A and other platforms.												
FY 2023 Base Plans: - Will continue to modernize SIGINT systems used by the MQ-9A and other platforms.												
FY 2023 OCO Plans: N/A												
FY 2022 to FY 2023 Increase/Decrease Statement: Funding remained the same with slight increase to account for inflation adjustment.												
Accomplishments/Planned Programs Subtotals								7.485	7.529	7.927	0.000	7.927
C. Other Program Funding Summary (\$ in Millions)												
N/A												

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)
C. Other Program Funding Summary (\$ in Millions)		
Remarks		
D. Acquisition Strategy		
SIGINT capabilities will be integrated to various classified platforms using an evolutionary acquisition approach. Capabilities and prototypes will be developed by Other Government Agencies and transitioned to select vendors as production needs develop.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force										Date: April 2022					
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Airborne SIGINT Development - Special Platforms	Various	Various : Various	-	7.265	Jan 2021	7.209	Jan 2022	7.590	Jan 2023	-		7.590	Continuing	Continuing	-
Subtotal			-	7.265		7.209		7.590		-		7.590	Continuing	Continuing	N/A
Remarks Upgrades the quick reaction capability sensors already on the MQ-1/9 fleet															
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Flight Test	Various	Various : Various	-	0.220	May 2021	0.320	May 2022	0.337	May 2023	-		0.337	Continuing	Continuing	-
Subtotal			-	0.220		0.320		0.337		-		0.337	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	7.485		7.529		7.927		-		7.927	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise										Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SIGINT Development																												
MQ-9 Sensor 1 Modernization																												
MQ-9 Sensor 2 Modernization																												
MQ-9 Sensor Upgrades																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>SIGINT Development</b>				
MQ-9 Sensor 1 Modernization	1	2021	4	2027
MQ-9 Sensor 2 Modernization	1	2021	4	2027
MQ-9 Sensor Upgrades	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0304310F I Commercial Economic Analysis							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	3.887	3.770	4.542	0.000	4.542	4.635	4.192	4.282	4.377	Continuing	Continuing
675896: Commercial Economic Analysis	-	3.887	3.770	4.542	0.000	4.542	4.635	4.192	4.282	4.377	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

To preserve Air Force and DoD military advantage from commercial and economic risk, the Office of Commercial Economic Analysis (OCEA) produces in-depth analytical assessments and advanced risk mitigation strategies based on commercially available industry, market, and economic information. These assessments and strategies support the decision making efforts of Service, Department of Defense, and Whole of Government to protect National Security Innovation Base equities and sustain the U.S. competitive advantage.

The funding request provides for an enterprise analytic platform providing a technical prototype which will aggregate risk data and produce mitigation strategies and impact analytic products, i.e. mature big data architecture, higher domain connectivity, continuous assessment capability and integrate external applications. The funding also supports continuous assessment of the commercially available information to ensure it is accurate, current, and relevant.

Additional classified details can be found in OSD Comptroller's classified Justification Book Volume 6.

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 0.00M was expended for civilian pay expenses in this program element, and in FY22 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0304310F I Commercial Economic Analysis				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	4.035	3.770	0.000	0.000	0.000	
Current President's Budget	3.887	3.770	4.542	0.000	4.542	
Total Adjustments	-0.148	0.000	4.542	0.000	4.542	
• 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	-0.148	0.000	4.542	0.000	4.542	
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Commercial Economic Analysis				3.887	3.770	4.542
Description: Develop solutions to protect the National Security Innovation Base from adversary information attacks and protect the U.S. technological advantage. Research, develop, test and evaluate Commercial Economic Analysis capabilities, systems, tools, data, products, and services through a disciplined, yet agile, process that ensures commercial economic modeling pilots, risk management constructs, decision support tools, and continuous monitoring capabilities are available for Air Force sectors and segments of the National Security Innovation Base.						
Additional classified details can be found in OSD Comptroller's classified Justification Book Volume 6.						
FY 2022 Plans:						
Utilize existing contracts and new IDIQ contract task orders for continuation of modular components and data architecture framework supporting risk management, risk mitigation and nontraditional support capabilities.						
Additional classified details can be found in OSD Comptroller's classified Justification Book Volume 6.						
FY 2023 Plans:						
Continue to utilize existing contracts and new IDIQ contract task orders for continuation of modular components and data architecture framework supporting risk management, risk mitigation and nontraditional support capabilities.						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0304310F <i>I Commercial Economic Analysis</i>						
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	
Classified details can be found in OSD Comptroller's classified Justification Book Volume 6.											
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding level increased due to increased program requirements											
<b>Accomplishments/Planned Programs Subtotals</b>								3.887	3.770	4.542	
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• O&M 030431F: <i>Commercial Economic Analysis</i>	18.207	20.319	20.545	-	20.545	20.928	22.792	23.262	-	Continuing	Continuing
<b>Remarks</b> N/A											
<b>E. Acquisition Strategy</b> Pursue competitively awarded contracts for follow-on to existing contract and task orders, with emphasis on system integration and corresponding data architectures. IDIQ task orders and specific system integration, cloud connectivity, and data contracts are the cornerstone of OCEA RDT&E activities.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0304310F / Commercial Economic Anal ysis				Project (Number/Name) 675896 / Commercial Economic Analysis					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Enterprise Architecture and Data Integration	SS/CPIF	Novetta : McLean, VA	-	-		-		-		-		-	Continuing	Continuing	-
Analytic and Technical Services follow-on	C/TBD	TBD : TBD	-	0.387	Jul 2021	0.000		0.000		-		0.000	Continuing	Continuing	-
Data Integration	C/FFP	Dun & Bradstreet : Reston, VA	-	3.000	Mar 2021	3.375	Mar 2022	3.988	Jan 2023	-		3.988	Continuing	Continuing	-
Subtotal			-	3.387		3.375		3.988		-		3.988	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
FFRDC	SS/FFP	MITRE : McLean, VA	-	0.500	May 2021	0.395	May 2022	0.554	Jan 2023	-		0.554	Continuing	Continuing	-
Hosting Services	SS/FFP	AWS (C2S) : Seattle, WA	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	0.500		0.395		0.554		-		0.554	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	3.887		3.770		4.542		-		4.542	Continuing	Continuing	N/A
Remarks															
Product Development: D&B Commercial Solutions Opening (CSO) purchase order replaced previous Enterprise Architecture and Data Integration contract in FY21.															
Support: Contract award is scheduled for 1Q/FY22 for these continuing efforts.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0304310F / Commercial Economic Analysis										Project (Number/Name) 675896 / Commercial Economic Analysis									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
OCEA																												
Mature Big Data Architecture																												
Higher Domain Connectivity																												
Continuous Assessment Capability																												
Integrate External Applications																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304310F / Commercial Economic Analysis	Project (Number/Name) 675896 / Commercial Economic Analysis

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
OCEA				
Mature Big Data Architecture	1	2021	2	2027
Higher Domain Connectivity	1	2021	2	2027
Continuous Assessment Capability	1	2021	2	2027
Integrate External Applications	1	2021	2	2027

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					PE 0305015F / C2 Air Operations Suite - C2 Info Services							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	8.097	0.000	8.097	8.282	0.000	20.463	20.086	0.000	56.928
675218: <i>Applications Development</i>	-	0.000	0.000	8.097	0.000	8.097	8.282	0.000	20.463	20.086	0.000	56.928
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2023, DevOps efforts in PE 0207522F, Airbase Air Defense Systems (ABADS), Project 675218, Applications Development efforts are transferred to PE 0305015F, C2 Air Operations Suite - C2 Info Services, Project 675218, Applications Development.

**A. Mission Description and Budget Item Justification**

Command and Control, Incident Management, Emergency Response Application (C2IMERA) is a C2 system that addresses installation commanders' and staff's ability to support Airfield, Flight and Emergency Operations. C2IMERA funds provide enhanced installation command and control to improve decision speed, quality, and lethality by incorporating direct user feedback, connecting people, automating daily operations, and integrating data from myriad systems. C2IMERA receives input from users and system interfaces and displays data on the real-time, interactive Common Operating Picture (COP) and consolidated dashboards. C2IMERA also provides a theater level Higher Headquarters module to aggregate theater-wide installation to provide real-time awareness of critical data. C2IMERA provides automated communications via the COP, automated emails, notifications, and alerts, alleviating the need for briefings, meetings, and radio communication(s).

The C2IMERA operational concept has three capability areas:

- C2 collaboration across the Wing - operate/fight the base
- Wing Situational Awareness
- Wing Collaboration/reporting to HHQ (i.e., AOC, AFFOR, Command Center etc.)

Requirements include Command and Control Operations Career Field (1C3X1) community as the core Installation C2 node, supporting Base Operations, Mission Management and Monitoring, Higher Headquarters Information Exchange Requirements (IERS), Emergency Action Messaging, Situation Reports (SITREP) automation, and other key enablers supporting the operational concept.

C2IMERA FY23 funds will support the Agile Dev Ops development of enhanced architecture to make C2IMERA more scalable, add additional integrations and enhance data automation. This includes architecting the application to operate in Degraded, Disconnected, Intermittent and Low-Bandwidth (D-DIL) environments to support key operational concepts such as Agile Combat Employment.

This program is part of the overarching Kessel Run portfolio.

No Budget Year FY22 funding requested; FY22 project efforts are detailed in PE 0207522F, Airbase Air Defense Systems.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305015F I C2 Air Operations Suite - C2 Info Services				
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 \$0.00M was expended for civilian pay expenses in this program element, and in FY22 \$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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		0.000	0.000	0.000	0.000	0.000
Current President's Budget		0.000	0.000	8.097	0.000	8.097
Total Adjustments		0.000	0.000	8.097	0.000	8.097
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	0.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		0.000	0.000			
• SBIR/STTR Transfer		0.000	0.000			
• Other Adjustments		0.000	0.000	8.097	0.000	8.097
Change Summary Explanation						
FY2023: 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 FY 2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Command and Control, Incident Management, Emergency Response Application (C2IMERA)				0.000	0.000	8.097
Description: C2IMERA will provide enhanced installation command and control to improve decision speed, quality, and lethality by incorporating direct user feedback, connecting people, automating daily operations, and integrating data from myriad systems. C2IMERA receives input from users and system interfaces and the data is displayed on the real-time, interactive COP. C2IMERA provides automated communications via COP, emails, notifications, and alerts, alleviating the need for briefings, meetings, and radio communication.						
FY 2022 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305015F / C2 Air Operations Suite - C2 Info Services		

  

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> See PE 0207522F, Airbase Air Defense Systems (ABADS), Project Number 675218, Applications Development.  <b><i>FY 2023 Plans:</i></b> -Continue further development of Advanced Battle Management System (ABMS)/Joint All Domain Command and Control (JADC2) capabilities to provide critical evolving capabilities integrating Installation Command and Control (IC2) with air operations at Major Command (MAJCOM) and Higher Headquarter (HHQ) levels. This includes enhancing system and data resiliency with edge computing technologies tied into the enterprise computing infrastructure. -Continue with the extension of Cross-Domain capabilities to support full data synchronization between the low side (NIPR) and high side (SIPR) C2IMERA instances to facilitate Joint All- Domain Command and Control (JADC2). -Continue with the enterprise employment of C2IMERA for installation and wing command and control to enhance warfighter effectiveness and impacts achieved through an overhaul of the C2IMERA data model and a consolidated/federated data access layer. -Continue with architectural improvements to transition from incrementally delivered micro services to a single-tenancy implementation with support for Software as a Service (SaaS). -Continue with the automated workflow and improved system integration with continued interface development focusing on the fusion of installation/base C2 node data with MAJCOM and HHQ level systems at the strategic levels. -Migrate to All Domain Common Platform (ADCP)  <b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> C2IMERA moved from PE 0207522F to PE 0305015F.	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<div style="text-align: right;"><b>Accomplishments/Planned Programs Subtotals</b></div>	0.000	0.000	8.097

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b><u>Line Item</u></b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023</u></b> <b><u>Base</u></b>	<b><u>FY 2023</u></b> <b><u>OCO</u></b>	<b><u>FY 2023</u></b> <b><u>Total</u></b>	<b><u>FY 2024</u></b>	<b><u>FY 2025</u></b>	<b><u>FY 2026</u></b>	<b><u>FY 2027</u></b>	<b><u>Cost To</u></b> <b><u>Complete</u></b>	<b><u>Total Cost</u></b>
• RDTE 07 0604617F: <i>Agile Combat Support</i>	0.000	0.000	7.922	-	7.922	5.426	0.000	0.000	0.000	0.000	13.348
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> The acquisition strategy builds on agile software engineering methodologies and modernization of existing capabilities utilizing evolutionary acquisition. Using Section 804, timelines are reduced by modularizing both software engineering solutions and the associated contracting and funding strategies. This enables dynamic resource allocation based on current warfighter needs. The desired end state is continuous delivery of Software. In Summer of FY20, the decision was made to transition from MTA, Sec 804 Rapid prototyping/Fielding to the new NDAA FY20 - Software Acquisition Pathway, which is the preferred path for acquisition and development of											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305015F / C2 Air Operations Suite - C2 Info Services	
<p>software-intensive systems. 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.</p>		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0305015F / C2 Air Operations Suite - C2 Info Services						<b>Project (Number/Name)</b> 675218 / Applications Development			
<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
C2IMERA Development	TBD	TBD : TBD	-	0.000		-		4.866	Jan 2023	-		4.866	0.000	4.866	-
<b>Subtotal</b>			-	0.000		-		4.866		-		4.866	0.000	4.866	N/A
<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
C2IMERA Test Support	PO	96th Test Wing : Eglin, FL	-	-		-		0.250	Jan 2023	-		0.250	0.000	0.250	-
<b>Subtotal</b>			-	-		-		0.250		-		0.250	0.000	0.250	N/A
<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
C2IMERA Program Management Administration	C/Various	Not specified. : Hanscom AFB, MA	-	-		-		2.592	Jul 2023	-		2.592	0.000	2.592	-
C2IMERA Systems Engineer	SS/ Various	Not specified. : Hanscom AFB, MA	-	-		-		0.389	Oct 2023	-		0.389	Continuing	Continuing	-
<b>Subtotal</b>			-	-		-		2.981		-		2.981	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	0.000		-		8.097		-		8.097	Continuing	Continuing	N/A
<b>Remarks</b> C2AOS-C2IS funding transferred to PE 0207438F, Theater Battle Management (TBM) C4I, Project Number 675218, Applications Development.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)									
3600 / 7					PE 0305015F / C2 Air Operations Suite - C2 Info Services					675218 / Applications Development									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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																												
C2IMERA Software development																												
Test																												
C2IMERA Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305015F / C2 Air Operations Suite - C2 Info Services	Project (Number/Name) 675218 / Applications Development	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Software Development				
C2IMERA Software development	1	2023	4	2023
Test				
C2IMERA Test	1	2023	4	2023

**Note**  
See PE 0207438F, Theater Battle Management (TBM) C4I, Project Number 675218, Applications Development for continued development events.

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0305020F / CCMD Intelligence Information Technology							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	1.646	1.663	1.751	0.000	1.751	1.787	1.821	1.860	1.902	Continuing	Continuing
674901: <i>Ccmd Intelligence Information Technology</i>	-	1.646	1.663	1.751	0.000	1.751	1.787	1.821	1.860	1.902	Continuing	Continuing

## **A. Mission Description and Budget Item Justification**

Combatant Command Intelligence Enterprise Management Support Office (CCI EMSO) guides the development, modernization, alignment, and integration of Combatant Command Intelligence (CCI) enterprise capabilities and systems as part of the Defense Intelligence Enterprise. This program focuses on information technology (IT) and data centric gaps, and builds consensus across the Combatant Commands, Combat Service Agencies, and services to accelerate enterprise IT solutions to the Warfighter. It also provides foundational enterprise architectural research and mapping across the CCI community. CCI EMSO includes a cloud-based research and assessment computing environment leveraging advance computing and storage technologies. It provides data-driven research, portfolio assessment and management, and decision support to enable OUSD(I&S)'s governance and management of the CCMD Intelligence Enterprise. Combatant Commands (CCMDs) require a cohesive, flexible IT enterprise to ensure intelligence content informs analysis, planning, warfighter operations, and strategic decision making. This program office actively engages with the CCMDs and service providers to refine requirements, identify potential solutions, and advocate for the modernization of enterprise capabilities critical to the warfighter. CCI EMSO champions CCMD Intelligence IT requirements during the implementation of DoD's Digital Transformation Strategy and OUSD(I&S) Digital Transformation Campaign Plan. The CCI EMSO is at the nexus of multiple service providers, networks, systems, applications, classification levels, and funding. The vast majority of these IT services are tailored to Intelligence Community (IC) users vice CCMD-specific missions or needs.

OUSD(I&S) and Joint Staff sponsored a capabilities based assessment resulting in an Intelligence System Initial Capability Document (IS-ICD - JROCM 094-16) and a Doctrine, Organization, Training, materiel, Logistics, Personnel, Facilities - Policy (DOTmLPF-P) Change Request (DCR - JROCM 088-17). In response, OUSD(I&S) coordinated with the Air Force to create the CCI EMSO, formerly Combatant Command Intelligence Information Technology Provisional Program Activity Office (CCIIT PPAO). OUSD(I&S) Digital Transformation Campaign Plan directs CCI EMSO to support the modernization and management of the CCI IT Enterprise for the CCMDs. This program enables long term research and evaluation of systems and processes capable of supporting the CCI Enterprise.

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 \$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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0305020F I CCMD Intelligence Information Technology			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	1.646	1.663	0.000	0.000	0.000
Current President's Budget	1.646	1.663	1.751	0.000	1.751
Total Adjustments	0.000	0.000	1.751	0.000	1.751
• 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	1.751	0.000	1.751
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 FY 2023 cannot be made in a relevant manner.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305020F / CCMD Intelligence Information Technology				Project (Number/Name) 674901 / Ccmd Intelligence Information Technology			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674901: Ccmd Intelligence Information Technology	-	1.646	1.663	1.751	0.000	1.751	1.787	1.821	1.860	1.902	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

N/A

## A. Mission Description and Budget Item Justification

Combatant Command Intelligence Enterprise Management Support Office (CCI EMSO) guides the development, modernization, alignment, and integration of Combatant Command Intelligence (CCI) enterprise capabilities and systems as part of the Defense Intelligence Enterprise. This program focuses on information technology (IT) and data centric gaps, and builds consensus across the Combatant Commands, Combat Service Agencies, and services to accelerate enterprise IT solutions to the Warfighter. It also provides foundational enterprise architectural research and mapping across the CCI community. CCI EMSO includes a cloud-based research and assessment computing environment leveraging advance computing and storage technologies. It provides data-driven research, portfolio assessment and management, and decision support to enable OUSD(I&S)'s governance and management of the CCMD Intelligence Enterprise. Combatant Commands (CCMDs) require a cohesive, flexible IT enterprise to ensure intelligence content informs analysis, planning, warfighter operations, and strategic decision making. This program office actively engages with the CCMDs and service providers to refine requirements, identify potential solutions, and advocate for the modernization of enterprise capabilities critical to the warfighter. CCI EMSO champions CCMD Intelligence IT requirements during the implementation of DoD's Digital Transformation Strategy. The CCI EMSO is at the nexus of multiple service providers, networks, systems, applications, classification levels, and funding. The vast majority of these IT services are tailored to Intelligence Community (IC) users vice CCMD-specific missions or needs.

OUSD(I&S) and Joint Staff sponsored a capabilities based assessment resulting in an Intelligence System Initial Capability Document (IS-ICD - JROCM 094-16) and a Doctrine, Organization, Training, materiel, Logistics, Personnel, Facilities - Policy (DOTmLPF-P) Change Request (DCR - JROCM 088-17). In response, OUSD(I&S) coordinated with the Air Force to create the CCI EMSO, formerly Combatant Command Intelligence Information Technology Provisional Program Activity Office (CCIIT PPAO). CCI EMSO is tasked to address these gap areas for the CCMDs. This program enables long term research and evaluation of systems and processes capable of supporting the CCI Enterprise.

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 0.00M is forecasted for civilian pay expenses in this program element.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force							Date: April 2022				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305020F / CCMD Intelligence Information Technology			Project (Number/Name) 674901 / Ccmd Intelligence Information Technology				
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<b>Title:</b> Combatant Command Intelligence Information Technology (CCMD Intel IT)							1.646	1.663	1.751	0.000	1.751
<b>Description:</b> Development, modification, and integration of new functionality to support improved end-to-end service delivery against one or more of six validated requirements areas within the CCIIT Enterprise operational mission set.											
<b>FY 2022 Plans:</b> The RDT&E funds used to continue research, test and evaluate multiple software tools and workflows impacting the CCI Enterprise. Complex research and evaluation of emerging data structures, visualization tools, and cross domain services directly address multiple Joint Requirements Oversight Council (JROC) requirements and CCMD Integrated Priority Lists (IPLs).											
<b>FY 2023 Base Plans:</b> Continuation of efforts: The RDT&E funds will be used to continue to research, test and evaluate multiple software tools and workflows impacting the CCI Enterprise. Complex research and evaluation of emerging data structures, visualization tools, and cross domain services directly address multiple Joint Requirements Oversight Council (JROC) requirements and CCMD Integrated Priority Lists (IPLs).											
<b>FY 2023 OCO Plans:</b> N/A											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increase to meet user requirements to develop evolving mission sets.											
Accomplishments/Planned Programs Subtotals							1.646	1.663	1.751	0.000	1.751
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• O&M PE 0305020F: CCMD Intelligence Information Technology	12.512	12.586	13.217	0.000	13.217	13.448	13.775	14.060	14.316	Continuing	Continuing
Remarks N/A											

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305020F / CCMD Intelligence Informat ion Technology	Project (Number/Name) 674901 / Ccmd Intelligence Information Technology
<p><b>D. Acquisition Strategy</b></p> <p>RDT&amp;E funds will be applied as a modification to an existing contract vehicle to address identified requirements and align and integrate capabilities across the enterprise critical to the warfighter.</p>		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0305020F / CCMD Intelligence Information Technology						<b>Project (Number/Name)</b> 674901 / Ccmd Intelligence Information Technology			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
IT Equipment and Networking Technology Hardware	C/CPAF	Other Contracting : Fairfax, VA	-	1.646	Mar 2021	0.195	Jun 2022	0.198	Jun 2023	-		0.198	Continuing	Continuing	-
<b>Subtotal</b>			-	1.646		0.195		0.198		-		0.198	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Research and development contracts	C/CPAF	Other Contracting : Fairfax, VA	-	-		1.468	Feb 2022	1.553	Feb 2023	-		1.553	Continuing	Continuing	-
<b>Subtotal</b>			-	-		1.468		1.553		-		1.553	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	1.646		1.663		1.751		-		1.751	Continuing	Continuing	N/A
<b>Remarks</b> N/A															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0305020F / CCMD Intelligence Information Technology						Project (Number/Name) 674901 / Ccmd Intelligence Information Technology			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Solution Analysis</b>																												
Research intelligence capabilities / gaps / software and develop work-flows and requirements. Program will evaluate existing and potential software.																												
<b>Requirements Development Solution</b>																												
Refinement of requirements to match user input for added capability																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305020F / CCMD Intelligence Information Technology	<b>Project (Number/Name)</b> 674901 / Ccmd Intelligence Information Technology	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Solution Analysis</i></b>				
Research intelligence capabilities / gaps / software and develop work-flows and requirements. Program will evaluate existing and potential software.	1	2021	4	2027
<b><i>Requirements Development Solution</i></b>				
Refinement of requirements to match user input for added capability	1	2021	4	2027

**Note**

Per ODNI and USD(I&S) Consolidated Intelligence Guidance for FY2022-2027, the Strategic objective directs work toward enhanced capabilities and establishment of a data-centric environment to continue through FY2027. The CCI EMSO will continue to address gap areas and support the transition from current state to a joint common fabric framework supporting the Intelligence IT enterprise though both solution analysis and requirements development.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305022F / <i>ISR Modernization &amp; Automation Dvmt (IMAD)</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	19.230	15.888	13.138	0.000	13.138	19.780	20.151	20.575	21.033	Continuing	Continuing
675197: <i>Core Technology</i>	-	15.936	12.740	9.781	0.000	9.781	16.314	16.619	16.969	17.347	Continuing	Continuing
675306: <i>Analysis Enterprise</i>	-	3.294	3.148	3.357	0.000	3.357	3.466	3.532	3.606	3.686	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

AF ISR must adapt large data sets and condition it into mission ready data sets, allowing personnel to discover, manage, and analyze data and transform it into living intelligence.

Kill Chain Automation applies new methodologies; advanced artificial intelligence and machine learning; ensures data is accessible, discoverable, and interoperable; and delivers decision advantage from detection to mission execution.

Supports National Defense Strategy priority of operating at the "speed of relevance."

Supports Next Generation ISR Dominance Flight 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 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 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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305022F I ISR Modernization & Automation Dvmt (IMAD)			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	19.230	18.888	0.000	0.000	0.000
Current President's Budget	19.230	15.888	13.138	0.000	13.138
Total Adjustments	0.000	-3.000	13.138	0.000	13.138
• Congressional General Reductions	0.000	-3.000			
• 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	13.138	0.000	13.138
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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305022F / ISR Modernization & Automation Dvmt (IMAD)				Project (Number/Name) 675197 / Core Technology			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675197: Core Technology	-	15.936	12.740	9.781	0.000	9.781	16.314	16.619	16.969	17.347	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
<b>A. Mission Description and Budget Item Justification</b> Supports National Defense Strategy priority of operating at the "speed of relevance."  Supports Next Generation ISR Dominance Flight Plan.												
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>									FY 2021	FY 2022	FY 2023	
<b>Title:</b> Algorithmic Warfare  <b>Description:</b> SECAF directed the AF to invest in a more automated environment to relieve strain on manpower in the out years. Algorithmic Warfare can provide world-class ISR support to Joint Operations at the scale and speed required in modern warfare against our adversaries. This effort supports National Defense Strategy of operating at the "speed of relevance."  <b>FY 2022 Plans:</b> Continue to develop/maintain ISR Algorithmic Warfare - automation of tools and machine learning algorithms. Begin to incorporate artificial intelligence methods  <b>FY 2023 Plans:</b> Continue to develop ISR algorithmic Warfare - automation of tools and machine learning algorithms. Continue to investigate AI methods.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> NDAA Congressional mark of FY22 PB -- 3.0M decrease of RDT&E -Selected projects will endure a reduction in funding, limits impact to innovations.  Despite the mark, FY22 is already on track to exceed the obligation and execution rate compared to previous Fiscal Year.									15.936	12.740	9.781	
<b>Accomplishments/Planned Programs Subtotals</b>									15.936	12.740	9.781	
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A <b>Remarks</b>												

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305022F / <i>ISR Modernization &amp; Automation Dvmt (IMAD)</i>	Project (Number/Name) 675197 / <i>Core Technology</i>
D. Acquisition Strategy N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305022F / ISR Modernization & Automation Dvmt (IMAD)						Project (Number/Name) 675197 / Core Technology			
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Algorithmic Warfare	TBD	HAF/A2 : Pentagon, DC	-	15.936	Nov 2020	12.740	Nov 2021	9.781	Nov 2022	-		9.781	Continuing	Continuing	-
Subtotal			-	15.936		12.740		9.781		-		9.781	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	15.936		12.740		9.781		-		9.781	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305022F / ISR Modernization & Automation Dvmt (IMAD)		Project (Number/Name) 675197 / Core Technology	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Algorithmic Warfare																												
Begin Algorithm Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305022F / ISR Modernization & Automation Dvmt (IMAD)	Project (Number/Name) 675197 / Core Technology

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Algorithmic Warfare				
Begin Algorithm Development	1	2021	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305022F / ISR Modernization & Automation Dvmt (IMAD)				Project (Number/Name) 675306 / Analysis Enterprise			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675306: Analysis Enterprise	-	3.294	3.148	3.357	0.000	3.357	3.466	3.532	3.606	3.686	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
AF ISR must adapt large data sets and condition it into mission sets, allowing personnel to discover, manage, and analyze data and transform it into living intelligence. Kill Chain Automation applies new methodologies; advances automation and machine learning algorithms; ensures data is accessible, agreeable, and interoperable; and delivers decision advantage.												
Supports National Defense Strategy priority of operating at the "speed of relevance."												
Supports Next Generation ISR Dominance Flight Plan.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
Title: Kill Chain Automation									3.294	3.148	3.357	
Description: AF's first ISR investment to work large data sets, automation, COTS IT tolls, and data aggregation.												
FY 2022 Plans:												
Continue to fund software development to automate ISR analyst workflows; analysts currently spend 80 percent of their time searching for data and 20 percent of their time making sense of information. Human-machine teaming allows humans and machines to focus on activities they each do best												
FY 2023 Plans:												
Continue to fund software development to automate ISR analyst workflows; analysts currently spend 80 percent of their time searching for data and 20 percent of their time making sense of information. Human-machine teaming allows humans and machines to focus on activities they each do best												
FY 2022 to FY 2023 Increase/Decrease Statement:												
Increase due to inflation												
Accomplishments/Planned Programs Subtotals									3.294	3.148	3.357	
C. Other Program Funding Summary (\$ in Millions)												
N/A												

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305022F / ISR Modernization & Automation Dvmt (IMAD)	Project (Number/Name) 675306 / Analysis Enterprise
C. Other Program Funding Summary (\$ in Millions)		
Remarks		
D. Acquisition Strategy		
N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022		
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305022F / ISR Modernization & Automation Dvmt (IMAD)				Project (Number/Name) 675306 / Analysis Enterprise				

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Kill Chain Automation	C/Various	HAF/A2 : Pentagon, DC	-	3.294	Dec 2020	3.148	Dec 2021	3.357	Dec 2022	-		3.357	Continuing	Continuing	-
<b>Subtotal</b>			-	3.294		3.148		3.357		-		3.357	Continuing	Continuing	N/A

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	3.294	3.148	3.357	-	3.357	Continuing	Continuing	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0305022F / ISR Modernization & Automation Dvmt (IMAD)		
			Project (Number/Name) 675306 / Analysis Enterprise		

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Kill Chain Automation																												
Begin automation development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305022F / ISR Modernization & Automation Dvmt (IMAD)	Project (Number/Name) 675306 / Analysis Enterprise

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Kill Chain Automation</i>				
Begin automation development	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305099F I Global Air Traffic Management (GATM)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	4.133	4.672	4.895	0.000	4.895	5.020	5.112	5.222	5.338	Continuing	Continuing
674689: Global Access Architecture	-	4.133	4.672	4.895	0.000	4.895	5.020	5.112	5.222	5.338	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

This program element funds the Air Force Life Cycle Management Center (AFLCMC) Aerospace Management Systems Division (AMSD), the designated Air Force (AF) Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) and Navigation Safety Center of Excellence (COE). In accordance with AFI 63-101 and AFPAM 63-129, the COE conducts highly specialized analysis, engineering assessments, and performance monitoring of military and civil CNS/ATM capabilities which ensures manned and unmanned aircraft system conformance to national and international civil aviation standards, allowing safe and efficient access to global airspace. The COE's assessment of compliance with CNS/ATM standards feed directly into the Airworthiness approval process, according to Airworthiness Bulletin-325. The COE provides centralized avionics expertise to Headquarters Air Force, AF Major Commands (MAJCOM), and weapon system program offices. This centralized CNS/ATM technical expertise capability supplements all MAJCOMs and AF weapon system program offices. This program primarily supports the acquisition of contractor Advisory and Assistance Service (A&AS) and other technical support personnel to support the efforts described in Section C.

The majority of COE funding is allocated to engineering services provided by a Federally Funded Research and Development Center and contractor support. A reduction in budget will directly affect all aircraft program offices looking to equip with the latest CNS/ATM capabilities required for airspace access, preferred routing, or increased safety of flight.

Per AFPAM 63-129 the COE must maintain an online site for dissemination of CNS/ATM information as well as a catalog of common CNS/ATM products. The COE is overhauling its online presence to consolidate COE activities and streamline operations in a 'one-stop shop' storefront. It provides seamless data management, centralized knowledge hub, engineering workspace, communications management, working group management, and CNS/ATM product catalog. The website may also be used as a foundational platform to increase collaboration amongst key CNS/ATM stakeholders. An example of this is consolidated avionics equipage information being stored on the site to answer queries from leadership, civil aviation authorities, and the operational community. Organic and/or contractor-support sustainment funding for the COE online storefront will be required following the development of the site, likely in FY23.

This funding enables the COE to participate in government and industry technical forums as well as U.S. and international civil aviation standards bodies such as the Federal Aviation Administration (FAA), International Civil Aviation Organization (ICAO), Radio Technical Commission for Aeronautics (RTCA), a Department of Defense (DoD) voting member of the Airlines Electronic Engineering Committee (AEEC) and others. These organizations are responsible for the development and assessment of international civil aviation standards for safe and efficient flight operations in worldwide airspace. COE personnel analyze civil aviation standards as they are being developed and work to influence them to support DoD interests.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0305099F I Global Air Traffic Management (GATM)	
<p>Applicable technical and engineering criteria established by U.S. and international civil aviation standards are documented in the COE maintained Generic Performance Matrices (GPMs). The COE works with MAJCOM and aircraft Program Management Office (PMO) personnel and develops strategies to implement CNS/ATM capability requirements on AF weapon systems as well as tailor the GPMs to each platform's unique avionics architecture and operational mission. After completion of CNS/ATM component integration and testing, COE personnel validate platform performance against the aviation standards necessary for the platform to interoperate with air traffic control and other airspace users safely and efficiently in worldwide airspace. The resulting performance assessment reports are submitted to the aircraft program office and becomes part of their Airworthiness and Operational Safety, Sustainability, and Effectiveness (OSS&amp;E) certification package.</p> <p>The COE provides technical analysis and assessments of CNS/ATM and navigation safety avionics equipment throughout the life cycle of manned and unmanned aircraft platforms. Efforts include but are not limited to performance assessment, test support, performance monitoring, interoperability testing, cybersecurity assessments, and the development of CNS/ATM capabilities for unmanned platforms. Currently, the COE is surging to meet program office assessment demands. In addition, the COE is projecting an increase in Communications and Navigation performance assessments beginning in FY22 through the FYDP due to new CNS/ATM capabilities to include, but not limited to: M-Code, ARC-210 replacements, SATCOM upgrades, and performance based navigation.</p> <p>The COE administers and manages multiple contracts including the electronic Global Air Traffic Management (iGATM) catalog to enable centralized procurement of CNS/ATM and navigation safety avionics equipment, navigation data, and technical engineering services for aircraft platform program offices and other mission partners. Technical engineering services may include avionics interoperability testing, cybersecurity assessments, and the development and assessment of CNS/ATM capabilities for emerging unmanned platform technologies. The iGATM catalog offers hardware, software, and equipment technical data. The catalog may offer operations and training materials, and other emerging technologies and systems. These contracts are used by aircraft program offices across the DoD, among other federal agencies, and in support of foreign military sales.</p> <p>The Digital Aeronautical Flight Information File (DAFIF) electronic navigation database is developed and maintained by the National Geospatial-Intelligence Agency (NGA) and contains critical safety of flight information used by the majority of DoD flight crews to fly Instrument Flight Rules (IFR) procedures, safely navigate airways and fly Instrument Approach Procedures (IAPs) to civil and military airfields worldwide. The COE performs periodic and event driven audits of NGA navigation source data, alternate industry navigation source data providers, and navigation data software tools required by civil aviation authorities.</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 0605831F. In FY 2021 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$0.000 million 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305099F I Global Air Traffic Management (GATM)				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	4.637	4.672	0.000	0.000	0.000	
Current President's Budget	4.133	4.672	4.895	0.000	4.895	
Total Adjustments	-0.504	0.000	4.895	0.000	4.895	
• 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	-0.504	0.000	4.895	0.000	4.895	
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 FY 2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: CNS/ATM COE Administration of DoD Avionics Equipment Catalog (CNS/ATM II)				0.629	0.818	0.911
Description: In accordance with AFPAM 63-129 Section 2.7.7 and AFI 63-101 Section 5.4.6.2, the CNS/ATM COE maintains a centralized Indefinite Delivery/Indefinite Quantity (ID/IQ) contract which contains pre-approved products for use by implementing aircraft SPOs. These include or will include: navigation safety avionics equipment/components, navigation data, and technical engineering services. Supports numerous DoD, US Federal Agencies, and Foreign Military Sales program offices. Provide preferred customer pricing and extended warranty.						
FY 2022 Plans: Continued development and administration of the CNS/ATM online storefront and enhanced DoD electronic avionics equipment catalog. Conduct market research, monitor industry for new CNS/ATM products, and conduct aircraft SPO data calls for avionics equipment which could be added to catalog.						
FY 2023 Plans: The CNS/ATM online storefront will continue to modernize its website and administer the enhanced DoD electronic avionics equipment catalog						
FY 2022 to FY 2023 Increase/Decrease Statement:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305099F / <i>Global Air Traffic Management (GATM)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Funding increased due to economic adjustments.				
<b>Title:</b> CNS/ATM COE Digital Aeronautical Flight Information File (DAFIF) Management		1.720	1.877	1.947
<b>Description:</b> Perform periodic audits of the processes and procedures utilized by organizations involved in the development and distribution of critical safety of flight electronic databases used by aircrews to fly instrument flight rules procedures worldwide. Ensures the validity of multiple sources of information critical to implementation of international performance based navigation (PBN) standards.				
<b>FY 2022 Plans:</b> Continued efforts with DoD agencies and the FAA to audit/certify electronic navigational databases and sources, and develop performance based procedures required to operate without restriction in the National Airspace System (NAS) and in international civil aviation environments. Continue to publish procedures and databases with sufficient accuracy/performance necessary to operate manned and remotely piloted aircraft globally.				
<b>FY 2023 Plans:</b> Will continue efforts with DoD agencies and the FAA to audit/certify electronic navigational databases and sources, and develop performance based procedures required to operate without restriction in the NAS and in international civil aviation environments. Continue to publish procedures and databases with sufficient accuracy/performance necessary to operate manned and remotely piloted aircraft globally.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to economic adjustments.				
<b>Title:</b> CNS/ATM COE Standards Bodies Engagement and Generic Performance Matrix (GPM) Development		1.784	1.977	2.037
<b>Description:</b> Participate in technical forums to understand and influence civil aviation standards and incorporate DoD interests to ensure safe and efficient access of AF manned and unmanned aircraft to the global airspace. Create new and/or revise GPMs used by AF platform program offices to ensure aircraft comply with civil aviation requirements. Tailor GPMs for program offices to apply standards to unique aircraft avionics architectures. Assist 30+ aircraft program offices with the development of CNS/ATM related test and evaluation plans, the analysis of test/performance data, and the assessment of aircraft CNS/ATM performance through preparation of a Performance Assessment Report (PAR).				
<b>FY 2022 Plans:</b> Prioritized participation in technical forums and civil aviation standards bodies based on funding and operational requirements of AF platforms.				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305099F <i>I Global Air Traffic Management (GATM)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Continued development of generic and tailored performance matrices to ensure AF manned and remotely piloted aircraft are capable and certified to operate safely and efficiently in worldwide civil airspace in accordance with emerging performance based CNS/ATM requirements. Continue to support AF aircraft platform program office test and design reviews, analysis of test/performance data, and performance assessment reports. Prioritize manpower support to provide deliverable products such as the TPM or PAR to ACAT 1 and reportable modification programs, to include but limited to: HC-130J, VC-25, KC-135, C-17, and C-130H. Support will be provided to AF platform program offices based on manpower availability and operational requirements of AF platforms. FY22 platforms support requests are anticipated by at least the following program offices: A-10, B-1, B-2, B-52, C-5, C-17, C-130H, C-130J, CV-22, E-3, E-4, E-8, E-11, F-15EX, F-16, F-22, HC-130J, UH-1N, KC-135, KC-46, MC-130H RQ-4, MQ-9, HH-60W and VC-25. There is also a growing demand for support of FMS program offices with supports planned for several program offices including but not limited to A-29, C-130H (Niger), F-15 (QA), F-16 (UAE), MQ-9 (UK, Belgium, Australia), and E-767 (Japan).				
<b>FY 2023 Plans:</b> Will prioritize participation in technical forums and civil aviation standards bodies based on funding and operational requirements of AF platforms. Continue development of generic and tailored performance matrices to ensure AF manned and remotely piloted aircraft are capable and certified to operate safely and efficiently in worldwide civil airspace in accordance with emerging performance based CNS/ATM requirements. Continue to support AF aircraft platform program office test and design reviews, analysis of test/performance data, and performance assessment reports. Prioritize manpower support to provide deliverable products such as the TPM or PAR to ACAT 1 and Reportable modification programs, to include but limited to: AT-6, T-7A, F-35, HH-60W, MH-139, KC-135, C-130J, F-16, and E-11. Support will be provided to AF platform program offices based on manpower availability and operational requirements of AF platforms. FY23 platforms support requests are anticipated by at least the following program offices: A-10, B-1, B-2, B-52, C-5, C-17, C-130H, C-130J, CV-22, E-3, E-4, E-8, E-11, F-15EX, F-16, F-22, HC-130J, UH-1N, KC-135, KC-46, MC-130H RQ-4, MQ-9, HH-60W and VC-25. There is also a growing demand for support of FMS program offices with supports planned for several program offices including but not limited to A-29, C-130H (Niger), F-15 (QA), F-16 (UAE), MQ-9 (UK, Belgium, Australia), and E-767 (Japan). We expect the number of FMS program offices to increase beyond this currently planned scope.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due economic adjustments.				
<b>Accomplishments/Planned Programs Subtotals</b>		4.133	4.672	4.895

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305099F <i>I Global Air Traffic Management (GATM)</i>	
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>E. Acquisition Strategy</b> This program primarily supports the acquisition of contractor Advisory and Assistance Service (A&AS) and other technical support personnel to support the efforts described in Section C. This program also provides for the acquisition of contractor services in support of various program management activities within the COE. All of these services are acquired via the issuance of task/delivery orders against existing contractor support contract vehicles available to the CNS/ATM COE.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305099F / Global Air Traffic Management (GATM)				Project (Number/Name) 674689 / Global Access Architecture					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
CNS/ATM Center of Excellence: Technical support for CNS/ATM requirement assessments, GPM development, DAFIF navigation data chain audits/certification, and CNS/ATM ID/IQ contract management.	C/T&M	MITRE : Bedford, MA	-	2.394	Oct 2020	2.665	Oct 2021	2.812	Oct 2022	-		2.812	Continuing	Continuing	-
CNS/ATM Center of Excellence: Technical support for operational requirement assessments, GPM development, DAFIF navigation data chain audits/certification, and CNS/ATM ID/IQ contract management.	C/CPFF	Oasis Systems : Lexington, MA	-	0.908	Jul 2021	1.176	Jul 2022	1.313	Jul 2023	-		1.313	Continuing	Continuing	-
Subtotal			-	3.302		3.841		4.125		-		4.125	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Support Costs - (Contract Services)	C/T&M	Oasis Systems : Lexington, MA	-	0.611	Jul 2021	0.611	Jul 2022	0.550	Jul 2023	-		0.550	Continuing	Continuing	-
Program Support Costs - (Other Govt Costs)	Various	Various : Bedford, MA	-	0.220	Oct 2020	0.220	Oct 2021	0.220	Oct 2022	-		0.220	Continuing	Continuing	-
Subtotal			-	0.831		0.831		0.770		-		0.770	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	4.133		4.672		4.895		-		4.895	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305099F / Global Air Traffic Management (GATM)			Project (Number/Name) 674689 / Global Access Architecture			
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)									
3600 / 7					PE 0305099F / Global Air Traffic Management (GATM)					674689 / Global Access Architecture									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CNS/ATM COE																												
Generic Performance Matrix Development																												
DAFIF Management																												
CNS/ATM iGATM II Contract Administration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305099F / Global Air Traffic Management (GATM)	Project (Number/Name) 674689 / Global Access Architecture

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CNS/ATM COE				
Generic Performance Matrix Development	1	2021	4	2027
DAFIF Management	1	2021	4	2027
CNS/ATM iGATM II Contract Administration	2	2021	2	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305103F I Cyber Security Initiative							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.368	0.290	0.091	0.000	0.091	0.301	0.301	0.307	0.314	Continuing	Continuing
671931: TECH SURVEIL COUNTER MEAS EQPT	-	0.368	0.290	0.091	0.000	0.091	0.301	0.301	0.307	0.314	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Integrate MDCO network sensor collections and analytical capabilities to enable data sharing.

In FY 2022, PE 0305103F, Cyber Security Initiative, Project 671931, Tech Surveillance Counter Measures, efforts were transferred to PE 03031113F, Cyber Security Intelligence Support, Project 671931, Tech Surveillance Counter Measurement Equipment, in order to more appropriately categorize the funding according to purpose.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Cyber Security Initiative capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F, 0605827F, 0605828F, 0605829F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 \$0.0M was expended and in FY22 \$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><u>B. Program Change Summary (\$ in Millions)</u></b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023 Base</u></b>	<b><u>FY 2023 OCO</u></b>	<b><u>FY 2023 Total</u></b>
Previous President's Budget	0.383	0.290	0.000	0.000	0.000
Current President's Budget	0.368	0.290	0.091	0.000	0.091
Total Adjustments	-0.015	0.000	0.091	0.000	0.091
• 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	-0.015	0.000	0.091	0.000	0.091

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305103F / <i>Cyber Security Initiative</i>			
<p><b><u>Change Summary Explanation</u></b></p> <p>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 FY 2023 cannot be made in a relevant manner.</p>				
<b><u>C. Accomplishments/Planned Programs (\$ in Millions)</u></b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b><i>Title:</i></b> Tech Surveill Counter Mess Equipment  <b><i>Description:</i></b> CI Process Exploit Dissemination (PED)  <b><i>FY 2022 Plans:</i></b> Integrate MDCO network sensor collections.  <b><i>FY 2023 Plans:</i></b> Continue to integrate MDCO network sensor collections  <b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Decrease in requirements		0.368	0.290	0.091
<b>Accomplishments/Planned Programs Subtotals</b>		0.368	0.290	0.091
<p><b><u>D. Other Program Funding Summary (\$ in Millions)</u></b></p> <p>N/A</p> <p><b><u>Remarks</u></b></p>				
<p><b><u>E. Acquisition Strategy</u></b></p> <p>Integrate MDCO sensor collection and analysis.</p> <p>Acquisition strategy for program efforts will be assessed as program requires. Competitive contracts will be used to the maximum extent possible.</p>				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305103F / Cyber Security Initiative				Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Integrated Sensor Collection Development	C/CPAF	Not specified. : TBD	-	0.368	Oct 2020	0.290	Oct 2021	0.091	Oct 2022	-		0.091	Continuing	Continuing	-
Subtotal			-	0.368		0.290		0.091		-		0.091	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.368		0.290		0.091		-		0.091	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305103F / Cyber Security Initiative		Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
CI Process Exploit Dissemination (PED) System Development																												
Analysis of MDCO sensor integration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305103F / Cyber Security Initiative	Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CI Process Exploit Dissemination (PED) System Development				
Analysis of MDCO sensor integration	1	2021	4	2026

**Note**  
Integrate MDCO sensor collection and analysis.

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305111F / <i>Weather Service</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	34.618	39.228	11.716	0.000	11.716	13.318	14.303	14.343	14.665	Continuing	Continuing
672738: <i>Weather Service</i>	-	34.618	39.228	11.716	0.000	11.716	13.318	14.303	14.343	14.665	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program, BA 7, PE 0305111F, project 672738, Expeditionary Weather - MTA Rapid Fielding (ExMet - MTA RF), is a new start.

In FY 2023, a portion of PE 0305111F, Project 672738, Weather Service, was transferred to PE 1203940SF, Space Situational Awareness Operations, Project 67A018, Ground Based Space Environmental Monitoring in order to align current AF ground-based space sensing projects to the USSF.

**A. Mission Description and Budget Item Justification**

This budget activity funds the operational development necessary to acquire and modernize Air Force Weather Service (AFWS) capabilities in support of the 2018 National Defense Strategy's (NDS) three lines of effort. To improve readiness for a more lethal force, AFWS provides timely, accurate, resilient, and relevant environmental information to enable global battlespace situational awareness for the Air Force (AF), Army, Special Operations Forces (SOF), Space Force (USSF), combatant commands, the Intelligence Community (IC), and other government agencies. AFWS provides climate impacts and assessments, as well as space and terrestrial weather sensing, forecasting, and weather analytic capabilities, at home station and deployed, in order to deliver critical environmental information in support of decision makers to gain the asymmetric advantage during the full spectrum of air and space combat operations. AFWS decreases the risk to mission and risk to force by increasing the lethality, effectiveness, and survivability of Department of Defense (DoD) weapon systems. To strengthen alliances and partnerships, AFWS development efforts integrate DoD, government agency, commercial, and international partner environmental data and software with AFWS information systems for processing, storing, exploiting, and disseminating all-domain weather information for analysis, forecasting, mission integration, and greater interoperability. To ensure greater performance and affordability for the Department of the AF, AFWS sensors and information systems are being modernized through improvements to architecture and system efficiency, cybersecurity, joint all-domain command and control (JADC2) and sensing grid integration, migration to cloud computing, artificial intelligence and machine learning (AI/ML) initiatives, and expanding agile software development, rapid delivery, and integration practices. The AF Weather Enterprise digital transformation and cloud migration effort modernizes key capabilities providing the military advantage to accurately predict environmental impacts optimizing mission planning, targeting, weaponeering, mission execution, battle damage assessment, and space systems operations.

AFWS aligns activities under four capability areas: Weather Data Collection, Weather Data Analysis and Dissemination, Weather Forecasting, and Product Tailoring/ Warfighter Applications (PTWA). This alignment ensures an integrated and systems-oriented approach to program management decisions. Of these four capability areas, three (Weather Data Analysis and Dissemination, Weather Forecasting, and PTWA) are addressed by APPN 3600, BA 07, PE 0305111F, Project 672738 - Weather Service. Effective FY 2021, a portion of the APPN 3600 funding and activities from Weather Data Analysis and Dissemination and Weather Forecasting were migrated to the PTWA capability area to better address development of applications, software, command and control (C2) system integration, and web interfaces that directly impact the warfighter within the Weather Application Rapid Production (WARPspeed) program of record. For FY 2021, WDA Increment 5 and WARPspeed programs of record were approved as Software Acquisition Pathway Programs and are now OSD-nominated APPN 3600 BA 08 FY23 pilot programs.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0305111F / Weather Service	
<p>1. Weather Data Collection provides automated atmospheric and ground-based space environmental sensing capabilities at fixed and deployed locations worldwide. The data gathered by multiple sensor systems is exploited for environmental battlespace awareness, characterization, safety of flight, resource protection, and satellite anomaly assessments and impacts.</p> <p>2. Weather Data Analysis and Dissemination provides a cybersecure cloud computing-based platform supporting large-scale environmental data ingest, processing, and product generation, Continuous Integration/Continuous Delivery (CI/CD) and AI/ML environments for AFWS software development and deployment, and machine-to-machine dissemination of specific, mission-tailored weather data on-demand to support warfighter operations, weapon system interoperability, rapidly integrating into C2 nodes, and shortening the Combatant Commander kill chain. The Weather Data Analysis and Dissemination capability area includes activities for Weather Data Analysis Increment 5 (WDA Inc 5).</p> <p>3. Weather Forecasting provides global and regional advanced scientific numerical weather and climate prediction capabilities for automated, high-resolution forecast products supporting mission planning and execution with an emphasis on clouds, theater scale weather, aerosol/chemical constituents, hydrology, machine learning, and space environmental characterization. Weather Forecasting includes activities for Numerical Weather Modeling (NWM) and Space Weather Analysis and Forecast System (SWAFS). In FY 2023, the SWAFS portion of the APPN 3600 funding and activities from AF PE 0305111F, Weather Service, were transferred to the USSF PE 1203940SF, Space Situational Awareness Operations.</p> <p>4. Product Tailoring Warfighter Applications (PTWA) provides software applications that provide and enhance environmental information to support rapid warfighter decision-making. PTWA includes the program, Weather Applications Rapid Production (WARPspeed), which is a suite of software applications developed and delivered across multiple security classification levels. WARPspeed encompasses weather workflow tools and decision aids used to tailor terrestrial and space environmental information, which include both Forecaster-in-the-Loop (FITL) and automated machine-to-machine processes enhanced by AI/ML. WARPspeed leverages the WDA Inc 5 cloud computing, data processing, and CI/CD and AI/ML platforms to rapidly develop, deliver, and sustain software capabilities, whether deployed into the AF Weather Virtual Private Cloud (AFW-VPC) or to warfighter processing nodes at the edge. The PTWA program Joint Environmental Toolkit (JET) subsumed several software and web development efforts previously aligned under the Weather Data Analysis and Dissemination capability area in FY 2021 and was renamed to WARPspeed. PTWA and WARPspeed also includes the machine learning Global Synthetic Weather Radar (GSWR) capabilities, which were previously aligned under Weather Forecasting.</p> <p>Activities include research and analysis to support current program planning. Management Service costs include Federally Funded Research and Development Centers (FFRDC) and Advisory and Assistance Service (A&amp;AS).</p> <p>The total cost of the ExMet Rapid Fielding Middle Tier of Acquisition effort is 34.8M, including RDT&amp;E and procurement of prototype units. ExMet Rapid Fielding program is fully funded across the Future Years Defense Program.</p> <p>This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, SEC 240-D.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305111F I Weather Service				
This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver 0305111F Weather Service for emergent or unanticipated weapon system capability.						
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.						
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		36.573	26.228	0.000	0.000	0.000
Current President's Budget		34.618	39.228	11.716	0.000	11.716
Total Adjustments		-1.955	13.000	11.716	0.000	11.716
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	13.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		0.000	0.000			
• SBIR/STTR Transfer		-1.305	0.000			
• Other Adjustments		-0.650	0.000	11.716	0.000	11.716
Congressional Add Details (\$ in Millions, and Includes General Reductions)						
Project: 672738: Weather Service						
Congressional Add: Commercial Weather Data Pilot (CWDP) Program						
Congressional Add: Research on Atmospheric Rivers						
Congressional Add Subtotals for Project: 672738						
Congressional Add Totals for all Projects						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Expeditionary Weather - MTA Rapid Fielding (ExMet - MTA RF)				0.000	0.000	0.424
Description: Funding enables rapid fielding of Air Force Weather's Joint All-Domain Command and Control (JADC2) system of systems solution that supports mission specific launch and recovery operations via multi and single person UTCs. ExMet						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305111F / <i>Weather Service</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> systems and capabilities address AF expeditionary operations needs highlighted in the 2018 NDS and AF/A3 Functional Concept for Expeditionary Weather operations. FY23 funding continues integration of components and applications into ExMET systems which was previously enabled by SBIR funding.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> Funding will support component integration and testing.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Initiates use of 35111PE for component integration into overall ExMet scalable system configurations; was previously leveraging SBIR funding		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Weather Data Analysis Increment 5 (WDA Inc 5)  <b>Description:</b> WDA Inc 5 institutes a cloud computing-based platform enabling a transition from agile development to a CI/CD pipeline for software development and deployment efforts which will enable rapid updates to functionality and security measures. The WDA Inc 5 cloud computing platform will also provide an enterprise big data analytics capability and AI/ML platform, as well as supporting and funding development and deployment of web services, data management, platform monitoring, application on-boarding, and platform user management. Finally, the program will provide both classified and unclassified cloud computing platforms that communicate directly with C2 customers.  <b>FY 2022 Plans:</b> FY 2022 funding will support the CI/CD pipeline modernization for weather software and applications and will further AI/ML platform integration and data integration to the AFW-VPC platform.  <b>FY 2023 Plans:</b> Funding will support the CI/CD pipeline modernization for weather software and applications and will further AI/ML platform integration and new satellite data integration to the AFW-VPC platform  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decreased due to BA-08 Software Pilot Program transfer to new PE 0308607F.		0.736	1.972	0.000
<b>Title:</b> Numerical Weather Modeling (NWM)  <b>Description:</b> The NWM program transitions High Performance Computing (HPC) System 11 into operations in early FY2022, transitions legacy weather models to System 11 by end of FY 2022, and expands and enhances the computing capability to begin supporting machine learning models' development. NWM also provides data and products used to issue advisories and warnings		8.824	11.080	11.292

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305111F / <i>Weather Service</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> for DoD resource protection, as well as DoD and IC mission planning. NWM integrates with the Air Force Weather Weapon System's Weather Data Analysis (WDA) Inc 5 processing centers to analyze and predict weather phenomena.  <b>FY 2022 Plans:</b> - Continue METSAT exploitation and integration efforts for cloud forecasting applications. - Continue terrain modeling enhancement and integration, which includes hydrology streamflow capability and seasonal-to-sub-seasonal forecast capability development. - Continue Oak Ridge National Laboratory (ORNL) RDT&E collaboration tasks, focusing on model code optimization and hydrology prediction capabilities. - Continue Explicit Modeled Cloud data assimilation collaboration and development activities  <b>FY 2023 Plans:</b> - Continue METSAT exploitation and integration efforts for cloud forecasting applications. - Continue terrain modeling enhancement and integration, which includes hydrology streamflow capability and seasonal-to-sub-seasonal forecast capability development. - Continue Oak Ridge National Laboratory (ORNL) RDT&E collaboration tasks, focusing on model code optimization and hydrology prediction capabilities.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> -Slight increase due to cuts/inflation rates administered to NWM		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Weather Applications Rapid Production (WARPspeed)  <b>Description:</b> WARPspeed develops and delivers a suite of software applications across multiple security classification levels to provide and enhance environmental intelligence to support rapid warfighter decision making. Major software developments include: the BIFROST Portal (formally Enterprise Environmental Platform (E2P)), Mission Services, Global Synthetic Weather Radar (GSRW), weather C2 visualization plug-ins and integration, and other forecast and climatology applications.  <b>FY 2022 Plans:</b> - Develop BIFROST Portal which will provide a single front entry point into the Air Force Weather Enterprise for all html-based capabilities for environmental content and services on all classification enclaves. - Continue to enhance Mission Services, to include the continued development of environmental impacts web services. - Continue to develop weather C2 visualization plug-ins to integrate weather data and software applications with various C2 systems.  <b>FY 2023 Plans:</b>		8.581	9.689	0.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305111F / <i>Weather Service</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b> - Continue E2P which will provide a single front entry point into the Air Force Weather Enterprise for all html-based capabilities for environmental content and services on all classification enclaves. - Continue to enhance Mission Services, to include integration of contrails and cloud-free line of sight machine learning-based forecasts into environmental impacts web services. - Continue to develop weather C2 visualization plug-ins to integrate weather data and software applications with various C2 systems.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decreased due to BA-08 Software Pilot Program transfer to new PE 0308607F.		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Space Weather Analysis and Forecast System (SWAFS)  <b>Description:</b> The SWAFS legacy baseline is currently being redesigned and upgraded under the Space Domain Awareness Environmental Toolkit for Defense (SET4D) effort to satisfy Space Domain Awareness goals for a modern cloud hosted infrastructure that is cyber resilient and integrated with the Unified Data Library. The Energetic Charged Particle Hazard Assessment System (ECP HAS) is one of several models and applications within the SET4D environment designed to inform satellite operators of hazards and the impacts of those hazards to their spacecraft that will provide warfighters with the environmental awareness to safely sustain their respective orbits and missions.  <b>FY 2022 Plans:</b> - Complete transition of four of five components of the hazard assessment system to a cloud infrastructure. This phase of the ECP HAS will provide warfighters with a modern user interface to determine the hazards to space vehicles at low-earth orbit (LEO) and GPS satellites' altitudes. - Begin transition of the final component of the hazard assessment system to a cloud infrastructure. This phase of the ECP HAS will provide the warfighter with the final of four physics models to specify the hazards to space vehicles in geostationary and highly-elliptical orbits. - Begin integration of a cloud-ready ionospheric assimilation model. This model will support warfighters with cloud-hosted, enhanced characterization of the ionospheric impacts to DoD and IC systems. - 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, prototyping, etc.  <b>FY 2023 Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>		3.953	3.487	0.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305111F / <i>Weather Service</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
N/A				
<b>Accomplishments/Planned Programs Subtotals</b>		22.094	26.228	11.716
		<b>FY 2021</b>	<b>FY 2022</b>	
<b>Congressional Add:</b> Commercial Weather Data Pilot (CWDP) Program		9.634	10.000	
<b>FY 2021 Accomplishments:</b> Reviewed all new Broad Agency Announcement (BAA) white papers and request proposals, while working with NWS and USSF to ensure cost savings and mitigation of redundancy through data sharing agreements between government/DoD agencies. - Awarded 2 new contracts to Boston College and Joint Center for Satellite Data Assimilation (JCSDA). Efforts facilitate commercial space weather collections and streamlined integration of commercial data into weather models - Awarded a new contract to Tomorrow.io for a commercial global precipitation monitoring small satellite constellation. The commercial data will integrated into and used as training data for current and future weather applications utilizing machine learning/artificial intelligence. - Provided stakeholders' interim and final reports from PlanetiQ, interim report and awarded no-cost extension for GeoOptics, and interim report from John Hopkins University. The efforts explore how commercial weather data can be used to fill in environmental sensing for data sparse regions, such as the Arctic and polar regions. <b>FY 2022 Plans:</b> FY22 CWDP 10M funding, 2.5M will go to Tomorrow.io (with AFWERX matching) and 7.5M is dedicated to the DIU Commercial Solution Offerings process.				
<b>Congressional Add:</b> Research on Atmospheric Rivers		2.890	3.000	
<b>FY 2021 Accomplishments:</b> Reviewed all new BAA white papers and request proposals. - Supported AF Reserve Hurricane Hunters' RDT&E efforts for Atmospheric River dropsonde observations and reconnaissance flights. - Incrementally funded the second year of the Improving Predictions of Atmospheric Rivers project and build upon research efforts begun in FY20 to forecast improvements of landfall location and intensity of Atmospheric Rivers, as well as their associated heavy flooding threats and potential landslide impacts. - Awarded additional Atmospheric Rivers and associated enhanced weather RDT&E tasks, to include areas of research such as Hurricane Hunter dropsonde and classified data assimilation, coupled modeling, contrail				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force							Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development				R-1 Program Element (Number/Name) PE 0305111F I Weather Service							
							FY 2021	FY 2022			
forecasting and model blending development through quantification of impacts of increased observations on model performance.											
FY 2022 Plans: Will analyze and evaluate the impact of assimilating the Atmospheric Rivers (AR) recon flight-level, dropsonde, and buoy data with the JEDI/Model for Prediction Across Scales (MPAS) system, with the goal to generate improved initial conditions and short-range forecasts and simulations of cloud fields in the presence of atmospheric rivers.											
Congressional Adds Subtotals							12.524	13.000			
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 Line Item 833070: Weather Observation Forecast	33.021	32.376	34.849	-	34.849	33.489	34.110	34.827	-	Continuing	Continuing
• RDTE 04 0604002F: Air Force Weather Services Research	2.234	0.986	0.792	-	0.792	0.819	0.833	0.850	-	Continuing	Continuing
Remarks											
E. Acquisition Strategy											
AF Weather is adopting a CI/CD approach to delivering capabilities rapidly and routinely using multiple contracts to support a family of systems through development fielding and sustainment.											
Cost Plus contracts are utilized for software development and sustainment and Fixed Firm Price contracts for Commercial-off-the-shelf (COTS) systems and Contract Logistics Support (CLS) efforts. Pre-competed General Services Administration (GSA) and Defense MicroElectronics Activity (DMEA) contract vehicles are leveraged when appropriate, and competitive and small-business awards are favored.											
The Air Force Program Executive Officer for Digital (AFPEO Digital) and a Space Force Program Executive Officer under Space Systems Command (SSC) are the PEOs for the AFWS. AFPEO Digital manages the ground-based atmospheric sensing and data analysis, atmospheric forecast systems, and PTWA. The SSC PEO manages the ground-based segments of space environment collection platforms as well as SWAFS.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>				Project (Number/Name) 672738 / <i>Weather Service</i>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ExMet	C/CPAF	Not specified. : TBD	-	-		-		0.424	Mar 2023	-		0.424	Continuing	Continuing	-
WDA INC 5, Develop web service, big data analytics, and ML/AI platform capabilities	C/CPAF	NextGen Federal Systems : Morgantown, WV	-	0.736	Jun 2021	1.962	Feb 2022	-		-		-	Continuing	Continuing	-
WARPspeed (BIFROST, Mission Services, GSWR)	Various	Various : Various	-	7.034	May 2021	8.677	Feb 2022	-		-		-	Continuing	Continuing	-
Commercial Weather Pilot Program	C/FFP	Various : Various	-	9.634	Jun 2021	10.000	Jun 2022	-		-		-	Continuing	Continuing	-
Research on Atmospheric Rivers	Various	Various : Various	-	2.890	Jun 2021	3.000	Jun 2022	-		-		-	Continuing	Continuing	-
Enhanced Weather Prediction	Various	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
NWM 1 - Perform software enhancements to the mesoscale production model	MIPR	NCAR : Boulder, CO	-	1.856	Jun 2021	-		-		-		-	Continuing	Continuing	-
NWM 2 - Improve land information system (LIS) application, providing earth surface boundary characterization for numerical modeling	Reqn	NASA : Greenbelt, MD	-	3.031	Jan 2021	-		-		-		-	Continuing	Continuing	-
NWM - Develop and improve data assimilation techniques, system/ software optimization, and expanded system ingest/ integration for enhanced modeling capabilities	Various	Various : Various	-	2.855	May 2021	8.967	Jan 2022	9.693	Jan 2023	-		9.693	Continuing	Continuing	-
WS-LVC	C/CPIF	Northrop Grumman : Bellevue, NE	-	-		-		-		-		-	Continuing	Continuing	-
SWAFS Magnetospheric Energized Charged Particle (ECP) Hazard	PO	AFRL : Annapolis, MD	-	3.035	Jan 2021	2.781	Jan 2022	-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>				Project (Number/Name) 672738 / <i>Weather Service</i>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Assessment System (HAS) Model Integration															
SWAFS Cloud Transition Prep	C/FFP	Perspecta : Herndon, VA	-	0.418	Oct 2020	-		-		-		-	Continuing	Continuing	-
Subtotal			-	31.489		35.387		10.117		-		10.117	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 TS/JITC AFLCMC	WR	46 TS : Offutt AFB, NE	-	0.166	Dec 2020	0.197	Dec 2021	0.111	Dec 2022	-		0.111	Continuing	Continuing	-
Subtotal			-	0.166		0.197		0.111		-		0.111	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 AFLCMC	C/CPFF	AFLCMC : Hanscom AFB, MA	-	2.463	Oct 2020	2.938	Oct 2021	1.488	Oct 2022	-		1.488	Continuing	Continuing	-
FFRDC SMC	RO	Aerospace Corp : El Segundo, CA	-	0.500	Jan 2021	0.706	Jan 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	2.963		3.644		1.488		-		1.488	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	34.618		39.228		11.716		-		11.716	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force															Date: April 2022				
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0305111F / <i>Weather Service</i>					Project (Number/Name) 672738 / <i>Weather Service</i>				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Weather Service</i></b>																												
Weather Data Analysis Inc 5 Build A Deliveries																												
Weather Data Analysis Inc 5 Build B Deliveries																												
WARPspeed Build A Deliveries																												
WARPspeed Build B Deliveries																												
Numerical Weather Modeling Deliveries																												
SWAFS- Energetic Charged Particle Hazard Assessment model (ECP HAS) Integration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305111F / Weather Service	Project (Number/Name) 672738 / Weather Service	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Weather Service</b>				
Weather Data Analysis Inc 5 Build A Deliveries	1	2021	4	2023
Weather Data Analysis Inc 5 Build B Deliveries	1	2024	4	2026
WARPspeed Build A Deliveries	1	2021	4	2023
WARPspeed Build B Deliveries	1	2024	4	2026
Numerical Weather Modeling Deliveries	1	2021	4	2026
SWAFS- Energetic Charged Particle Hazard Assessment model (ECP HAS) Integration	1	2021	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305114F I Air Traffic Control, Approach, and Landing System (ATCALs)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	5.729	15.749	8.511	0.000	8.511	7.418	7.228	7.380	7.543	0.000	59.558
673587: Air Traffic Control Systems	-	5.729	15.749	8.511	0.000	8.511	7.418	7.228	7.380	7.543	0.000	59.558
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

To support the Air Force worldwide flying mission, this program element funds research, development, and management of fielded and emerging air traffic control communications, surveillance, automation, positioning, and precision approach and landing systems. When applicable, this may include coordination with bodies such as the International Civil Aviation Organization, the North Atlantic Treaty Organization or with the Federal Aviation Administration (FAA).

AFT will utilize the Airfield Operations Accelerator (AO-X) innovation presence at Hanscom Air Force Base to continue driving innovation supporting Airfield Operations' critical role in Agile Combat Employment. AFT projects will focus on identified and/or documented capability gaps and associated mitigating technologies required to ensure interoperability of fielded and planned ATCALS systems with USAF command and control systems such as the Advanced Battle Management System.

These efforts support the 2018 NDAA National Defense Strategy approach to "generate decisive and sustained U.S. military advantages" by enabling "forward force maneuver and posture resilience". Research and development of technology and strategies to support adaptive, agile basing concepts of operations provide ATCALS capabilities necessary to ensure enduring, resilient, efficient and safe air operations. AFT will "evolve innovative operational concepts" by modernizing airfield operations, provide adaptive ATC services and systems appropriate for the current environment, and bolster "Dynamic Force Employment" through scalable employment operations and globally deployable forces for the four layers of the "Global Operating Model: "contact, blunt, surge, and homeland".

FY23 ATCALS development efforts will continue to research and develop new technologies in multiple areas of aircraft launch and recovery for both fixed and expeditionary operations. These may include, but are not limited to: military and civil airspace interoperability; smaller footprint and lightweight expeditionary technology; improved Notice to Operators (NOTAMs) software capabilities; electronically scanned Man-Portable TACAN antenna technology, and evaluation of new civil ATCALS technologies that may have military utility. As these technologies and architectures mature, fixed base and deployable ground system upgrades will be coordinated and fielded concurrently with related manned and unmanned aircraft avionics capabilities that may be required. When implemented, these efforts will enable DoD aircraft to enhance safety, security, efficiency, and affordability of global flight operations.

The total cost of the D-RAPCON Middle Tier of Acquisition effort is \$70.356 million, including RDT&E and procurement of prototype units. The D-RAPCON is fully funded across the Future Years Defense Program

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305114F I Air Traffic Control, Approach, and Landing System (ATCALs)				
This program element may include necessary civilian pay expenses required to manage, execute, and deliver the ATCALs weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		6.541	8.749	0.000	0.000	0.000
Current President's Budget		5.729	15.749	8.511	0.000	8.511
Total Adjustments		-0.812	7.000	8.511	0.000	8.511
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	7.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		-0.589	0.000			
• SBIR/STTR Transfer		-0.223	0.000			
• Other Adjustments		0.000	0.000	8.511	0.000	8.511
Change Summary Explanation						
The FY2022 President's Budget submittal did not reflect FY2023 through FY2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: ATC Future Technology (AFT)				5.729	13.591	6.939
Description: Includes efforts to implement ATC Future Technologies efficiencies and capabilities. Focus is on aircraft launch and recovery, airspace interoperability, expeditionary technology development and prototyping, optimization of flight capability, adherence to mandates, technology research and analysis, and Early Operational Assessment of Remote Virtual Air Traffic Control Tower technology, development of standards for certification of Infill radars to mitigate Windfarm interference to ATC surveillance radars, and evaluation of Unmanned Aeronautical Systems (UAS) negation technology for use in mobile air traffic systems.						
FY 2022 Plans:						
- Continues ATC Future Technology Analysis and Research which will include the following tasks:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305114F <i>I Air Traffic Control, Approach, and Landing System (ATCALS)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>-- Continues development and maturation of technology to support Aircraft Launch and Recovery for both expeditionary and fixed operations, such as the Lightweight Deployable Instrument Landing System, Multi- Function Radar, and Man Portable High Power Beacon Transponder.</li> <li>-- Continues supporting advancement in airspace interoperability between civilian and military fleets in both national and international airspace.</li> <li>-- Continues monitoring of emerging DoD/USAF and civil US and International mandates to ensure compliance of USAF fleets.</li> <li>-- Completes Early Operational Assessment of a Remote Virtual Air Traffic Control Tower capability to assess ability to meet AF flying/ATC missions in lieu of brick and mortar control towers.</li> <li>-- Continues development of Man Portable TACAN High Power Beacon Transponder.</li> <li>-- Continues Multi-Function Radar development including award of Multi-Function Radar Contract</li> <li>-- Completes development of Infill radar requirements and threshold parameters to enable operational validation for use in the National Airspace System.</li> <li>-- Continues monitoring complementary and GPS alternative Position, Navigation, and Timing (PNT) developments to ensure early integration into ATCALS plans and programs.</li> <li>-- Awards contract for Lightweight Deployable Instrument Landing System.</li> <li>-- Begins standup of the Airfield Operations Accelerator/Testbed.</li> <li>-- Continues analysis of wind turbine impact mitigation efforts toward development of a process for Infill Radar certification.</li> <li>-- Begins integration/evaluation of ATC sensors and commercial technologies with the Mobile Air Traffic Surveillance System (MATS) to evaluate UAS negation performance.</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Will continue ATC Future Technology Analysis and Research to drive innovation for the Airfield Operations community, which will include the following tasks:</li> <li>-- Will implement analysis in the integration of ATC capabilities into Command and Control environments supporting Agile Combat Employment initiatives.</li> <li>-- Will continue development and maturation of technology to support Aircraft Launch and Recovery for both expeditionary and fixed operations, such as the Lightweight Deployable Instrument Landing System, Multi- Function Radar, Infill Radar, and Man Portable TACAN High Powered Beacon Transponder.</li> <li>-- Will continue supporting advancement in airspace interoperability between civilian and military fleets in both national and international airspace.</li> <li>-- Will continue monitoring emerging DoD/USAF and civil US and International mandates to ensure compliance of USAF fleets.</li> <li>-- Will continue development of the Man Portable TACAN high power beacon transponder.</li> <li>-- Will continue monitoring complementary and GPS alternative PNT developments to ensure early integration into ATCALS plans and programs.</li> </ul>				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305114F <i>I Air Traffic Control, Approach, and Landing System (ATCALs)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
-- Will continue development of threshold parameters and requirements needed for certification of Infill Radar systems in the National Airspace System. -- Will Demonstrate a pre-production MATS capability to visualize an integrated local and Beyond Visual Line of Sight (BVLOS) airspace picture (UAS negation technology). -- Will begin test and evaluation of Lightweight Deployable Instrument Landing System. -- Will continue to mature the Airfield Operations accelerator/Testbed facility.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Large decrease related to \$7M in FY22 Congressional Adds.				
<b>Title:</b> Man-Portable Electronically Scanned Antenna  <b>Description:</b> Develops new electronically scanned antenna to replace the existing Man-Portable Tactical Air Navigation (TACAN) mechanical antenna. The new antenna will reduce system weight, improve reliability, and extend battery life. The Man-Portable TACAN provides aircraft with point-to-point navigating and instrument flight approaches to forward operating sites/landing zones and is critical to mission success in adverse weather conditions. It replaces 40+ year old legacy systems which are no longer supportable. The Man-Portable TACAN also supports the 2018 NDAA National Defense Strategy for rapidly deployable, adaptive, and scalable family of systems. Through FY29, a total of 68 systems will be procured (58 for the Active Duty and 10 for the Air National Guard).  <b>FY 2022 Plans:</b> - Award contract and begin development of electronically scanned antenna to replace mechanical antenna and reduce weight, improve reliability, and extend battery life.  <b>FY 2023 Plans:</b> - Continues development of MP-TACAN Electronically Scanned Antenna.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease is consistent with cost estimate and contract level of effort.		0.000	1.737	1.352
<b>Title:</b> NOTAMs Software  <b>Description:</b> The DoD NOTAMs system provides aircrews and airfield operations personnel with airfield conditions, temporary flight restrictions, navigation aid and airfield lighting outages, and special instructions for departing or landing at DoD airfields. Funding continues NOTAMs software development to incorporate International Civil Aviation Organization (ICAO) required digital codes, formats, and queries which enhance flight safety.  <b>FY 2022 Plans:</b>		0.000	0.421	0.220

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0305114F <i>I Air Traffic Control, Approach, and Landing System (ATCALs)</i>						
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	
- Will continue NOTAMs software development.											
<b>FY 2023 Plans:</b> - Will complete NOTAMS software development.											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decrease reflects reduced effort during last year of NOTAMs software development effort.											
<b>Accomplishments/Planned Programs Subtotals</b>								5.729	15.749	8.511	
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 0305114F: <i>Air Traffic Control/Approach/Landing System (ATCALs)</i>	0.000	6.024	6.309	0.000	6.309	12.339	11.108	11.349	11.579	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b>											
ATCALs is a basket program element with multiple programs in various stages of acquisition which provide the air traffic control infrastructure to support peacetime and wartime missions. The overall strategy for ATC Future Technology is focused on developing a long-term execution strategy for the development of lightweight, scalable, readily deployable ATC equipment in order to support the National Defense Strategy.											
Current contracting efforts include, but are not limited to, Early Operational Assessment (EOA) of Remote Virtual ATC Control Tower technology, Man-Portable TACAN high power beacon transponder, Lightweight Deployable Instrument Landing System, Multi-Function Tactical Radar Prototyping, NOTAMs software upgrades, and Man-Portable TACAN Electronically Scanned Antenna development, Infill Radar certification and demonstration of UAS negation technology.											
The Remote Virtual ATC Control Tower EOA, Expeditionary Technology Development and Prototyping efforts will use full and open competition and OTA procedures. The Infill Radar certification, UAS Negation, and various research analysis efforts, are being executed via Military Inter-Departmental Purchase Requests, and Project Orders with various organizations (FAA, MITRE, Army, and the Air Force Flight Standards Agency).											
The Air Force Program Executive Officer (PEO) Digital is the PEO for ATCALs and is also the delegated milestone decision authority. Program support cost contracts, logistics, and financial management support is provided by the Air Force Life Cycle Management Center Aerospace Management Systems Division (AFLCMC/HBA).											

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0305114F / Air Traffic Control, Approach, and Landing System (ATCALS)						<b>Project (Number/Name)</b> 673587 / Air Traffic Control Systems			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
AFT Expeditionary Technology Development and Prototyping	C/FFP	AFLCMC/HBA : Hanscom AFB, MA	-	2.326	May 2021	3.297	Mar 2022	4.919	Mar 2023	-		4.919	Continuing	Continuing	-
Man-Portable TACAN Electronically Scanned Antenna	C/CPFF	AFLCMC/HBAA : Tinker AFB, OK	-	-		1.512	Jul 2022	1.051	Jan 2023	-		1.051	Continuing	Continuing	-
NOTAM Software	C/FFP	AFDW/PK : JB Andrews, MD	-	0.424	Jun 2021	0.417	May 2022	0.220	May 2023	-		0.220	0.000	1.061	-
<b>Subtotal</b>			-	2.750		5.226		6.190		-		6.190	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
AFT Research/Analysis	MIPR	FAA : Washington, DC	-	1.546	Feb 2021	2.188	Mar 2022	1.516	Oct 2022	-		1.516	Continuing	Continuing	-
Travel	Various	Not specified. : TBD	-	0.058	May 2021	0.090	Mar 2022	0.030	Jan 2023	-		0.030	Continuing	Continuing	-
<b>Subtotal</b>			-	1.604		2.278		1.546		-		1.546	Continuing	Continuing	N/A
<b>Remarks</b> Various contract types, performing activity and city/states are result of the use of Military Interdepartmental Purchase Requests (MIPR), Work Request (WR), Purchase Requests (PR), Project Orders (PO), etc. that are sent to multiple agencies in support of some tasks.															
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
AFT Remote Air Traffic Control Tower Capability EOA	WR	Various : Various	-	0.850	Apr 2021	0.500	Mar 2022	-		-		-	0.000	1.350	-
AFT ATCALS Operational Test & Evaluation (OT&E)	WR	Various : Various	-	0.225	Jun 2021	0.250	Jul 2022	0.250	Jul 2023	-		0.250	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305114F / Air Traffic Control, Approach, and Landing System (ATCALs)				Project (Number/Name) 673587 / Air Traffic Control Systems					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Infill Radar Wind Turbine Radar Interference Mitigation	MIPR	FAA, AFRL : Washngtn DC/ Griffiss, NY	-	-		2.000	Apr 2022	-		-		-	Continuing	Continuing	-
Mobile Air Traffic Surveillance System (MATS) - UAS Negation Evaluation	MIPR	Various : Various	-	-		5.000	Jun 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	1.075		7.750		0.250		-		0.250	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Man-Portable TACAN Electronically Scanned Antenna Program Support Cost (PSC) Contractor Services (AFLCMC/HBAA, Hanscom AFB)	C/CPAF	Various : OK City, Tinker AFB	-	-		0.225	Jul 2022	0.255	Jul 2023	-		0.255	Continuing	Continuing	-
AFT Program Support Cost (PSC) Contractor Services AFLCMC (AFLCMC/HBAG, Hanscom AFB)	C/CPFF	Various : Hanscom AFB, MA	-	0.300	Dec 2020	0.270	Jul 2022	0.270	Jul 2023	-		0.270	Continuing	Continuing	-
Subtotal			-	0.300		0.495		0.525		-		0.525	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	5.729		15.749		8.511		-		8.511	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0305114F / Air Traffic Control, Approach, and Landing System (ATCALS)

## Project (Number/Name)

673587 / Air Traffic Control Systems

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Air Traffic Control Future Technology (AFT)</b>																												
Expeditionary Launch and Recovery Technology Development and Prototyping																												
Man Portable High Power Beacon Transponder Contract Award Jul 21																												
Man Portable High Power Beacon incremental Development/Test																												
Man Portable High Power Beacon Transponder Authorization to Proceed																												
Multi Function Radar Development (Prior Year Contract Award Mar 20)																												
Multi Function Radar Incremental Integration/ Simulation/Demonstration																												
Lightweight Deployable Instrument Landing System (LD-ILS) RFP Release Jan 22																												
LD-ILS Contract Award Jun 22																												
LD-ILS Glide-Slope/Localizer Development/ Test																												
LD-ILS System Demonstration and Validation																												
Monitoring Emerging Mandates																												
Optimizing Flight Operations																												
Airspace Interoperability/Operations in GPS Denied Environments																												
Notice to Airmen (NOTAMS) Software Development																												
Fixed Remote Virtual ATC Tower EOA Installation/Integration/Site Prep																												

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0305114F / Air Traffic Control, Approach, and Landing System (ATCALs)

## Project (Number/Name)

673587 / Air Traffic Control Systems

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Fixed Remote Virtual ATC Tower EOA																												
Fixed Remote Virtual ATC Tower EOA Final Report (Apr 22)																												
Mobile Remote Virtual ATC Tower EOA/Site Prep/Equip Integration/Optimization																												
Mobile Remote Virtual ATC Tower EOA																												
Mobile Remote Virtual ATC Tower Report (Jun 22)																												
ATCALs Operational Test and Evaluation																												
Infill Radar Windfarm Mitigation Criteria Development																												
Infill Radar Trial Validation																												
Infill Radar Wind Turbine Radar Interference Mitigation																												
Mobile Air Traffic Surveillance System (MATS) - UAS Negation Evaluation																												
<b>Man-Portable TACAN Electronically Scanned Antenna</b>																												
Man-Portable TACAN Electronically Scanned Antenna Development/Test																												
<b>NOTAMs Software</b>																												
Software Development/Test																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305114F / <i>Air Traffic Control, Approach, and Landing System (ATCALs)</i>	<b>Project (Number/Name)</b> 673587 / <i>Air Traffic Control Systems</i>	

**Schedule Details**

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
<b><i>Air Traffic Control Future Technology (AFT)</i></b>				
Expeditionary Launch and Recovery Technology Development and Prototyping	1	2021	4	2027
Man Portable High Power Beacon Transponder Contract Award Jul 21	4	2021	4	2021
Man Portable High Power Beacon incremental Development/Test	4	2021	4	2025
Man Portable High Power Beacon Transponder Authorization to Proceed	1	2026	1	2026
Multi Function Radar Development (Prior Year Contract Award Mar 20)	1	2021	2	2023
Multi Function Radar Incremental Integration/Simulation/Demonstration	4	2021	3	2023
Lightweight Deployable Instrument Landing System (LD-ILS) RFP Release Jan 22	2	2022	2	2022
LD-ILS Contract Award Jun 22	3	2022	3	2022
LD-ILS Glide-Slope/Localizer Development/Test	3	2022	2	2025
LD-ILS System Demonstration and Validation	2	2025	2	2026
Monitoring Emerging Mandates	1	2021	4	2027
Optimizing Flight Operations	1	2021	4	2027
Airspace Interoperability/Operations in GPS Denied Environments	1	2021	4	2027
Notice to Airmen (NOTAMs) Software Development	2	2021	4	2021
Fixed Remote Virtual ATC Tower EOA Installation/Integration/Site Prep	1	2021	1	2021
Fixed Remote Virtual ATC Tower EOA	1	2021	3	2021
Fixed Remote Virtual ATC Tower EOA Final Report (Apr 22)	3	2021	3	2021
Mobile Remote Virtual ATC Tower EOA/Site Prep/Equip Integration/Optimization	3	2021	1	2022
Mobile Remote Virtual ATC Tower EOA	1	2022	3	2022
Mobile Remote Virtual ATC Tower Report (Jun 22)	3	2022	3	2022
ATCALs Operational Test and Evaluation	1	2021	4	2027

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305114F / Air Traffic Control, Approach, and Landing System (ATCALS)		Project (Number/Name) 673587 / Air Traffic Control Systems	
		Start		End	
Events by Sub Project		Quarter	Year	Quarter	Year
Infill Radar Windfarm Mitigation Criteria Development		1	2021	4	2021
Infill Radar Trial Validation		4	2021	2	2022
Infill Radar Wind Turbine Radar Interference Mitigation		3	2022	3	2025
Mobile Air Traffic Surveillance System (MATS) - UAS Negation Evaluation		3	2022	3	2023
Man-Portable TACAN Electronically Scanned Antenna					
Man-Portable TACAN Electronically Scanned Antenna Development/Test		2	2022	4	2024
NOTAMs Software					
Software Development/Test		1	2022	3	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305116F I Aerial Targets							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.438	1.528	1.365	0.000	1.365	1.646	1.676	1.711	1.750	Continuing	Continuing
675136: Target Systems Development	-	0.438	1.528	1.365	0.000	1.365	1.646	1.676	1.711	1.750	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Full-scale Aerial Targets (FSAT), Subscale Aerial Targets (SSAT), Next Generation Aerial Targets (NGAT) and companion Target Control Systems (TCS) assure the effectiveness and currency of warfighter weapon systems to combat real-world enemy fighters and cruise missiles. Aerial targets support adherence to Public Law Title 10, Section 2366, which requires major systems and munitions programs to conduct live fire survivability and lethality testing before full rate production. Targets are used to validate operational missile/weapon system effectiveness and fighter Operational Flight Program (OFP) updates. Targets are required for developmental/operational testing for all air-to-air and surface-to-air missiles, and for the F-22A, F-35, F-18, F-16, F-15, among other aircraft. Funding supports simulator development and improvements on the QF-16 FSAT, BQM-167A SSAT, NGAT, and updates of Target Control Systems and specialized target payload subsystems for requirements such as: missile scoring, electronic attack (EA), infrared (IR) countermeasures, radar/IR signature augmentation, and chaff and flare dispensing systems. Enables analysis, development and prototyping of threat emulations/simulations, and presentation of evolving threat scenarios and target area environments to prepare for emerging weapons development activities. Development is required to evolve aerial targets and target control capabilities to meet current and future threats. Air Force is the executive agent for full-scale aerial targets.

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 \$0.0M was expended for civilian pay expenses in this program element, and in FY22 \$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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305116F / <i>Aerial Targets</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	0.448	1.528	0.000	0.000	0.000
Current President's Budget	0.438	1.528	1.365	0.000	1.365
Total Adjustments	-0.010	0.000	1.365	0.000	1.365
• 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	-0.010	0.000			
• Other Adjustments	0.000	0.000	1.365	0.000	1.365

**Change Summary Explanation**

The FY2022 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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>				Project (Number/Name) 675136 / <i>Target Systems Development</i>			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675136: <i>Target Systems Development</i>	-	0.438	1.528	1.365	0.000	1.365	1.646	1.676	1.711	1.750	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Full-scale Aerial Targets (FSAT), Subscale Aerial Targets (SSAT), Next Generation Aerial Targets (NGAT) and companion Target Control Systems (TCS) assure the effectiveness and currency of warfighter weapon systems to combat real-world enemy fighters and cruise missiles.

The BQM-167A Air Force Subscale Aerial Target (AFSAT) is a reusable jet-powered target aircraft measuring approximately 20 feet long with a mission to simulate threat aircraft for testing and evaluation of surface-to-air, ship-to-air, or air-to-air missiles. The target accomplishes this mission through the use of optional payloads including chaff and flare, electronic attack (EA), and infrared (IR) devices. Funding supports continued improvement of overall performance enhancement efforts to meet evolving threats. Funding supports development, improvements, and updates of target control systems and specialized target payload subsystems for requirements to include, but not limited to: missile scoring, EA and IR countermeasures, radar and IR signature augmentation, chaff and flare dispensing systems, and overall target threat emulation.

EA payload upgrades provide new techniques and capabilities critical to subscale, mid-scale, and full-scale targets to realistically emulate current and emerging foreign threat systems in support of weapons testing.

TCS provides a myriad of sub-systems that, together, deliver the capability to control and track mission aerial targets and to track a mix of other critical mission participants (to include relay platforms, shooters, and the missile system under test). In this role, TCS ensures an optimum integrated aerial target environment that enhances both weapon system assessments and companion aircrew skills, and the full safety of mission participants throughout the conduct and fulfillment of Test and Evaluation (T&E) objectives. Funding supports continued improvement of TCS capabilities to effectively meet the multi-service T&E demands of current and future warfighter weapon systems.

NGAT seeks to conduct early systems engineering and risk reduction activities to identify and mitigate the major risks associated with developing a new aerial target equipped with modern, threat representative, EA and associated subsystems needed for live fire air-to-air missile tests. This effort is aligned with the Rapid Prototyping Requirements Document (RPRD) process underway at Air Combat Command (ACC) and an element of the Rapid Prototyping/Rapid Fielding strategies within Section 804/Middle Tier Acquisition.

NGAT seeks to represent as well as keep pace with adversary aircraft developments to present an up to date, realistic target as required in Title 10 for live-fire testing. These activities include design concept studies, engineering analysis, Radar Cross Section (RCS) measurements, RCS modeling Verification and Validation (V&V), and early prototyping/demonstration events as a proof of concept. These prototypes will be evaluated to determine suitability in meeting the requirements in the RPRD. Efforts will include engineering and design activities needed to modify prototype airframes with representative EA payloads as well as other subsystems unique to live-fire target missions, including, but not limited to, the design and integration of systems needed for missile scoring, telemetry, and target and payload control. Results

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets	Project (Number/Name) 675136 / Target Systems Development		
will lead to informed requirements development as well as indicate viable mid and far term solutions. Successful prototype demonstrations could lead to continued development and acquisition of a limited number of prototypes within the scope of the Rapid Prototyping/Rapid Fielding architectures and will generate cost/schedule/performance/technical risk data needed to continue refining the design and determine viability in follow on 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 element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0.0M was expended for civilian pay expenses in this program element, and in FY22 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 2021	FY 2022	FY 2023
Title: AF Subscale Aerial Target (AFSAT) Development			0.000	0.976	0.877
Description: Provide enhancements to AFSAT ability to emulate emerging threats in support of weapon testing.					
FY 2022 Plans:					
Continue system upgrades to support expanded AFSAT capabilities to support achieving emulation of emerging threat targets as our adversaries develop and expand their arsenals.					
FY 2023 Plans:					
Continue system upgrades to support expanded AFSAT capabilities to support achieving emulation of emerging threat targets as our adversaries develop and expand their arsenals.					
FY 2022 to FY 2023 Increase/Decrease Statement:					
Funding decreased due to reduced system upgrade requirements supporting expanded AFSAT capabilities.					
Title: Target Control System (TCS)			0.438	0.453	0.479
Description: Provide system enhancements to Advance Airborne Threat Target Control System (AATTCS), formerly known as Gulf Range Drone Control System (GRDCS), for command and control and tracking of aerial targets. Funding may be utilized for development/augmentation/modification of control systems to fulfill gaps in functional capabilities identified in 2018 ACC Capabilities Analysis of target control systems. Gaps relate to creating the emulation of next generation enemy aircraft threats.					
FY 2022 Plans:					
Continue system upgrades to include, but not limited to, AATTCS software/hardware updates to support implementing QF-16, AFSAT, TCS enhancements and future TCS capability enhancements in order to close capability gaps identified by users.					
FY 2023 Plans:					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305116F / <i>Aerial Targets</i>	<b>Project (Number/Name)</b> 675136 / <i>Target Systems Development</i>	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Continue system upgrades to include, but not limited to, AATTCS software/hardware updates to support implementing QF-16, AFSAT, TCS enhancements and future TCS capability enhancements in order to close capability gaps identified by users.			
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding increased due to supporting system upgrade requirements addressing TCS capability gaps.			
<b><i>Title:</i></b> Next Generation Aerial Target (NGAT)			
<b><i>Description:</i></b> NGAT seeks to conduct early systems engineering and risk reduction activities to identify and mitigate the major risks associated with developing a new aerial target for live fire surface-to-air, ship-to-air, and air-to-air missile tests.			
<b><i>FY 2022 Plans:</i></b> Conduct limited initial design efforts to identify risks in future fabrication, installation, and ground/flight test of prototype electronic attack and other associated equipment needed to complete analysis of potential aerial target alternatives.			
<b><i>FY 2023 Plans:</i></b> Continue to conduct engineering analysis to identify candidate configurations and concepts that lead to early identification of technical risks in integrating advanced electronic attack systems in prototype airframes. Results of these studies will be used to select the most promising concepts for further evaluation and follow on detailed design, integration, ground and flight test of the candidate configurations.			
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding decreased due to continuing only limited concept planning activities.			
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	0.099	0.015

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 04 Line Item 10TRGT: <i>Target Drones</i>	133.273	112.443	128.906	-	128.906	134.351	137.010	139.343	142.362	Continuing	Continuing
• APAF 06 000999: <i>Initials Spares</i>	0.600	0.600	0.401	-	0.401	0.641	0.653	0.663	0.677	Continuing	Continuing
• APAF 07 000074: <i>War Consumables</i>	4.757	4.759	4.994	-	4.994	5.083	5.178	5.261	5.375	Continuing	Continuing
• APAF 07 Line Item 000075: <i>Other Production Charges</i>	16.495	16.450	17.188	-	17.188	17.493	17.812	18.105	18.497	Continuing	Continuing

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305116F / <i>Aerial Targets</i>	<b>Project (Number/Name)</b> 675136 / <i>Target Systems Development</i>	

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
<b>Remarks</b>											
APAF, BA 04: Target Drones 10TRGT - Full Scale and Subscale Aerial Targets assure warfighters' weapon systems will perform effectively against real-world enemy fighters and cruise missiles. Adheres to Public Law title 10, Section 2366 "Live fire/Lethality" developmental/operational test requirements.											
APAF, BA 06: Initial Spares/Repair Parts - Aircraft Initial Spares are required to fill the initial pipeline or inventory for all new aircraft systems, including modifications, support equipment, and other production categories. Initial spares include peculiar repairable and consumable components, assemblies, and sub-assemblies that must be available for issues at all levels of supply in time to support newly fielded end items.											
APAF, BA 07: War Consumables - AFSAT Rocket-Assisted Take-Off (RATO) requirements executed at Hill AFB. A RATO is used in the initial launch phase to obtain appropriate speed and altitude.											
APAF, BA 07: Other Production Charges - ALQ-167 and/or DLQ-9 Electronic Attack (EA) payloads for target drones including support equipment. Payloads emulate threat aircraft electronic countermeasures and jamming capabilities.											

**D. Acquisition Strategy**

The AFSAT acquisition strategy is a sole source follow-on contract. The Target Control System acquisition strategy includes several small projects to provide enhancements to TCS (to include AATTCS) and will be accomplished with other government agencies and contracts as needed. EA Payloads acquisition strategy includes several small projects managed by the US Navy program office to provide enhancements to the target payloads for aerial targets. Similarly, the acquisition strategy for NGAT includes multiple contract awards to various contractors as well as support from other government agencies.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets				Project (Number/Name) 675136 / Target Systems Development					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Air Force Subscale Aerial Target (AFSAT) Product Improvements	SS/ Various	Various : CA	-	0.015	Aug 2021	0.976	Aug 2022	0.871	Dec 2022	-		0.871	Continuing	Continuing	-
Target Control System	Various	Eglin AFB : FL	-	0.423	Dec 2020	0.453	Nov 2021	0.479	Nov 2022	-		0.479	Continuing	Continuing	-
Next Generation Aerial Target (NGAT)	Various	Various : TBD	-	-		0.099	Mar 2022	0.015	Dec 2022	-		0.015	Continuing	Continuing	-
Subtotal			-	0.438		1.528		1.365		-		1.365	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.438		1.528		1.365		-		1.365	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)			
3600 / 7								PE 0305116F / Aerial Targets								675136 / Target Systems Development			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Target System Development																												
AFSAT Gas & Aero Development																												
AFSAT Flt Controller System Upgrade																												
TCS Software Enhancement																												
NGAT Analysis & Studies																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675136 / <i>Target Systems Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Target System Development</i>				
AFSAT Gas & Aero Development	1	2021	3	2023
AFSAT Flt Controller System Upgrade	4	2022	2	2024
TCS Software Enhancement	1	2021	4	2026
NGAT Analysis & Studies	1	2022	1	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305128F I Security and Investigative Activities							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.415	0.223	0.223	0.000	0.223	0.469	0.477	0.487	0.497	Continuing	Continuing
671931: TECH SURVEIL COUNTER MEAS EQPT	-	0.415	0.223	0.223	0.000	0.223	0.469	0.477	0.487	0.497	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Technical Surveillance Countermeasures (TSCM) develops future technologies designed to find, fix, track, and neutralize law enforcement and counterintelligence threats to the Department of the Air Force (DAF). The technologies will enable criminal and counterintelligence investigations and operations involving high-tech crimes and cyber activities. The technologies are unique, complex, and the equipment must be continuously updated to ensure state-of-the-art capabilities are utilized to counter increasingly sophisticated threats targeting DAF equities.

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 0.000M was expended for civilian pay expenses in this program element, and in FY22 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	0.431	0.223	0.000	0.000	0.000
Current President's Budget	0.415	0.223	0.223	0.000	0.223
Total Adjustments	-0.016	0.000	0.223	0.000	0.223
• 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	-0.016	0.000			
• Other Adjustments	0.000	0.000	0.223	0.000	0.223

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305128F <i>I Security and Investigative Activities</i>			
<p><b>Change Summary Explanation</b></p> <p>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.</p> <p>FY21 \$16K SBIR - transfer.</p>				
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> TSCM  <b>Description:</b> These funds will support development of next generation Technical Surveillance Countermeasures (TSCM) capabilities, and specialized law enforcement and counterintelligence restricted tools necessary to counter threats, and exploit cyberspace, digital media storage and mobile audio/visual/data communications for operational and felony-level investigative activities.  <b>FY 2022 Plans:</b> Develop law enforcement and counterintelligence restricted tools.  <b>FY 2023 Plans:</b> Continue development of law enforcement and counterintelligence restricted tools.  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A		0.415	0.223	0.223
<b>Accomplishments/Planned Programs Subtotals</b>		0.415	0.223	0.223
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> Market Research and acquisition channels. These funds will support iterative development of next generation Technical Surveillance Countermeasures (TSCM) capabilities, and specialized law enforcement and counterintelligence restricted tools necessary to counter threats, and exploit cyberspace, digital media storage and mobile audio/visual/data communications for operational and felony-level investigative activities. Market research is continuously conducted jointly with partner DoD and USG entities, and once complete, acquisition channels are coordinated and deconflicted.				

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0305128F / <i>Security and Investigative Activities</i>						<b>Project (Number/Name)</b> 671931 / <i>TECH SURVEIL COUNTER MEAS EQPT</i>			
<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
TSCM R/D	MIPR	HQ AFOSI : Quantico, VA	-	0.415	Apr 2021	0.223	Apr 2022	0.223	Apr 2023	-		0.223	Continuing	Continuing	-
<b>Subtotal</b>			-	0.415		0.223		0.223		-		0.223	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	0.415		0.223		0.223		-		0.223	Continuing	Continuing	N/A
<b>Remarks</b> These funds will support development of next generation Technical Surveillance Countermeasures (TSCM) capabilities, and specialized law enforcement and counterintelligence restricted tools necessary to counter threats, and exploit cyberspace, digital media storage and mobile audio/visual/data communications for operational and felony-level investigative activities.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305128F / Security and Investigative Activities					Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Technical Surveillance Equipment Test & Evaluation																												
Transition from Phase II TSCM LASER Project to Phase III																												
Complete Phase VI TSCM LASER Project																												
Complete Phase VII TSCM LASER Project																												
Tech Service Ops Advanced Tool Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305128F / Security and Investigative Activities	Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Technical Surveillance Equipment Test & Evaluation				
Transition from Phase II TSCM LASER Project to Phase III	1	2021	4	2021
Complete Phase VI TSCM LASER Project	1	2021	4	2021
Complete Phase VII TSCM LASER Project	1	2022	4	2022
Tech Service Ops Advanced Tool Development	1	2022	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305146F I Defense Joint Counterintelligence Activities							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	4.881	8.733	8.328	0.000	8.328	7.009	6.338	6.471	6.615	Continuing	Continuing
671931: TECH SURVEIL COUNTER MEAS EQPT	-	4.881	8.733	8.328	0.000	8.328	7.009	6.338	6.471	6.615	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Technical Surveillance Countermeasures (TSCM) develops future technologies capable of thwarting advanced hostile force and foreign intelligence technical capabilities. The technologies will provide secure environments for austere mission planning locations and theater commander centers, and will collect information for counterintelligence (CI) operations in support of DoD and AF requirements.

CI Cyber activities enable the Department of the Air Force Office of Special Investigations to detect and neutralize covert activities conducted by Foreign Intelligence Entities seeking to compromise classified or sensitive information in cyberspace. The technologies provided will enhance state of the art capabilities to detect and neutralize criminal activities targeted against sensitive and classified AF and DoD information, activities, and technology.

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 0.000M was expended for civilian pay expenses in this program element, and in FY22 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity		R-1 Program Element (Number/Name)				
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0305146F I Defense Joint Counterintelligence Activities				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	4.881	8.733	0.000	0.000	0.000	
Current President's Budget	4.881	8.733	8.328	0.000	8.328	
Total Adjustments	0.000	0.000	8.328	0.000	8.328	
• 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	8.328	0.000	8.328	
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 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Technical Surveillance Countermeasures (TSCM)				0.386	0.526	0.527
Description: TSCM will develop future technologies capable of thwarting advanced, hostile force technical capabilities. They will be developed to provide secure environments to austere mission planning locations, theater commander centers, and will collect information for counterthreat operations in support of DoD and AF requirements.						
FY 2022 Plans:						
Continue advancement of BLUE LANCER						
FY 2023 Plans:						
Continue advancement of counterintelligence equipment and software						
FY 2022 to FY 2023 Increase/Decrease Statement:						
N/A						
Title: Cyber Counterintelligence Pilot				4.495	8.207	7.801
Description: This effort builds OSI's cyber enclave to support various lines of effort, including COPPER CASTLE, JUPITER SENTINEL, and broader cyber threat pursuit activities.						
FY 2022 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305146F / <i>Defense Joint Counterintelligence Activities</i>		

  

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Continue R&D for new iterations of Cyber Threat Pursuit Activities, COPPER CASTLE, and JUPITER SENTINEL.			
<b>FY 2023 Plans:</b> Continue R&D for new iterations of Cyber Threat Pursuit Activities, COPPER CASTLE, and JUPITER SENTINEL.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decreased to support other higher priority Air Force requirements.			
<b>Accomplishments/Planned Programs Subtotals</b>	4.881	8.733	8.328

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 0305146F: <i>Defense Joint Counter Intelligence Program</i>	2.507	2.691	2.733	-	2.733	-	-	-	-	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> Defense Joint Counterintelligence Program TSCM funds will be obligated on existing contracts with Naval Research Labs and DARPA. Counterintelligence (CI) Cyber funding will be obligated on an existing Air Force contract with MIT/Lincoln Labs, Sandia National Labs, and Air Force Research Labs.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305146F / Defense Joint Counterintelli gence Activities				Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Naval Research Lab	MIPR	Navy/Air Force : Williamsburg, VA	-	0.382	Jan 2021	0.382	Jan 2022	0.383	Jan 2023	-		0.383	Continuing	Continuing	-
MIT/Lincoln Labs	MIPR	Air Force : Lexington, MA	-	1.796	Mar 2021	3.000	Mar 2022	3.000	Mar 2023	-		3.000	Continuing	Continuing	-
Carnegie Mellon University	MIPR	Air Force : Pittsburgh, PA	-	0.407	Feb 2021	0.200	Mar 2022	0.200	Mar 2023	-		0.200	Continuing	Continuing	-
Sandia National Labs	MIPR	Air Force : Albuquerque, NM	-	0.500	Feb 2021	0.500	Dec 2021	0.500	Dec 2022	-		0.500	Continuing	Continuing	-
Air Force Research Labs	MIPR	Air Force : Rome, NY	-	1.796	Mar 2021	4.651	Mar 2022	4.245	Mar 2023	-		4.245	Continuing	Continuing	-
Subtotal			-	4.881		8.733		8.328		-		8.328	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	4.881		8.733		8.328		-		8.328	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0305146F / Defense Joint Counterintelligence Activities										Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Develop Cyber CI/Copper Castle																												
Develop Counterintelligence Equipment and Software																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305146F / Defense Joint Counterintelli gence Activities	Project (Number/Name) 671931 / TECH SURVEIL COUNTER MEAS EQPT	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Develop Cyber CI/Copper Castle</i>				
Develop Counterintelligence Equipment and Software	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305179F I Integrated Broadcast Service (IBS)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	8.848	21.335	22.123	0.000	22.123	21.539	18.754	19.069	19.492	Continuing	Continuing
674779: Integrated Broadcast Service (IBS)	-	8.848	21.335	22.123	0.000	22.123	21.539	18.754	19.069	19.492	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

The IBS fulfills the warfighter's requirements for worldwide threat warning and situational awareness information with timely production and simultaneous dissemination of Intelligence, Surveillance, and Reconnaissance (ISR) derived combat information. It also provides target tracking data to support threat avoidance, targeting, force protection, and situational awareness. This information is continually refined in near real time by strategic, operational and tactical sensors.

IBS development efforts are comprised of the following:

- A Common Interactive Broadcast (CIB) on UHF (Ultra High Frequency) satellite channel using a Common Message Format (CMF) and a Military Standard (MIL-STD) Demand Assigned Multiple Access (DAMA) compliant waveform and Line of Sight (LOS) using the Wideband Networking Waveform (WNW) and Joint Tactical Terminal (JTT).
- IBS-Network Services (IBS-NS) includes two Global IBS Network Servers (GINS) and four Theater Interface Nodes (TINs) to support the geographic Combatant Commanders (COCOMs), all built to validated warfighter requirements.
- Two GINS receive data from each theater and integrate this data into a worldwide picture available to all network/broadcast users.
- Four regional TINs allow local and out-of-theater users (not directly receiving IBS broadcast) to receive the CIB information broadcast. Additionally, the TIN will receive and inject data into the CIB for producers without access to the theater CIB.

This PE funds the development and/or upgrades of IBS (IBS-NS, CIB, and CMF)

This project will identify and implement an open system architecture that will accommodate growth as the migration continues to cloud hosted enterprise services. Additionally, IBS is a critical data information provider supporting Joint All Domain Command and Control and the emerging requirements for Advanced Battle Management System information exchange requirements.

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 PY22 \$00.000M was expended for civilian pay expenses in this program element, and in CY23 \$00.000M is forecasted for civilian pay expenses in this program element.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305179F I Integrated Broadcast Service (IBS)				
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		8.864	21.335	0.000	0.000	0.000
Current President's Budget		8.848	21.335	22.123	0.000	22.123
Total Adjustments		-0.016	0.000	22.123	0.000	22.123
• Congressional General Reductions		-0.016	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	22.123	0.000	22.123
Change Summary Explanation						
FY21: 0.016M Congressional Reduction of equal spread across AF RDT&E programs.						
FY23: 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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Development/upgrades of the Integrated Broadcast Service (IBS-NS, CIB, and CMF)				6.854	19.341	19.823
Description: Development/upgrades of the IBS (IBS-NS, CIB, and CMF)						
FY 2022 Plans:						
- Synchronizing and integrating with DOD Intelligence Community (IC) Cloud as a potential producer/consumer; the capability will provide a long term searchable data store for IBS information						
- Upgrading the IBS Enterprise-level real-time and analytic views on Global and CCMDs watch floors; further integrate uplink sites with associated TIN by reducing equipment overhead and streamlining data flows						
- Focusing efforts on upgrades to volumetric increase to provide ten times performance enhancement to throughput, storage and replay to address message volume; this will increase the enterprise output						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- Providing resilience to the IBS CIB UHF Broadcast by utilizing the Mobile User Objective System (MUOS) Wideband Code Division Multiple Access (WCDMA) SATCOM payload supporting the receipt of IBS on 1st generation MUOS terminals</li> <li>- Upgrading and connecting the Combatant Command (CCMD) J2 CIB planning function with the CCMD J6 Integrated Waveform planning function</li> <li>- Upgrading the CIB Planning Tool and IBS-NS capability at the CCMDs to allow automated planning to occur for active producers</li> <li>- Developing IBS Thin Client, which provides a light weight application to receive IBS information on mobile devices</li> <li>- Initiating development of the CIB MUOS Group Integration - Many to Many, which achieves IBS Over the Air requirements on the MUOS - WCDMA payload</li> <li>- Upgrading the P5 system health and welfare status at the COCOMs to include Alternate Path status update messages</li> <li>-- Upgrading the resiliency of IBS to include polar coverage</li> <li>- Continuing to upgrade and transition current classified dissemination path to new architecture and enable SCI-level dissemination of IBS data</li> <li>- Enhancing CIB uplink sites to handle operational surge increases and adding capability for edge cloud computing capability</li> <li>- Upgrading the monitoring and control tools to assist in assured dissemination tasks at COCOM uplink watch sites, development and fielding of Downlink Monitoring Element (DME)</li> <li>- Initiating enterprise wide modernization efforts in support of the IBS IS-CDD</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Will continue to synchronize and integrate with DOD Intelligence Community (IC) Cloud as a potential producer/consumer; the capability will provide a long term searchable data store for IBS information</li> <li>- Will continue to upgrade the IBS Enterprise-level real-time and analytic views on Global and CCMDs watch floors; further integrate uplink sites with associated TIN by reducing equipment overhead and streamlining data flows</li> </ul>				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- Will continue to upgrade volumetric increase to provide ten times performance enhancement to throughput, storage and replay to address message volume; this will increase the enterprise output</li> <li>- Will continue to provide resilience to the IBS CIB UHF Broadcast by utilizing the Mobile User Objective System (MUOS) Wideband Code Division Multiple Access (WCDMA) SATCOM payload supporting the receipt of IBS on 1st generation MUOS terminals</li> <li>- Will continue to upgrade and connect the Combatant Command (CCMD) J2 CIB planning function with the CCMD J6 Integrated Waveform planning function</li> <li>- Will continue to upgrade the CIB Planning Tool and IBS-NS capability at the CCMDs to allow automated planning to occur for active producers</li> <li>- Will continue development of the IBS Thin Client, which provides a light weight application to receive IBS information on mobile devices</li> <li>- Will continue development of the CIB MUOS Group Integration - Many to Many, which achieves IBS Over the Air requirements on the MUOS - WCDMA payload</li> <li>- Will continue to upgrade the P5 system health and welfare status at the COCOMs to include Alternate Path status update messages</li> <li>-- Will continue to upgrade the resiliency of IBS to include polar coverage</li> <li>- Will continue to upgrade and transition current classified dissemination path to new architecture and enable SCI-level dissemination of IBS data</li> <li>- Will continue enhancement of uplink sites to handle operational surge increases</li> <li>- Will continue to upgrade the monitoring and control tools to assist in assured dissemination tasks at COCOM uplink watch sites, development and fielding of Downlink Monitoring Element (DME)</li> </ul>				

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force								Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development						R-1 Program Element (Number/Name) PE 0305179F I Integrated Broadcast Service (IBS)					
C. Accomplishments/Planned Programs (\$ in Millions)								FY 2021	FY 2022	FY 2023	
- Will continue to provide modernization efforts in support of the IBS IS-CDD											
FY 2022 to FY 2023 Increase/Decrease Statement: Continued support to IBS Modernization Efforts											
Title: Enterprise System Engineering Description: Enterprise Systems Engineering/CMF Integration/CIB Integration FY 2022 Plans: Performing Enterprise Systems Engineering/CMF/CIB Integration FY 2023 Plans: Will continue to perform Enterprise Systems Engineering/CMF/CIB Integration and including support to Hybrid Cloud at the tactical edge evaluation and software development FY 2022 to FY 2023 Increase/Decrease Statement: Continued support to IBS Modernization Efforts								0.994	0.994	1.300	
Title: Test & Evaluation Description: Test & Evaluation of the IBS System FY 2022 Plans: Performing Test and Evaluation activities of the IBS-NS system/subsystems FY 2023 Plans: Will perform Test and Evaluation activities of the IBS-NS systems/sub-systems components FY 2022 to FY 2023 Increase/Decrease Statement: N/A								1.000	1.000	1.000	
Accomplishments/Planned Programs Subtotals								8.848	21.335	22.123	
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 832070: Intelligence Comm Equipment	5.727	9.145	5.724	-	5.724	11.535	13.928	9.117	9.317	Continuing	Continuing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305179F I Integrated Broadcast Service (IBS)							
D. Other Program Funding Summary (\$ in Millions)												
	<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
<u>Remarks</u>												
E. Acquisition Strategy												
IBS is in the PEO Digital portfolio and executed by AFLCMC/HBG.												
IBS uses an Adaptive Life-cycle approach that provides incremental improvement and new capability in 90-day cycles.												
For contracting efforts, a Single Award IDIQ contract with multiple task orders was awarded to CACI International Inc.												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305179F / Integrated Broadcast Servi ce (IBS)				Project (Number/Name) 674779 / Integrated Broadcast Service (IBS)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPFF	Not specified. : TBD	-	-		8.000	Oct 2022	8.000	Oct 2023	-		8.000	Continuing	Continuing	-
IBS (IBS-NS, CIB, and CMF) Development Upgrades	SS/CPFF	CACI/OGA/Various : Fairfax, VA	-	6.854	Feb 2021	11.341	Feb 2022	11.833	Feb 2023	-		11.833	Continuing	Continuing	-
Subtotal			-	6.854		19.341		19.833		-		19.833	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Enterprise Engineering/ CMF Integration/CIB Integration	SS/CPFF	L3Harris : Greenville, TX	-	0.874	Aug 2021	0.864	Aug 2022	0.994	Mar 2023	-		0.994	Continuing	Continuing	-
Subtotal			-	0.874		0.864		0.994		-		0.994	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Interoperability and Development Testing	MIPR	JITC : Ft Hauchuca, AZ	-	0.700	Feb 2021	0.700	Feb 2022	1.000	Feb 2023	-		1.000	Continuing	Continuing	-
Responsible Test Organization (RTO)	PO	45th Test Sqn : Eglin AFB, FL	-	0.300	Oct 2021	0.300	Oct 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	1.000		1.000		1.000		-		1.000	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305179F / Integrated Broadcast Service (IBS)				Project (Number/Name) 674779 / Integrated Broadcast Service (IBS)					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Analyst/Program Management/Engineering Support	C/CPAF	Credence : Warner Robins, GA	-	0.120	Oct 2020	0.130	Oct 2021	0.296	Oct 2022	-		0.296	Continuing	Continuing	-
Subtotal			-	0.120		0.130		0.296		-		0.296	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	8.848		21.335		22.123		-		22.123	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force																<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7								<b>R-1 Program Element (Number/Name)</b> PE 0305179F / <i>Integrated Broadcast Service (IBS)</i>								<b>Project (Number/Name)</b> 674779 / <i>Integrated Broadcast Service (IBS)</i>			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>IBS-NS</b>																												
Develop the monitoring and control tools to assist in assured dissemination																												
Integrate CMF updates into IBS-NS																												
Enterprise Systems Engineering of IBS (IBS-NS, CIB, and CMF)																												
Testing and Evaluation of IBS (IBS-NS, CIB, and CMF)																												
Develop and integrate IS-CDD requirements																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305179F / Integrated Broadcast Service (IBS)	Project (Number/Name) 674779 / Integrated Broadcast Service (IBS)	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
IBS-NS				
Develop the monitoring and control tools to assist in assured dissemination	1	2022	1	2024
Integrate CMF updates into IBS-NS	1	2022	4	2025
Enterprise Systems Engineering of IBS (IBS-NS, CIB, and CMF)	1	2022	4	2026
Testing and Evaluation of IBS (IBS-NS, CIB, and CMF)	1	2022	4	2026
Develop and integrate IS-CDD requirements	1	2022	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305202F I Dragon U-2							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	36.593	35.846	20.170	0.000	20.170	20.604	24.089	0.000	0.000	0.000	137.302
674820: Sensor Development	-	36.593	35.846	20.170	0.000	20.170	20.604	24.089	0.000	0.000	0.000	137.302
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The U-2S Dragon Lady platform is a high-demand/low-density aircraft equipped with state-of-the-art sensor and data link systems providing mission essential Intelligence, Surveillance, and Reconnaissance (ISR) to the Combatant Commands, Joint and Combined forces, and the IC community in peacetime and wartime. The program supports core missions such as Sensitive Reconnaissance Operations (outlined in CJCSI 3250.01) supporting the National Defense Strategy, in addition to other missions that include execution of CCMD OPLANs and CONPLANs, Humanitarian Assistance/Disaster Response (HADR), Counter-Insurgency (COIN) operations and third-party treaty verification/monitoring via the OLIVE HARVEST mission.

In the FY23 budget, the Air Force will maintain operational capability of the U-2 platform. FY23 development funds will be dedicated and required to sustain NDAA directed capability, capacity, and safe and effective operations through the remainder of U-2 scheduled service. Efforts planned as part of the FY23 budget are required to ensure continuous worldwide operations through the remainder of U-2 service. Furthermore, FY23 efforts largely continue existing contracted efforts, which address safety of flight issues, reliability, Diminishing Manufacturing Sources and Material Shortages (DMSMS), maintainability, supportability, flight test, and integration of capability development activities in support of the broader ISR portfolio.

During this time, RDT&E efforts will address sustainment, modification, and modernization of sensors and associated mission equipment that face near-term sustainability and DMSMS. Also, RDT&E efforts focus on integrating/expanding platform capabilities within the larger ISR portfolio, enabling improved collection against emerging threats and capabilities through the remainder of scheduled U-2 operations; these efforts include (but are not limited to) Advanced Synthetic Aperture Radar System (ASARS) 2B/C, avionics and navigation tech refresh, mission planning software and datalink infrastructure upgrades, modernization of aircraft data links, next generation SIGINT, and quick reaction capabilities (QRCs).

Additionally, the U-2 program will continue to support emergent and/or experimental RDT&E efforts in support of Joint All-Domain Command and Control (JADC2) and Advanced Battle Management System (ABMS) as a platform surrogate for risk reduction.

Currently, the U-2 program provides funding for an ASARS acquisition effort. This contracted effort will design, fabricate, integrate, and demonstrate system capability enhancements for a high-altitude deep look SAR system. This mitigates a DMSMS issue with the current U-2 SAR sensor and processor and implements an open-architecture radar environment, of which portions are common with or transferable to the common ISR enterprise.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305202F I Dragon U-2				
This program element may include necessary civilian pay expenses required to manage, execute, and deliver Dragon U2 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 0.0M of 3600 funding was expended and in FY22 0.0M of 3600 funding 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		36.593	17.146	0.000	0.000	0.000
Current President's Budget		36.593	35.846	20.170	0.000	20.170
Total Adjustments		0.000	18.700	20.170	0.000	20.170
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	18.700			
• 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	20.170	0.000	20.170
Change Summary Explanation						
The FY22 President's Budget submittal did not reflect FY23 through FY26 funding. Therefore, an explanation of the change between the two budget positions for FY23 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: U-2 Aircraft Update Block 20.1				36.043	17.120	19.509
Description: Aircraft sustainment and/or enhancement development includes activities such as, but not limited to: trade studies, analysis, preliminary system engineering, system and subsystem testing or demonstrations, sensor specification development, avionics system upgrades, emergency egress system sustainability and suitability effort, airframe Loads and Environment Spectra Survey (L/ESS) Compliance and Flight Data Recorder Installation, mission planning system migration, navigation system and stellar tracker initiatives, Open Mission Systems and Unmanned Aerospace Systems Command and Control Standard Initiative (OMS/UCI) standards compliance, GPS technical refresh, helmet and Full Pressure Suit technical refresh, and tactical data-link (L-16, IBS, IFDL, MADL, etc.) design and integration.						
FY 2022 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305202F / <i>Dragon U-2</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>Aircraft sustainment and/or enhancement efforts includes activities such as, but not limited to: trade studies, analysis, preliminary system engineering, system and subsystem testing or demonstrations, sensor specification development, avionics system upgrades, emergency egress system sustainability and suitability effort, mission planning system software and infrastructure migration, navigation system sustainability, advanced and agile systems, Open Mission Systems and Unmanned Aerospace Systems Command and Control Standard Initiative (OMS/UCI) standards compliance and integration, navigational technical refresh, helmet and Full Pressure Suit technical refresh, quick reaction capability (QRC) development, enhanced communications/ SIGINT system sustainability and modernization, and tactical data-link (L-16, IBS, IFDL, MADL, etc.) efforts to meet operational requirements.</p> <p><b>FY 2023 Plans:</b>            Aircraft sustainment and/or enhancement efforts includes activities such as, but not limited to: trade studies, analysis, preliminary system engineering, system and subsystem testing or demonstrations, sensor specification development, avionics system upgrades, emergency egress system sustainability and suitability effort, mission planning system software and infrastructure migration, navigation system sustainability, advanced and agile systems, Open Mission Systems and Unmanned Aerospace Systems Command and Control Standard Initiative (OMS/UCI) standards compliance and integration, navigational technical refresh, helmet and Full Pressure Suit technical refresh, quick reaction capability (QRC) development, enhanced communications/ SIGINT system sustainability and modernization, and tactical data-link (L-16, IBS, IFDL, MADL, etc.) efforts to meet operational requirements.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>            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.</p>				
<p><b>Title:</b> U-2 Payload Update Block 20.1</p> <p><b>Description:</b> Aircraft payload development supports sustainment and/or enhancement development includes activities such as, but not limited to: trade studies, analysis, preliminary system engineering, system and subsystem testing or demonstrations, sensor specification development, Advanced Synthetic Aperture Radar System (ASARS) development and test, SIGINT and multi-spectral sensor technical refresh integration and test, defensive systems, sensor range improvements, strategic and tactical data link (L-16, IBS, IFDL, MADL, etc.) design and integration.</p> <p><b>FY 2022 Plans:</b>            The bulk of FY22 funding will occur under the Aircraft Update Block addressing sustainability and DMSMS. Payload mod funding will be used to transition the ASARS-2C radar program onto the platform.</p> <p><b>FY 2023 Plans:</b>            The bulk of FY23 funding will occur under the Aircraft Update Block addressing sustainability and DMSMS.</p>		0.550	18.726	0.661

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305202F / <i>Dragon U-2</i>			
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Payload mod funding will be used to transition the ASARS-2C radar program onto the platform.				
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> 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.				
<b>Accomplishments/Planned Programs Subtotals</b>		36.593	35.846	20.170
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> Acquisition strategy for efforts to support aircraft modification and/or enhancement efforts will be assessed as required, based on current program activities.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305202F / <i>Dragon U-2</i>				Project (Number/Name) 674820 / <i>Sensor Development</i>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	0.000		-		-		-		-	0.000	0.000	-
ASARS Phase 1 Enhancements Design	SS/CPFF	Raytheon/Lockheed Martin : El Segundo, CA	-	9.500	Mar 2021	18.900	Nov 2021	-		-		-	0.000	28.400	0.000
ASARS Phase 2 Integration & Demonstration	SS/CPIF	Raytheon/Lockheed Martin Aeronautics : El Segundo, CA	-	0.000		0.146	Dec 2021	5.370	Dec 2022	-		5.370	0.000	5.516	0.000
Flight Test Support	SS/CPFF	Lockheed Martin Aeronautics : Palmdale, CA	-	0.000		-		-		-		-	0.000	0.000	0.000
Data Links Modernization	SS/CPFF	L3 Communications : Salt Lake City, UT	-	3.700	Mar 2021	-		3.400		-		3.400	0.000	7.100	0.000
Navigation System	SS/CPFF	Lockheed Martin Aeronautics : Palmdale, CA	-	0.000		-		-		-		-	0.000	0.000	0.000
Emergency Egress System Sustainability and Suitability Effort	SS/CPFF	Lockheed Martin Aeronauti : Palmdale, CA	-	0.000		-		-		-		-	0.000	0.000	0.000
Avionics Technical Refresh	SS/CPFF	LMA : Palmdale, CA	-	16.400	Dec 2020	16.500	Nov 2021	11.400	Nov 2022	-		11.400	0.000	44.300	0.000
Loads and Environment Spectra Survey (L/ESS) Compliance and Flight Data Recorder Installation	SS/CPFF	LMA : Palmdale, CA	-	0.000		-		-		-		-	0.000	0.000	0.000
Electro-Optical/Infrared Sensor Technical Refresh	SS/CPFF	Lockheed Martin Aeronautics : Palmdale, CA	-	1.900	Mar 2021	-		-		-		-	0.000	1.900	0.000
Mission Planning Software Technical Refresh	TBD	TBD : TBD	-	0.000		-		-		-		-	0.000	0.000	0.000
Electronic Warfare Suite (EWS) Advanced Threat	SS/CPFF	BAE : Nashua, NY	-	3.900	Mar 2021	0.300	Nov 2021	-		-		-	0.000	4.200	22.100
SIGINT Modernization	C/CPAF	SwRI : Dayton, OH	-	1.193	Aug 2021	-		-		-		-	Continuing	Continuing	-
Subtotal			-	36.593		35.846		20.170		-		20.170	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305202F / <i>Dragon U-2</i>					Project (Number/Name) 674820 / <i>Sensor Development</i>			
	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	36.593		35.846		20.170		-		20.170	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)			
3600 / 7								PE 0305202F / Dragon U-2								674820 / Sensor Development			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
U-2 Dragon Lady																												
Advanced Synthetic Aperture Radars System (ASARS)																												
Data Links Modernization																												
Navigation System																												
Emergency Egress System Sustainability and Suitability Effort																												
Avionics Tech Refresh																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305202F / Dragon U-2	Project (Number/Name) 674820 / Sensor Development	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>U-2 Dragon Lady</b>				
Advanced Synthetic Aperture Radars System (ASARS)	1	2021	4	2025
Data Links Modernization	1	2021	4	2024
Navigation System	1	2021	3	2023
Emergency Egress System Sustainability and Suitability Effort	1	2021	4	2023
Avionics Tech Refresh	1	2021	4	2024

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0305206F / <i>Airborne Reconnaissance Systems</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	133.247	108.291	55.048	0.000	55.048	56.694	37.116	65.242	66.693	Continuing	Continuing
672001: <i>Next-Generation Sensors</i>	-	18.038	20.184	0.000	0.000	0.000	24.433	20.774	24.169	24.707	Continuing	Continuing
672002: <i>Agile ISR</i>	-	5.342	5.413	1.690	0.000	1.690	6.890	5.959	0.000	0.000	Continuing	Continuing
672003: <i>Sensors Open System Architecture</i>	-	13.891	0.734	0.782	0.000	0.782	0.935	0.809	0.000	0.000	Continuing	Continuing
674818: <i>Imaging and Targeting Support*</i>	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	28.648	29.285	Continuing	Continuing
674820: <i>Sensor Development</i>	-	72.874	54.344	48.692	0.000	48.692	15.085	0.000	0.000	0.000	0.000	190.995
675092: <i>JTC/SIL MUSE</i>	-	3.574	3.593	3.784	0.000	3.784	3.860	3.933	4.015	4.104	Continuing	Continuing
675291: <i>Gorgon Stare</i>	-	10.000	12.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
676025: <i>Data Compression</i>	-	9.528	11.523	0.100	0.000	0.100	5.491	5.641	8.410	8.597	Continuing	Continuing

\*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2023

## A. Mission Description and Budget Item Justification

The Airborne Reconnaissance System (ARS) Program develops and integrates next generation intelligence, surveillance, and reconnaissance (ISR) capabilities. ARS includes platform-agile sensor data processing; sensor products aiding assisted target recognition algorithms and other artificial intelligence activities (e.g. geolocation models, sensor-base exploitation tools, sensor networking capabilities); and implementation of Sensor open architecture standards. The ARS Program includes the following efforts: Next-Generation Sensors (672001), Agile ISR (672002), Sensors Open System Architecture (672003), Imaging and Targeting Support (674818), Sensor Development (674820), JTS/SIL MUSE (675092), Gorgon Stare (675291), and Data Compression (676025).

The ARS PE is integral to developing multi-domain, multi-Intelligence (multi-INT) research, development, test and evaluation (RDT&E) Program of Record (PoR) efforts in support of the National Defense Strategy (NDS) and 2018 DoD Artificial Intelligence Strategy, as applied by the Air Force in the Next Generation ISR Dominance Flight Plan. Specifically, Program 0305206F provides authorized and appropriated funding to multi-INT RDT&E efforts for utilization on airborne platforms. This program traditionally provides a multi-INT venue for integration of technologies matured in both the Advanced Technology Sensors (0604257F) and Airborne SIGINT Enterprise (0304260F) programs.

NGS is a platform-agile suite of sensor technologies defined for the best flexibility and capability for an ever-changing scale of ISR missions. Execution of the NGS activities are founded upon three pillars: Open Standards, Artificial Intelligence (AI)/Machine Learning(ML) algorithms, and Advanced Platform-Agile Sensors. The power behind the NGS program is an open architectural system design that enables rapid third-party software and LRU insertion/replacement allowing for DevSecOps execution, onboard multi-modal and multi-INT processing real-time, sensor cross-cueing, and AI/ML application. The AI/ML algorithms will be used to enable assisted

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0305206F I Airborne Reconnaissance Systems	
<p>target detection and identification. NGS will anticipate and more quickly counter adversaries' future improvements in their abilities to hide from and defeat ISR sensors. NGS efforts include, but are not limited to: Multi-Intelligence Common Open Architecture Reconnaissance Programs Standard (MI-COARPS), Advanced Platform-Agile Sensors, Assisted Target Recognition for ISR (ATRI), and Digital Engineering (DE), to include Model-Based Systems Engineering (MBSE).</p> <p>The Open Standards pillar of next generation capabilities is supported through MI-COARPS and Sensors Open Systems Architecture (SOSA) which coordinates advanced technologies and open architecture development for multi-INT sensor modalities. The AI/ML algorithm pillar of next generation capabilities will be supported by the Agile ISR and Data Compression efforts. Detection, Removal and Characterization Operations (DRACO) supports the development of a robust image quality improvement capability for airborne synthetic aperture radar (SAR) products. Additionally, the Reduction of Data Using Compression Enhancement (RDUCE) develops data compression algorithms, addressing current and future systems' bandwidth limitations. Consistent with NDS, algorithms are multi-INT sensor agile that are submitted for formal adoption by the DOD-Intelligence Community (IC) Joint Enterprise Standards Committee (JESC) GEOINT and SIGINT standards groups. Platform agile sensors pillar of next-generation capabilities will be supported by the Sensor Development effort, which includes the Advanced Synthetic Aperture Radar System (ASARS) front-end antenna array and receiver exciter advancements (ASARS-2B). ASARS-2B follow-on RDT&amp;E extends range, enhances SAR performance and introduces maritime capability, while laying the framework for future use of open architectures. Additional efforts that support the next generation capabilities include continuation of Gorgon Stare Wide Area Motion Imagery (WAMI) RDT&amp;E and the Multiple Unified Simulation Environment (MUSE) Joint Technology Center/Systems Integration Lab (JTC/SIL) by supporting ISR Training.</p> <p>The total cost of the NGS Middle Tier of Acquisition effort is 131.7 million, including RDT&amp;E and procurement of prototype units. NGS 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.</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 FY20 0.857M was expended for civilian pay expenses in this program element, and in FY21 1.742M 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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0305206F I Airborne Reconnaissance Systems			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	123.287	71.791	0.000	0.000	0.000
Current President's Budget	133.247	108.291	55.048	0.000	55.048
Total Adjustments	9.960	36.500	55.048	0.000	55.048
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	36.500			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	9.960	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	55.048	0.000	55.048
<b>Congressional Add Details (\$ in Millions, and Includes General Reductions)</b>					
Project: 675291: Gorgon Stare				FY 2021	FY 2022
Congressional Add: Gorgon Stare				10.000	12.500
Congressional Add Subtotals for Project: 675291				10.000	12.500
Congressional Add Totals for all Projects				10.000	12.500
<b>Change Summary Explanation</b>					
FY21 increase due to an approved BTR supporting ASARS-2B.					
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.					
The decrease from FY22 to FY23 is due to higher priorities of the Air Force.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 672001 / Next-Generation Sensors			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672001: Next-Generation Sensors	-	18.038	20.184	0.000	0.000	0.000	24.433	20.774	24.169	24.707	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Next Generation Sensors (NGS) program seeks to change the paradigm of Intelligence, Surveillance, and Reconnaissance (ISR) sensor acquisitions to deliver mission critical technology more quickly and cost effectively. NGS is a platform-agile suite of sensor technologies defined for the best flexibility and capability for an ever-changing scale of ISR missions. The power behind the NGS program is an open architectural system design that enables individual sensor upgrades and enhancements and mission-specific mode and algorithm applications, establishing a path to on-board multimodal and multi-INT processing, sensor cross-cueing, and artificial intelligence applications. NGS efforts include, but are not limited to: Multi-INT Common Open Architecture Reconnaissance Programs Standard (MI-COARPS), Advanced Platform-Agile Sensors, Assisted Target Recognition for ISR (ATRI), and Digital Engineering (DE), to include Model Based Systems Engineering (MBSE).

NGS program efforts are set by capability gaps within the Challenging Targets Initial Capabilities Document and as approved by the Capabilities Decision Memorandum (Signed Jan 2019). These requirements have been further verified, modeled, and developed through the Airborne Sensors for ISR (ASI) Analysis of Alternatives (AoA). Program requirements were further defined in the NGS Draft Capability Development Document (DCDD) approved on 21 February 2021.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. The use of such program funds would be in addition to civilian pay expenses budgeted in program element 0605831F.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Next Generation Sensors	18.038	20.184	0.000
<b>Description:</b> Mold current and future ISR into a platform-agile, non-proprietary, autonomous multi-INT cross cueing solution that is designed based on mission requirements. Sensors will have to penetrate up to highly contested domains and survive to operate. This project will also increase interoperability by developing common standards and interfaces for mission and sensor systems.			
<b>FY 2022 Plans:</b>			
- Develop and mature sensor technology for electro-optical/infrared (EO/IR), radar and other sensor modalities			
- Develop, integrate, and test dual-band EO/IR and LiDAR prototype sensor			
- Develop edge artificial intelligence (AI)/machine learning (ML) algorithms to identify (ID) critical mobile targets (CMTs)			
- Develop multi-INT, open architecture (OA) processor and standards. Mature open architectures for ISR systems including cybersecurity analysis, industry standardization, and open architecture demonstrations			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305206F / <i>Airborne Reconnaissance Systems</i>	<b>Project (Number/Name)</b> 672001 / <i>Next-Generation Sensors</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
- Integrate cross-cueing, fusion algorithms, and edge AI/ML algorithm suite with sensors and processing open architecture (OA) standards  <b>FY 2023 Plans:</b> Due to higher AF priorities, the following activities have been strategically paused: - Development and maturation of sensor technology for electro-optical/infrared (EO/IR), radar and other sensor modalities - Development, integration, and testing of dual-band EO/IR and LiDAR prototype sensor - Development of edge artificial intelligence (AI)/machine learning (ML) algorithms to identify (ID) critical mobile targets (CMTs) - Further development of multi-INT, open architecture (OA) processor and standards. Mature open architectures for ISR systems including cybersecurity analysis, industry standardization, and open architecture demonstrations - Integration of cross-cueing, fusion algorithms, and edge AI/ML algorithm suite with sensors and processing open architecture (OA) standards - Integration of Next Generation Sensors into relevant platforms  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease in funding is due to realignment of funds to higher Air Force priorities.			
<b>Accomplishments/Planned Programs Subtotals</b>		18.038	20.184
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
NGS activities will leverage parallel development activities and integrate them with a risk-informed approach to develop and demonstrate NGS capabilities that meet military needs under operationally-relevant environments and conditions. This program has established a forum of stakeholders, consisting of multiple Other Government Agencies (OGAs), end-users, and MAJCOMs to ensure that the program deliverables are answering identified warfighter needs, to ensure a clear and concise technology transition path.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 672001 / Next-Generation Sensors					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Triple Raven ATD	Various	Various : TBD	-	6.998	Aug 2021	0.000	Feb 2022	0.000	Mar 2023	-		0.000	Continuing	Continuing	-
NGS Sensors	Various	Various : TBD	-	1.200	Jun 2021	3.645	Feb 2022	0.000	Mar 2023	-		0.000	Continuing	Continuing	-
NGS Algorithms (ATRI)	Various	Various : TBD	-	1.200	Jun 2021	5.846	Feb 2022	0.000	Mar 2023	-		0.000	Continuing	Continuing	-
NGS Standards (OA)	Various	Various : TBD	-	3.700	Jun 2021	5.141	Dec 2021	0.000	Mar 2023	-		0.000	Continuing	Continuing	-
Raging Parakeet JCTD	Various	Various : TBD	-	2.459	Feb 2021	0.000	Dec 2021	0.000	Mar 2023	-		0.000	Continuing	Continuing	-
Digital Engineering (DE), Model Based Systems Engineering (MBSE)	Various	Various : TBD	-	-		3.000	Oct 2021	0.000	Mar 2023	-		0.000	Continuing	Continuing	-
Subtotal			-	15.557		17.632		0.000		-		0.000	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PMA: Other Gov't costs	Various	Not specified. : TBD	-	2.481	Feb 2021	2.552	Oct 2021	0.000	Feb 2023	-		0.000	Continuing	Continuing	-
Subtotal			-	2.481		2.552		0.000		-		0.000	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	18.038		20.184		0.000		-		0.000	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 672001 / Next-Generation Sensors			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Next Generation Sensors																												
Sensors																												
- Sensor Maturation & Risk Reduction																												
- EO/IR, LiDAR, Testing & Integration																												
Algorithm Development (ATRI)																												
Standards (Open Architecture)																												
- MI-COARPS Development																												
Model Based Systems Engineering																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 672001 / Next-Generation Sensors	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Next Generation Sensors</b>				
Sensors	2	2021	4	2027
- Sensor Maturation & Risk Reduction	2	2021	4	2027
- EO/IR, LiDAR, Testing & Integration	2	2021	1	2024
Algorithm Development (ATRI)	2	2021	4	2027
Standards (Open Architecture)	2	2021	4	2027
- MI-COARPS Development	2	2021	4	2027
Model Based Systems Engineering	2	2021	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 672002 / Agile ISR			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672002: Agile ISR	-	5.342	5.413	1.690	0.000	1.690	6.890	5.959	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note												
In FY2023, PE 0305206F, (Airborne Reconnaissance Systems), Project 674818, (Imaging and Targeting Support) efforts related to Agile Pod will transfer to Project 672002, (Agile ISR)in order to provide greater visibility and transparency. This project is not a new start.												
A. Mission Description and Budget Item Justification												
The Agile ISR BPAC matures, develops, and deploys projects started under the Imaging & Targeting Support (I&TS) program in support of current and future platform agnostic, non-proprietary, autonomous, multi-INT cross cueing ISR solutions based on Advanced Battle Management System (ABMS) and Joint All-domain Command and Control (JADC2) mission requirements. This includes, but is not limited to, Detection Removal and Characterization Operations (DRACO), support and development of AgilePod, and other projects. Portions of the developmental efforts under Agile ISR are classified.												
This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. The use of such program funds would be in addition to civilian pay expenses budgeted in program element 0605831F.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
Title: DRACO									5.342	5.413	1.590	
Description: Detection Removal and Characterization Operations (DRACO) is a robust Image Quality improvement capability for Airborne Synthetic Aperture Radar (SAR) products. The software resides in multiple locations on the ground and future efforts will migrate algorithms to airborne platforms supporting the Air Force, Army, Navy and other customers. DRACO efforts include but are not limited to development, design, fabrication, integration, demonstration, test, and transition of image quality improvement capabilities. This project originated under the I&TS program. All other details are classified.												
FY 2022 Plans:												
- Continue to mature, develop and deploy DRACO capabilities in order to give the warfighter a more efficient and effective tool.												
- Continue DRACO 6.0 efforts												
- Continue to increase interoperability by developing common standards and interfaces.												
- Continue to increase access and expand user base.												
- Integrate DRACO, assisted target recognition, and SAR compression algorithm into a software suite referenced as SAR Clean-up AI/ML Reduction (SCAR) Package												
FY 2023 Plans:												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305206F / Airborne Reconnaissance Systems	<b>Project (Number/Name)</b> 672002 / Agile ISR	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>- Will continue to mature, develop and deploy DRACO capabilities in order to give the warfighter a more efficient and effective tool.</li> <li>- Will continue to complete DRACO 6.0 efforts in 1QFY24.</li> <li>- Will continue to increase interoperability by developing common standards and interfaces.</li> <li>- Will continue to increase access and expand user base.</li> <li>- Will integrate DRACO, assisted target recognition, and SAR compression algorithm into a software suite referenced as SAR Clean-up AI/ML Reduction (SCAR) Package.</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY23 decreased due to higher Air Force priorities.</p>			
<p><b>Title:</b> AgilePod</p> <p><b>Description:</b> AgilePod is a government-owned, open standards pod capable of multiple payloads including but not limited to ISR, communications, and EW. It consists of multiple variants and provides a rapid fielding capability for payloads to any aircraft in the DOD inventory that can carry an external store.</p> <p><b>FY 2022 Plans:</b> AgilePod funded in FY22 ATS PE 64257F, BPAC 644818 as a technology development project. Transitioning to ARS PE 35206F BPAC 672002 in FY23. Not a new start.</p> <p><b>FY 2023 Plans:</b> - Will continue to develop AgilePod variants for multi-platform use.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> - Increase in FY23 as technology development project transfers from ATS PE 64257F BPAC 644818 to ARS PE 35206F BPAC 672002.</p>		-	0.000
<b>Accomplishments/Planned Programs Subtotals</b>		5.342	5.413
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
Capabilities will be developed and integrated onto various information systems and platforms using an agile acquisition approach. The projects will be executed and contracted with appropriate vendor(s) to deliver capability while driving competition where possible.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 672002 / Agile ISR					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DRACO	SS/CPFF	Lockheed Martin : King of Prussisa, PA	-	4.796	Dec 2020	5.119	Mar 2022	1.280	Feb 2023	-		1.280	Continuing	Continuing	-
AgilePod	Various	Various : TBD	-	-		-		0.100	Jan 2023	-		0.100	Continuing	Continuing	-
Subtotal			-	4.796		5.119		1.380		-		1.380	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Support	C/CPAF	Not specified. : TBD	-	-		-		0.260		-		0.260	Continuing	Continuing	-
Subtotal			-	-		-		0.260		-		0.260	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PMA: Other Govt Cost	Various	Leidos & Jacobs : TBD	-	0.546	Oct 2020	0.294	Nov 2021	0.050	Nov 2022	-		0.050	Continuing	Continuing	-
Subtotal			-	0.546		0.294		0.050		-		0.050	Continuing	Continuing	N/A
			Prior Years	FY 2021	FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			-	5.342		5.413		1.690		-		1.690	Continuing	Continuing	N/A
Remarks															
In FY2023, PE 0305206F, (Airborne Reconnaissance Systems), Project 674818, (Imaging and Targeting Support) efforts related to Agile Pod will transfer to Project 672002, (Agile ISR)in order to provide greater visibility and transparency. This project is not a new start.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0305206F / Airborne Reconnaissance Systems					672002 / Agile ISR			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Agile ISR																												
DRACO 5.0																												
DRACO 6.0																												
DRACO Development																												
AgilePod*																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022	
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems		Project (Number/Name) 672002 / Agile ISR

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Agile ISR				
DRACO 5.0	1	2021	3	2021
DRACO 6.0	1	2021	1	2024
DRACO Development	2	2023	4	2027
AgilePod*	1	2023	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 672003 / Sensors Open System Architecture			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672003: Sensors Open System Architecture	-	13.891	0.734	0.782	0.000	0.782	0.935	0.809	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY2021, PE 0305206F, (Airborne Reconnaissance Systems), Project 674818, (Imaging and Targeting Support) efforts related to System Open System Architecture were transferred to Project 672003, (Sensor Open System Architecture) in order to provide greater visibility and transparency. This project is not a new start.

**A. Mission Description and Budget Item Justification**

The Sensors Open System Architecture (SOSA) project develops common hardware standards and associated software interfaces in support of the development for modalities of sensors, such as: RADAR, SIGINT, EW, Communications and EO/IR (development of standards and open architecture interfaces for Hardware and Electrical/Mechanical interfaces) in support of multiple airborne reconnaissance platforms, both manned and unmanned. Its objectives are to develop, demonstrate, and rapidly upgrade/iterate advanced, interoperable, multi-platform solutions to reduce the find, fix, target, and track kill chain timeline, and to provide safe separation and collision avoidance for remotely piloted aircraft through development of abstraction interfaces for sense (such as RADAR, ADS-B, TCAS, Next Generation Sensors, ASIP, and ASARS) and avoid logic.

This project is designed to support development of the Next Generation Sensors program, as well as other AFLCMC/WI emerging and program of record needs. As part of the development effort SOSA will be funding and supporting first article development of key common hardware solutions.

The SOSA SIL (System Integration Laboratory) will continue to support development of common hardware standards and associated software interfaces and provide a conformance/compliance program for industry partners and other DoD services.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Sensors Open System Architecture	13.891	0.734	0.782
<b>Description:</b> Description: The Sensors Open System Architecture (SOSA) project will execute activities to develop common hardware standards and associated software interfaces.			
<b>FY 2022 Plans:</b>			
- Continue to develop prototype of SOSA SAR/SIGINT capability			
- Continue to develop AgilePod internal electrical/mechanical interfaces			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305206F / Airborne Reconnaissance Systems	<b>Project (Number/Name)</b> 672003 / Sensors Open System Architecture	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>- Continue to implement and execute hardware demonstrations</li> <li>- Continue to support EO/IR article prototyping</li> <li>- Continue to prepare and host interoperability demonstrations</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Will continue to support of RPA Sense and Avoid Technology (C-ABSAA Technology Maturation &amp; Risk Reduction Phase)</li> <li>- Will continue to develop prototype of SOSA SAR/SIGINT capability</li> <li>- Will continue to develop AgilePod internal electrical/mechanical interfaces</li> <li>- Will continue to implement and execute hardware demonstrations</li> <li>- Will continue to support EO/IR article prototyping</li> <li>- Will continue to prepare and host interoperability demonstrations</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase in funding is due to inflation adjustments.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		13.891	0.734
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
Coalition of Industry, DoD, and OGA partnerships to develop common hardware standards and associated software interfaces to support ACC and AFLCMC requirements for next generation sensors. Acquisition initiatives consist of prototype activities, risk reduction and demonstrations. Contracting strategy for FY23 and beyond is to be determined.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 672003 / Sensors Open System Architecture					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
SOSA Hardware Development	SS/FFP	Dynetics (JSIL) : Huntsville, AL	-	0.558	Dec 2020	-		-		-		-	Continuing	Continuing	-
SOSA Hardware Development (1)	SS/CPFF	Skayl : DC & Arizona, AZ	-	0.558	Dec 2020	-		-		-		-	Continuing	Continuing	-
SOSA Hardware Development (2)	SS/CPFF	DCS : Dayton, OH	-	0.500	Dec 2020	0.439	Dec 2021	0.487	Dec 2022	-		0.487	Continuing	Continuing	-
SOSA Hardware Development (3)	SS/CPFF	MIT/LL : Boston, MA	-	0.130	May 2021	-		-		-		-	Continuing	Continuing	-
SOSA Hardware Development (4)	SS/CPFF	GTRI Conformance : Atlanta, GA	-	0.300	Dec 2020	-		-		-		-	Continuing	Continuing	-
SOSA Hardware Development (5)	SS/CPFF	GTRI H/W Dev : Atlanta, GA	-	0.550	May 2021	-		-		-		-	Continuing	Continuing	-
SOSA Hardware Development (6)	SS/CPFF	BAH : Baltimore, MD	-	0.300	Dec 2020	-		-		-		-	Continuing	Continuing	-
SOSA Hardware Development (7)	SS/CPFF	GTRI Hardware Upgrade : Atlanta, GA	-	0.300	Dec 2020	-		-		-		-	Continuing	Continuing	-
SOSA Hardware Development (8)	SS/CPFF	Leitos : Dayton, OH	-	0.600	Dec 2020	0.200	Dec 2021	0.200	Dec 2022	-		0.200	Continuing	Continuing	-
SOSA Hardware Development (9)	SS/FFP	Spectranetix/Pacific Def : El Segundo, CA	-	10.000	Mar 2021	-		-		-		-	0.000	10.000	-
Subtotal			-	13.796		0.639		0.687		-		0.687	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 (PMA)	Various	Not specified. : TBD	-	0.095	Jul 2021	0.095	Dec 2021	0.095	Dec 2022	-		0.095	Continuing	Continuing	-
Subtotal			-	0.095		0.095		0.095		-		0.095	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022						
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems					Project (Number/Name) 672003 / Sensors Open System Architecture							
					Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals					-	13.891		0.734		0.782		-		0.782	Continuing	Continuing	N/A

**Remarks**

In FY2021, PE 0305206F, (Airborne Reconnaissance Systems), Project 674818, (Imaging and Targeting Support) efforts related to System Open System Architecture were transferred to Project 672003, (Sensor Open System Architecture) in order to provide greater visibility and transparency.

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems					Project (Number/Name) 672003 / Sensors Open System Architecture			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Sensors Open System Architecture																												
Technical Standard Publications (Semi-Annual Deliveries)																												
SOSA Demonstration																												
SIL Activites																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 672003 / Sensors Open System Architecture

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Sensors Open System Architecture</i>				
Technical Standard Publications (Semi-Annual Deliveries)	1	2022	4	2026
SOSA Demonstration	1	2022	4	2026
SIL Activites	1	2022	4	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 674820 / Sensor Development			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674820: Sensor Development	-	72.874	54.344	48.692	0.000	48.692	15.085	0.000	0.000	0.000	0.000	190.995
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Sensors Development project increases the range and collection capability, interoperability and processing of the Advanced Synthetic Aperture Radar Systems (ASARS) through design, development, testing, and fielding efforts. The Sensors Development efforts advance the capability of ASARS for U-2 employment, and is a critical component for the multi-INT Next Generation Sensors, project 672001, efforts. ASARS-2B (front-end) & ASARS-2C (back-end) efforts provide critical advancements and risk reduction in SAR/Moving Target Indication capability to be implemented in the future multi-INT, platform agile capability that Next Generation Sensors will provide.												
The ASARS effort is a fifth generation, deep-look, high-altitude, ISR radar that is the foundation for the radar component of the Next Generation Sensors (NGS) family of systems as outlined in the AFROC approved ASARS-2C draft Capabilities Development Document (CDD). ASARS-2B (front-end) is the antenna and receiver exciter replacement. The ASARS-2C (back end) data processing efforts extend the ASARS-2B (front-end) radar capability using open architecture data processing and multi-platform integration. Open architecture improves performance and lowers cost by facilitating and enabling qualified third party software vendors to incorporate future multi-ISR capability to advance interoperability across joint operations. ASARS increases current capability and addresses National Defense Strategy Key Operational Problems and ISR Dominance flight plan.												
This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. 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 2021	FY 2022	FY 2023	
Title: Advanced Synthetic Aperture Radar System (ASARS)-2B (front-end)									72.874	30.344	48.692	
Description: Develop, design, fabricate, integrate, test and field deep look high altitude ISR radar capabilities.												
FY 2022 Plans:												
- Continue to develop, design, fabricate, integrate, test and field deep look high altitude ISR radar capabilities.												
FY 2023 Plans:												
- Finalize development, design, fabrication, integration and initial flight test for deep look high altitude ISR radar capabilities												
FY 2022 to FY 2023 Increase/Decrease Statement:												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0305206F / Airborne Reconnaissance Systems			<b>Project (Number/Name)</b> 674820 / Sensor Development		

  

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
FY2023 slight decrease as program shifts to system design completion, system integration and complete flight testing necessary for system fielding			
<b>Title:</b> Advanced Synthetic Aperture Radar System (ASARS)-2C (back-end) <b>Description:</b> Integrate open radar processing architectures for enhanced RF capabilities and third party mode development.  <b>FY 2022 Plans:</b> - Mature standards and technologies, and complete acquisition strategy for enhanced RF capabilities and third party mode development.  <b>FY 2023 Plans:</b> - Integrate, test and field deep look high altitude ISR radar capabilities.	0.000	0.000	0.000
<b>Accomplishments/Planned Programs Subtotals</b>	72.874	30.344	48.692

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• RDTE 07 PE 0305202F: <i>Dragon U-2</i>	18.660	18.319	0.000	-	0.000	0.000	0.000	0.000	-	Continuing	Continuing
<b>Remarks</b> A portion of the funding within the U-2 RDT&E line will be used to advance ASARS development / design/fabrication/integration/demonstration/testing and fielding deep look high altitude ISR radar capabilities.											
<b>D. Acquisition Strategy</b> ASARS / High Altitude SAR technology maturation is conducted by Air Force Life Cycle Management Center/Intelligence, Surveillance, and Reconnaissance and Special Operations Forces (AFLCMC/WIN), in conjunction and cooperation with AFLCMC/WIA (Robins AFB) for test support. Acquisition strategy is to maximize commercial and national development efforts and investment through multiple contracting methods, including but not limited to the use of engineering change proposals to modify existing contracts and new contracts that were awarded both competitively or on a sole source basis.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems						Project (Number/Name) 674820 / Sensor Development					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
ASARS-2B (front-end)	SS/CPIF	Raytheon : El Segundo, CA	-	72.774	Nov 2020	54.194	Nov 2021	48.542	Nov 2022	-		48.542	Continuing	Continuing	-		
ASARS-2C (back-end)	SS/CPFF	Raytheon : El Segundo, CA	-	0.000	Jul 2021	-		-		-		-	Continuing	Continuing	-		
Subtotal			-	72.774		54.194		48.542		-		48.542	Continuing	Continuing	N/A		
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
PMA	Various	Not specified. : TBD	-	0.100	Jan 2021	0.150	Jan 2022	0.150	Jan 2023	-		0.150	Continuing	Continuing	-		
Subtotal			-	0.100		0.150		0.150		-		0.150	Continuing	Continuing	N/A		
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals			-	72.874		54.344		48.692		-		48.692	Continuing	Continuing	N/A		
Remarks																	

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0305206F / Airborne Reconnaissance Systems		<b>Project (Number/Name)</b> 674820 / Sensor Development	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>ASARS-2B</b>																												
ASARS-2B EMD																												
-- NRE Contract Award (Feb 2019)																												
-- PDR (Dec 2019)																												
-- CDR (Jul 2020)																												
<b>ASARS-2C</b>																												
ASARS-2C																												
-- Tech Maturation																												
-- NRE Contract Award (Dec 2021)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 674820 / Sensor Development

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>ASARS-2B</b>				
ASARS-2B EMD	1	2021	4	2024
-- NRE Contract Award (Feb 2019)	1	2021	1	2021
-- PDR (Dec 2019)	1	2021	1	2021
-- CDR (Jul 2020)	4	2021	4	2021
<b>ASARS-2C</b>				
ASARS-2C	3	2021	4	2022
-- Tech Maturation	3	2021	3	2022
-- NRE Contract Award (Dec 2021)	1	2022	1	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 675092 / JTC/SIL MUSE			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675092: JTC/SIL MUSE	-	3.574	3.593	3.784	0.000	3.784	3.860	3.933	4.015	4.104	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The Multiple Unified Simulation Environment (MUSE) is the DoD flight simulation/training system of choice for many Unmanned Aircraft Systems (UAS), RPA, and airborne platforms. MUSE is also known as the Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) in its Air Force training application. The MUSE/AFSERS is a software suite that simulates UAS/RPA (e.g., MQ-9) systems, tailored air vehicle & data links, and visualization systems used for payload product outputs-including Full Motion Video (FMV), Fixed Frame Imagery (FFI), Ground Moving Target Indicator (GMTI) data, and Link 16 (J2.2 and J3.5) tracking messages. Outputs are compliant with applicable DoD standards and are continually tested against actual ground data processors to ensure DoD systems interoperability.

The Services and Combatant Commanders have a requirement for training with a system that provides a real-time simulation environment containing multiple domain systems that can be integrated with larger force-on-force simulations. The MUSE creates a realistic operational environment supporting military utility assessment, architecture, and employment concept development. Training, Tactics, Techniques and Procedures (TTP) refinement, practice Processing, Exploitation and Dissemination (PED) of multi-domain information. Conduct emerging concepts experimentation, optimizing Command, Control, Communications, and Computing (C4) with warfighting exercises and experiments. MUSE is the preferred UAS/RPA simulation system used by US Combatant Commanders and Joint Services to support command and battle staff C4 training.

The MUSE also creates a realistic operational environment that supports: an embedded training capability for new UAS/RPA system Program Managers; tools to minimize acquisition and life cycle cost and schedule impacts. MUSE conducts emerging concepts experimentation, future systems exploration, systems integration, and technology insertion; applications for Joint and Service-specific warfighting exercises; and C4 training optimization.

MUSE is currently used by all Services and most unified commands simulating MQ-1, MQ-9, RQ-4, MQ-1C, M/RQ-5, RQ-7, national and commercial satellite systems, P-3, E-8 and the U-2 during warfighting exercises. The AFSERS provides National Imagery Transmission Format (NITF) information for simulated data collection systems, supporting PED training. The MUSE is also used as a mission rehearsal tool for current, on-going military combat operations. Most of the MUSE/AFSERS software suite components are also used in multiple airborne platform system training devices. Including the MQ-9 [Medium Altitude Long Endurance Tactical (MALET) JSIL Aircrew Trainer (MJAT)] and RQ-4 [Global Hawk Sensor Operator Part Task Trainer (GHSOPPTT), and Global Hawk Weapon System Trainer (WST)].

The Joint Technology Center/Systems Integration Laboratory (JTC/SIL) is the training center of excellence supporting UAS and RPA programs for the Services. JTC/SIL provides the system engineering, test and integration, interoperability, rapid technology insertion to address MUSE training requirements. The JTC/SIL combines the UAS/RPA knowledge of communications standards (such as STANAGs 4586, 4607, 4545 and 4609) with Hardware in the Loop (HIL) testing, MUSE, integrating with other DoD modeling and simulation (M&S) architectures. For those airborne assets normally not available for training, the JTC/SIL provides surrogate systems and interfaces. The JTC/SIL contributes to the distributed training environments, virtually linking participants from various locations worldwide, and are routinely supported

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675092 / JTC/SIL MUSE		
within the MUSE architecture. The JTC/SIL continues to develop leading edge technologies supporting the rapidly evolving UAS/RPA training requirements required to support NDS future fighting force.				
MUSE project funds may be utilized to cover the GCWG Secretariat, studies and analysis activities, supporting current program planning, execution, and future program planning.				
This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. 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 2021	FY 2022	FY 2023
Title: Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) Development		3.574	16.093	3.784
Description: DoD's simulation/training system of choice for Intelligence Surveillance and Reconnaissance (ISR)systems, sensors, and platforms. Includes AFSERS, Common Ground Station Interface, and infrastructure support.				
FY 2022 Plans: JTC/SIL: - Continue support and release of MUSE/AFSERS RPA and ISR simulation capability supporting theater level exercises such as Dong Maeng (formerly Ulchi Freedom Guardian and Key Resolve), Yama Sakura, Talisman Saber, Pacific Sentry/Fury, Austere Challenge, and associated events. - Continue incorporation of mandated Cyber Security updates. - Continue support of CAFDMO SPRs - Continue architecture software optimization and modularization to facilitate extensibility and scalability. - Continue integrate the high fidelity SAR model into the MUSE/AFSERS baseline which provides realistic imagery based upon material encoded terrain. - Continue integration testing with designated federations (ASCCE,) ensuring joint interoperability with services and JS/J7 capabilities. - Perform DMON Integration: Support CAFDMO SPRs for AFSERS; Integration/Testing at Distributed Training Centers - Develop and integrate Electronic Warfare (EW) modeling and simulation capabilities to include GPS Denied - Enhance and integrate UAS Swarming modeling and simulation				
FY 2023 Plans: - Will continue to update sensor models and release new MUSE/AFSERS versions to reflect evolving RPA and ISR improvements to support theater level exercises such as CCPT (formerly Ulchi Freedom Guardian and Key Resolve), Yama Sakura, Talisman Saber, Pacific Sentry/Fury, Austere Challenge, and associated events. - Will continue to rapidly respond to Cyber Security threats as they are identified. - Will continue to modify the MUSE/AFSERS to further compliance with all CAFDMO requirements				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0305206F / Airborne Reconnaissance Systems			<b>Project (Number/Name)</b> 675092 / JTC/SIL MUSE				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>		
<ul style="list-style-type: none"> <li>- Will continue to optimize software architecture and modularization to facilitate extensibility and scalability</li> <li>- Will continue to integrate a new high fidelity SAR model into the MUSE/AFSERS baseline which provides realistic imagery based upon material encoded terrain</li> <li>- Will continue to conduct integration testing with designated federations (such as ASCCE) to ensure joint interoperability with services</li> <li>- Will continue to perform DMON Integration: Support CAFDMO SPRs for AFSERS; Integration/Testing at Distributed Training Centers</li> <li>- Will continue to develop and integrate Electronic Warfare (EW) modeling and simulation capabilities to include GPS jamming effects.</li> <li>- Will continue to enhance and integrate UAS Swarming modeling and simulation</li> <li>- Will build new ISR platform simulations with multi-sensor capability to include P-3 ORION &amp; P-8 POSEIDON.</li> <li>- Will integrate new high fidelity MTI capabilities</li> </ul>											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to inflation.											
<b>Accomplishments/Planned Programs Subtotals</b>							3.574	16.093	3.784		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• RDTE 07 PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>	3.905	0.000	0.000	-	0.000	0.000	-	-	-	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
This is an enterprise services effort, jointly funded and centrally managed by the US Army. JTC/SIL falls under US Army Futures Command. US Army PE 0305204A funding ending after FY 2021. Additional continual Army funding expected from PEO STRI, JSJ7, exercise events, and other external Army users. AFLCMC/WIN MIPRs funds in support of Unmanned Aircraft Systems modeling and simulation efforts. The Air Force POC is Dr. Lillian-Campbell from AF Agency for Modeling & Simulation which falls under HAF/A3T.											

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0305206F / Airborne Reconnaissance Systems						<b>Project (Number/Name)</b> 675092 / JTC/SIL MUSE			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
AFSERS Development	MIPR	Redstone Arsenal : Huntsville, AL	-	3.474	Dec 2020	3.393	Dec 2021	3.584	Dec 2022	-		3.584	Continuing	Continuing	-
<b>Subtotal</b>			-	3.474		3.393		3.584		-		3.584	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Management Services	C/Various	Not specified. : TBD	-	0.100	May 2021	0.200	May 2022	0.200	May 2023	-		0.200	Continuing	Continuing	-
<b>Subtotal</b>			-	0.100		0.200		0.200		-		0.200	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	3.574		3.593		3.784		-		3.784	Continuing	Continuing	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems		Project (Number/Name) 675092 / JTC/SIL MUSE	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JTC/SIL MUSE																												
AFSERS Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675092 / JTC/SIL MUSE

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
JTC/SIL MUSE				
AFSERS Development	1	2021	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force Date: April 2022

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 675291 / Gorgon Stare			
-------------------------------------------	--	--	--	--	------------------------------------------------------------------------------------	--	--	--	------------------------------------------------	--	--	--

COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675291: Gorgon Stare	-	10.000	12.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The Gorgon Stare system is a podded airborne sensor suite that provides city-sized wide area airborne surveillance and was integrated on MQ-9 Reapers. The Air Force Requirements Oversight Council (AFROC) approved Air Combat Command's recommendation to transition Gorgon Stare from a Quick Reaction Capability (QRC) to an Air Force Enduring Capability in November 2014. Gorgon Stare's requirements are documented in the Gorgon Stare Wide Area Airborne Sensor draft Capabilities Development Document (CDD). The acquisition strategy for this Air Force podded sensor suite solution is sustainment of the current capability with any upgrades implemented via validated -1067s, Urgent Operational Needs, or requirements as documented in the program CDD.

Development efforts conducted with FY2020 Congressionally added funds included the continuation of the following capabilities: Tagging and Tracking Full Field of View (FFoV), Electro-optical (EO)/Infrared (IR) Co-Collect, Airborne Tip and Cue, and Image Quality Enhancements Phase II. Development efforts in FY 2021 used Congressionally-added funds to include the continuation of, MQ-9 Blk 5 Integration, FFoV tagging and tracking, and Airborne Tip and Cue Phase II capabilities. FY 2021 activities also included studies and analysis to support both current program planning and execution as well as future program planning.

Development efforts in FY 2022 include completing fielding of the "Theia" BLOS capability, continuing the EO/IR Co-Collect Phase III, Airborne Tip and Cue, FFoV tagging and tracking, Image Quality Enhancements Phase III efforts, and MQ-9 Block 5 Integration.

The acquisition program manager has the authority to redirect funding as necessary to meet Gorgon Stare current and emerging Combatant Commander requirements to better meet the war fighting objectives.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Gorgon Stare 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.

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

	FY 2021	FY 2022
<b>Congressional Add:</b> Gorgon Stare	10.000	12.500
<b>FY 2021 Accomplishments:</b> Development efforts in FY 2021 used Congressionally-added funds to include the continuation of, MQ-9 Blk 5 Integration, FFoV tagging and tracking, and Airborne Tip and Cue Phase II		

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0305206F / Airborne Reconnaissance Systems				<b>Project (Number/Name)</b> 675291 / Gorgon Stare			

  

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>
capabilities. FY 2021 activities also included studies and analysis to support both current program planning and execution as well as future program planning.		
<b>FY 2022 Plans:</b> Development efforts in FY 2022 include completing fielding of the "Theia" BLOS capability, continuing the EO/IR Co-Collect Phase III, Airborne Tip and Cue, FFoV tagging and tracking, Image Quality Enhancements Phase III efforts, and MQ-9 Block 5 Integration.		
FY 2022 will also see delivery of the remainder of the Theia pods, capable of providing BLOS capability to the Gorgon Stare system.		
<b>Congressional Adds Subtotals</b>	10.000	12.500

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 PRDTB3: MQ-9 UAS Payloads	63.500	55.200	0.000	-	0.000	0.000	0.000	-	-	0.000	118.700
• APAF 06 PRDTB3: Gorgon Stare	10.700	6.800	0.000	-	0.000	0.000	0.000	-	-	0.000	17.500

**Remarks**

**D. Acquisition Strategy**

The wide area airborne surveillance requirement is being delivered via the Gorgon Stare podded wide area motion imagery sensor suite integrated on the MQ-9 Reaper RPA. Gorgon Stare transitioned from a QRC to an Air Force Enduring Capability under AFROC authority in November 2014. The program is executed by the 645th Aeronautical Systems Group, Intelligence, Surveillance, and Reconnaissance and Special Operations Forces Directorate as a post-Milestone C program. The sensor suite will be sustained in its current configuration. Any future capability upgrades will be fielded as a result of validated -1067s or Urgent Operational Needs, or requirements as documented in the program CDD.

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force													<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7							<b>R-1 Program Element (Number/Name)</b> PE 0305206F / Airborne Reconnaissance Systems					<b>Project (Number/Name)</b> 675291 / Gorgon Stare			

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Gorgon Stare System Development	SS/CPFF	Sierra Nevada Corporation : Sparks, NV	-	10.000	Nov 2021	12.500	Jun 2022	-		-		-	Continuing	Continuing	10.000
<b>Subtotal</b>			-	10.000		12.500		-		-		-	Continuing	Continuing	N/A

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	10.000	12.500	-	-	-	Continuing	Continuing	N/A

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems						Project (Number/Name) 675291 / Gorgon Stare			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Gorgon Stare																												
EO/IR Co-Collect																												
Tagging and Tracking Full Field of View (FFoV)																												
Airborne Tip and Cue Phase II																												
Image Quality Enhancements Phase II																												
MQ-9 Block V Integration																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems	Project (Number/Name) 675291 / Gorgon Stare	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Gorgon Stare</b>				
EO/IR Co-Collect	1	2021	4	2022
Tagging and Tracking Full Field of View (FFoV)	1	2021	3	2022
Airborne Tip and Cue Phase II	1	2021	4	2022
Image Quality Enhancements Phase II	1	2021	2	2022
MQ-9 Block V Integration	4	2021	4	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 676025 / Data Compression			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
676025: Data Compression	-	9.528	11.523	0.100	0.000	0.100	5.491	5.641	8.410	8.597	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
<p>RDUCE provides efficient and integrated compression of airborne Intelligence, Surveillance, and Reconnaissance (ISR) sensor data, maximizing the use of limited bandwidth and delivering more data, faster to the tactical user in the field. RDUCE develops, tests, and integrates new sensor data compression software and hardware for current and emerging airborne and space-based ISR sensors. The program develops compression capabilities for manned and unmanned platforms, associated ground stations, and the Distributed Common Ground System (DCGS). RDUCE data products meet standard certification for use within the Department of Defense and Intelligence Community (IC) Geospatial Intelligence (GEOINT), Signals Intelligence (SIGINT), and Measurement and Signatures Intelligence (MASINT) collection disciplines.</p> <p>RDUCE activities include continuous studies, analysis, and updates to support program planning and execution. RDUCE also seeks to acquire certification of its data compression algorithms which includes acceptance into the DoD Information Technology Standards Registry (DISR). By ensuring compliance with appropriate standards governing bodies, RDUCE is always ready to satisfy new operational requirements.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.</p>												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023	
Title: Data Compression									9.528	11.523	0.100	
Description: The Data Compression effort provides the warfighter capabilities to efficiently compress ISR data and to enable dissemination in near-real time to tactical users through bandwidth-limited dissemination systems. The program focuses on current and emerging ISR sensors, including incorporation into open architectures like Common Open Architecture Radar Programs (COARPs), Future Airborne Capability Environment (FACE), and Sensor Open System Architecture (SOSA). The algorithms can be leveraged for any platform. For example, the HSI algorithm was selected by NASA to be included in an experimental system on the ISS. Outputs will meet standards certification for use within the DoD Geospatial, Signals and Measurement and Signatures Intelligence collection disciplines.												
FY 2022 Plans: - Prototype LIDAR and SIGINT modalities - Identify platform/sensor partners for initial test/integration across all sensor modes												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305206F / <i>Airborne Reconnaissance Systems</i>	<b>Project (Number/Name)</b> 676025 / <i>Data Compression</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>- Updates to address any issues or previously uncaptured use cases to ensure the compression algorithms are operationally relevant</li> <li>- Investigate EO/IR compression algorithms</li> <li>- Develop utilities to expedite intermediate file format generation for SAR Phase History Data integration</li> <li>- Complete LIDAR prototype</li> <li>- Transition into SIGINT Phase III and complete standards development for formal adoption</li> </ul> <p><b><i>FY 2023 Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Will provide continued updates and integration support for the mature TRL modalities (SAR, HSI, SAR Phase History, SIGINT)</li> <li>- Will initiate development of beta version of production ready LIDAR algorithm</li> <li>- SIGINT algorithm flight testing</li> <li>- FPGA hardware development to support SAR and HSI sensors</li> <li>- Will identify platform/sensor partners for initial test/integration across all sensor modes</li> <li>- Will update to address any issues or previously uncaptured use cases to ensure the compression algorithms are operationally relevant</li> </ul> <p><b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> FY23 decreased due to higher Air Force priorities.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		9.528	11.523
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
Data Compression program is conducted by Air Force Life Cycle Management Center/ Intelligence, Surveillance, and Reconnaissance and Special Operations Forces (AFLCMC/WIN). Acquisition strategy is to develop data compression hardware/software, and data compression standards for various ISR applications to include airborne, ground stations, data storage facilities, and exploitation tools. RDUCE will utilize existing contracts with full and open competition where appropriate. Integration will be accomplished by the requisite program offices.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 676025 / Data Compression					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LIDAR	Various	Various : Various	-	1.000	Nov 2020	1.715	Mar 2022	0.010	Apr 2023	-		0.010	Continuing	Continuing	-
SIGzip	Various	Various : Various	-	1.000	Feb 2021	1.000	Mar 2022	0.010	Apr 2023	-		0.010	Continuing	Continuing	-
EO/IR	Various	Various : Various	-	0.500	Mar 2021	1.200	Apr 2022	-		-		-	Continuing	Continuing	-
zPHD	Various	Various : Various	-	-		-		0.010	Apr 2023	-		0.010	Continuing	Continuing	-
Subtotal			-	2.500		3.915		0.030		-		0.030	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Standardization Development	C/CPAF	Various : Various	-	-		-		0.040		-		0.040	0.000	0.040	-
Standardization Development (FLEX)	C/CPAF	Various : Various	-	0.600	Apr 2021	0.500	Feb 2022	0.000		-		0.000	Continuing	Continuing	-
Standardization Development (SARzip)	C/CPAF	Various : Various	-	0.600	Apr 2021	0.500	Feb 2022	0.000		-		0.000	Continuing	Continuing	-
Standardization Development (zPHD)	C/CPAF	Various : Various	-	0.500	Apr 2021	0.500	Feb 2022	0.000		-		0.000	Continuing	Continuing	-
New Mode Phase I	C/CPAF	Various : Various	-	0.100	Jan 2021	-		-		-		-	Continuing	Continuing	-
Standardization Development (SIGzip)	C/CPAF	Various : Various	-	-		-		0.000		-		0.000	Continuing	Continuing	-
Subtotal			-	1.800		1.500		0.040		-		0.040	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ADDA Lab	C/CPAF	Various : Various	-	0.795	Mar 2021	0.796	Feb 2022	0.005	Apr 2023	-		0.005	Continuing	Continuing	-
COMPASE Lab	C/CPAF	Various : Various	-	0.200	Feb 2021	0.250	Jan 2022	0.005	Apr 2023	-		0.005	Continuing	Continuing	-
Integration Activities	C/CPAF	Various : Various	-	3.251	Nov 2020	4.047	Jan 2022	0.000	Apr 2023	-		0.000	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305206F / Airborne Reconnaissance Systems				Project (Number/Name) 676025 / Data Compression					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Subtotal			-	4.246		5.093		0.010		-		0.010	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PMA: Other Govt Cost	Various	Not specified. : TBD	-	0.982	Oct 2020	1.015	Oct 2021	0.020	Oct 2022	-		0.020	Continuing	Continuing	-
Subtotal			-	0.982		1.015		0.020		-		0.020	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	9.528		11.523		0.100		-		0.100	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force										<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0305206F / Airborne Reconnaissance Systems					<b>Project (Number/Name)</b> 676025 / Data Compression			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>RDUCE</b>																												
LIDAR																												
SIGINT																												
COMPASE Lab																												
ADDA Lab																												
Standardization Development																												
Standardization Development (SARzip)																												
Standardization Development (FLEX)																												
Standardization Development (zPHD)																												
Standardization (SIGzip)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305206F / <i>Airborne Reconnaissance Systems</i>	<b>Project (Number/Name)</b> 676025 / <i>Data Compression</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>RDUCE</b>				
LIDAR	1	2021	4	2027
SIGINT	1	2021	4	2027
COMPASE Lab	1	2021	4	2027
ADDA Lab	1	2021	4	2027
Standardization Development	1	2021	4	2027
Standardization Development (SARzip)	2	2021	4	2027
Standardization Development (FLEX)	2	2021	4	2023
Standardization Development (zPHD)	2	2021	4	2023
Standardization (SIGzip)	1	2023	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305207F I Manned Reconnaissance Systems							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	14.679	14.799	14.590	0.000	14.590	15.902	16.198	16.539	16.907	Continuing	Continuing
674754: RC-135 Systems	-	14.679	14.799	14.590	0.000	14.590	15.902	16.198	16.539	16.907	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

RC-135 operational systems development and enhancement activities support design studies, engineering analysis, non-recurring engineering and other efforts associated with the integration and modification of the RC-135 programs and their specialized mission systems, both air and ground. Associated ground systems include RIVET JOINT Ground Data Processing Systems (GDPS), Distributed Mission Shelters (DMS), Mission Crew Training Systems (MCTS), Airborne Capabilities Extension System (ACES), and the Operational Flight Trainers (OFT, a.k.a. flight deck simulators). RC-135 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. Extensive utilization of Commercial-Off-The-Shelf (COTS) based solutions allows rapid fielding of needed capabilities through upgrades and supports Diminishing Manufacturing Sources (DMS)/Vanishing Vendor Items (VVI) logistics mitigation efforts. The results of these efforts provide for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations for integration into the various systems baseline configurations.

These activities are managed by the 645th Aeronautical Systems Group (645 AESG). The 645 AESG (a.k.a. BIG SAFARI) manages engineering, ground and support systems modifications, integration, flight testing, product assurance, acceptance testing, logistics, and training activities.

Aircraft, sensor systems, and associated ground support system engineering planned for FY 2023 budget includes developmental planning, execution and support for the RC-135V/W RIVET JOINT Baselines 13 and 14 (BL-13 and BL-14), the RC-135U COMBAT SENT Baselines 6 and 7 (BL-6 and BL-7), and the RC-135S COBRA BALL BL-6 and BL-7 configurations. The world-wide challenge of keeping pace against technologically agile targets used by both nation and non-nation-state adversaries and the rapid evolution of COTS technologies demands a responsive and adaptive acquisition strategy for fielding incremental spiral upgrades and baseline capabilities that are logistically supportable at all locations. The 645 AESG uses an incremental baseline strategy to mitigate risk, find affordable solutions and field needed capabilities on the aircraft and associated ground support and training systems. Obsolescence and DMS/VVI logistical concerns are addressed with each baseline upgrade and assessed annually as part of the fleet sustainment responsibilities.

RIVET JOINT BL-13 upgrades consist of, but are not limited to, providing a continuous recording capability, Super Wideband Compressive Receiver (SWCR) and Nyquist Folding Receiver (NYFR), Communications, Navigation, and Surveillance - Air Traffic Management (CNS-ATM) avionics upgrades such as new autopilot, automated data system-broadcast (ADS-B) and Mode 5 identify friendly or foe (IFF) systems, and family of beyond-line-of-sight terminals (FAB-T) advanced extremely high frequency (AEHF) communications suite. RIVET JOINT BL-14 upgrades consist of, but are not limited to, scalable processor improvements, ELINT digital receiver, Millimeter Wave capability, and augmented Remote Maintenance.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0305207F I Manned Reconnaissance Systems	
<p>COMBAT SENT BL-6 developmental enhancements consist of, but are not limited to, steerable beams for the COMINT sub-system, improved SWCR capability and specific emitter identification (SEI) electronic intelligence (ELINT) sub- system, Primary Sensor Measurement System (PRISMS) merge with manual precision collections, millimeter wave and low band capabilities with PRISMS, digitizing antennas, direction finding of High Frequency signals and expanded streaming audio services and 360 degree aircraft tracking system.</p> <p>COBRA BALL BL-7 developmental enhancements consist of, but are not limited to, software updates to the MASINT collection system (MCS), full sized optical windows, migration of the common RIVET JOINT hardware and software, increased recording capacity, redesign of the FISINT collection system, and software upgrades to optimize scan patterns against specific target sets. After BL-7, COBRA BALL baselines will mirror the RIVET JOINT baseline being integrated into the COBRA BALL baseline. After BL-7, the next COBRA BALL baseline will be BL-14.</p> <p>Ground Systems Baseline upgrades add the capabilities found in the corresponding RIVET JOINT Baseline upgrades (i.e., RIVET JOINT BL-12 corresponds to Ground System BL-12, RIVET JOINT BL-13 corresponds to Ground System BL-13, RIVET JOINT BL-14 corresponds to Ground System BL-14) to the Ground Systems to ensure crews receive training on the appropriate mission system configurations.</p> <p>Activities also include studies and analysis to support both current program planning and execution and future program planning.</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 PY 0.00M was expended for civilian pay expenses in this program element, and in CY 0.00M is forecasted for civilian pay expenses in this program element.</p> <p>The FY 2023 funding request was reduced by \$0.959 million to account for the availability of prior year execution balances.</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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305207F I Manned Reconnaissance Systems				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	14.684	14.799	0.000	0.000	0.000	
Current President's Budget	14.679	14.799	14.590	0.000	14.590	
Total Adjustments	-0.005	0.000	14.590	0.000	14.590	
• 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	-0.005	0.000	14.590	0.000	14.590	
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 FY 2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Manned Reconnaissance Systems				14.679	14.799	14.590
Description: Non-recurring engineering (NRE) for Baseline system developments and enhancements to improve mission capabilities of the RIVET JOINT BL-14 and BL-15, COMBAT SENT BL-6, COBRA BALL BL-7, and Ground Systems BL-13 and BL-14.						
FY 2022 Plans: • Continue Engineering Analysis • Continue NRE and other efforts associated with the integration and modification of the RC-135 primary mission equipment • Continue Specialized Mission Systems development for the collection of both air and ground signals.						
FY 2023 Plans: Will initiate contracts to: • Continue Engineering Analysis • Continue NRE and other efforts associated with the integration and modification of the RC-135 primary mission equipment • Continue Specialized Mission Systems development for the collection of both air and ground signals.						
FY 2022 to FY 2023 Increase/Decrease Statement:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0305207F / <i>Manned Reconnaissance Systems</i>							
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>										<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Minor increase in cost due to inflation.												
<b>Accomplishments/Planned Programs Subtotals</b>										14.679	14.799	14.590
<b>D. Other Program Funding Summary (\$ in Millions)</b>												
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	
• APAF 05 Line Item DARP01: RC-135	191.332	207.596	212.828	-	212.828	219.499	220.967	224.045	228.860	Continuing	Continuing	
• APAF 06 Line Item DARP01: <i>Initial Spares/Repair Parts</i>	51.282	51.305	25.661	-	25.661	55.452	55.903	56.741	57.970	Continuing	Continuing	
• APAF 07 Line Item DARP01: <i>Aircraft Support Equipment &amp; Facilities</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing	
• OPAF 04 Line Item 846070: <i>DARP RC-135</i>	27.663	27.359	28.153	-	28.153	28.798	29.430	30.319	30.987	Continuing	Continuing	
• RDTE 07 PE 0304260F: <i>Airborne SIGINT Enterprise</i>	45.066	45.274	42.439	-	42.439	43.345	41.598	45.233	46.344	Continuing	Continuing	
<b>Remarks</b>												
<b>E. Acquisition Strategy</b>												
<p>The RC-135 RIVET JOINT, COBRA BALL, and COMBAT SENT configured aircraft are maintained and kept technologically relevant through an incremental baseline upgrade acquisition strategy. Technology upgrades and Quick Reaction Capability (QRC) developments are acquired through the 645 AESG in accordance with the BIG SAFARI Program Management Directive (PMD) and Class Justification and Approval (J&amp;A) document for acquisition of supplies and services using an "other than full and open competition" criteria. The supplies and services procured by 645 AESG satisfy National Security requirements (FAR 6.302-6) through the use of their standing J&amp;A or address Unusual and Compelling Urgency requirements (FAR 6.302-2) through an individually prepared J&amp;A supported by the BIG SAFARI Life Cycle Management Plan (LCMP) across the full spectrum of system life cycle management from developmental engineering to system retirement ("cradle to grave") support. Due to the ever changing threat and rapidly evolving electromagnetic combat environment encountered during our prolonged commitment to Overseas Contingency Operations (OCO), the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging Combatant Command (CCMD) and/or Intelligence Community (IC) requirements to better meet the war fighting objectives.</p>												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305207F / Manned Reconnaissance Systems						Project (Number/Name) 674754 / RC-135 Systems			
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	SS/CPAF	Not specified. : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
Operational Systems Development	SS/ Various	L3Harris Technologies : Greenville, TX	-	14.679	Dec 2020	14.799	Dec 2021	14.590	Dec 2022	-		14.590	Continuing	Continuing	-
Subtotal			-	14.679		14.799		14.590		-		14.590	Continuing	Continuing	N/A
Remarks															
All activity is based around the Programmed Depot Maintenance (PDM) airframe and missions systems schedule which includes multiple contracts and organizations with overlapping and continuous periods of performance. Due to the rapidly changing threat environment encountered during our prolonged commitment to Overseas Contingency Operations (OCO), the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging Combatant Command (CCMD) and/or Intelligence Community (IC) requirements.															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	14.679		14.799		14.590		-		14.590	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0305207F / Manned Reconnaissance Systems

## Project (Number/Name)

674754 / RC-135 Systems

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Baseline Spiral Development</b>																												
RIVET JOINT Baseline 13 Integration, Test and Fielding																												
RIVET JOINT Baseline 14 Development																												
RIVET JOINT Baseline 14 Integration, Test and Fielding																												
RIVET JOINT Baseline 15 Development																												
RIVET JOINT Baseline 15 Integration, Test and Fielding																												
RIVET JOINT Baseline 16 Development																												
COMBAT SENT Baseline 6 Integration, Test and Fielding																												
COMBAT SENT Baseline 7 Development																												
COBRA BALL Baseline 7 Integration, Test and Fielding																												
COBRA BALL Baseline 14 Development																												
COBRA BALL Baseline 14 Integration, Test and Fielding																												
COBRA BALL Baseline 15 Development																												
COBRA BALL Baseline 15 Integration, Test and Fielding																												
Ground Systems Baseline 14 Development, Integration, Test and Fielding																												
Ground Systems Baseline 15 Development, Integration, Test and Fielding																												

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0305207F / Manned Reconnaissance Systems

## Project (Number/Name)

674754 / RC-135 Systems

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Baseline Spiral Development</b>				
RIVET JOINT Baseline 13 Integration, Test and Fielding	1	2021	2	2023
RIVET JOINT Baseline 14 Development	1	2021	2	2022
RIVET JOINT Baseline 14 Integration, Test and Fielding	2	2022	1	2026
RIVET JOINT Baseline 15 Development	4	2022	4	2024
RIVET JOINT Baseline 15 Integration, Test and Fielding	4	2024	4	2027
RIVET JOINT Baseline 16 Development	1	2025	4	2027
COMBAT SENT Baseline 6 Integration, Test and Fielding	1	2021	3	2024
COMBAT SENT Baseline 7 Development	1	2024	3	2026
COBRA BALL Baseline 7 Integration, Test and Fielding	1	2021	4	2023
COBRA BALL Baseline 14 Development	3	2022	3	2024
COBRA BALL Baseline 14 Integration, Test and Fielding	3	2024	2	2026
COBRA BALL Baseline 15 Development	2	2024	2	2026
COBRA BALL Baseline 15 Integration, Test and Fielding	2	2026	4	2027
Ground Systems Baseline 14 Development, Integration, Test and Fielding	1	2021	2	2023
Ground Systems Baseline 15 Development, Integration, Test and Fielding	4	2022	1	2026

**Note**

Ground systems include the RIVET JOINT Mission Crew Training Systems (MCTS), Ground Data Processing System (GDPS), Modular Processing System (MPS), Airborne Capabilities Extension Systems (ACES) and Operational Flight Trainers (OFT). Baseline upgrades are determined by the aircraft programmed depot maintenance schedule. Hardware, firmware or software enhancements to the ground systems are set up to match the aircraft baseline upgrades. Typically, baseline configuration changes and enhancements are incorporated first into the MCTSs and OFTs, and then integrated into GDPS, MPS, and ACES. Delivery of the enhancements to the MCTSs and OFTs are planned to arrive concurrently, if not slightly prior, to the delivery of the first aircraft with an upgraded cockpit or mission system in a given baseline configuration to allow for aircrew and ground personnel training and qualification.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305208F I Distributed Common Ground/Surface Systems							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	14.126	24.568	26.901	0.000	26.901	27.452	27.965	28.554	29.189	Continuing	Continuing
674826: Common Imagery Ground / Surface Systems	-	14.126	24.568	26.901	0.000	26.901	27.452	27.965	28.554	29.189	Continuing	Continuing

## A. Mission Description and Budget Item Justification

Air Force Distributed Common Ground System (AF DCGS) is the Combat Air Force (CAF) weapon system for planning, direction, collection, processing, exploitation, production, dissemination, and problem centric, sensor-agnostic analysis of data. AF DCGS weapon system provides capabilities required to connect, direct and exploit sensors and transform multi-source/multi-domain data into actionable intelligence to find, fix, and target adversary forces and shorten the kill chain. AF DCGS is also a major component of the DoD DCGS, the system is designed to complement and interoperate with the DoD, Army, Navy and Marine Corps DCGS, and a key provider/consumer of the sensing grid and Joint All Domain C2 (JADC2) & Advanced Battle Management System (ABMS) Efforts. The AF DCGS mission is to provide Joint Task Force (JTF) Commanders, Air Component Commanders, Unified Commands, and other directed organizations with global, time-sensitive ISR across the spectrum of military operations.

AF DCGS is a multi-INT, federated weapon system (AN/GSQ-272) capable of exploiting intelligence data from manned platforms, remotely piloted aircraft (RPA), non-traditional ISR platforms, national and commercial satellites and other collection systems. AF DCGS serves as the main "Sense-Making" organization within the Air Force ISR Sensing Grid and has access to a multitude of sensors and data across the Intelligence Community, to include publicly available information (PAI). AF DCGS Analysts leverage Artificial Intelligence (AI)/Machine Learning (ML), Automation, Augmentation (AAA) technologies to focus their search for multi-source/multi-domain intelligence across the tactical/national sensor grid and within federated databases to enable target and problem centric, sensor-agnostic analysis and exploitation to address Joint operational requirements by providing a common means to provide intelligence to field commanders and in support of the Air Operations Center (AOC) mission requirements and supports the "kill chain across the full range of military operations". The DCGS analysts use all available data source and emerging capabilities, including AAA to enhance their understanding of intelligence/targeting problem sets and provide the required intelligence.

Currently, AF DCGS is composed of eight core sites (two active duty worldwide, three active duty regional and three Air National Guard regional), three remote Air Force Forces (AF FOR) sites, six SIGINT Distributed Mission Sites (four collocated with National Mission Partner), three Air National Guard full-motion video sites, three support sites, one training site, and three integration and test sites. AF DCGS currently supports ongoing operations from forward deployed and in-garrison CONUS and OCONUS-based locations. AF DCGS provides integrated ISR by providing quality, fused Geospatial Intelligence (GEOINT), Signals Intelligence (SIGINT), and Measurement and Signature Intelligence (MASINT) tailored to the warfighter for all levels of conflict.

In alignment with DoD and AF direction, AF DCGS is migrating to an open architecture to rapidly incorporate new technologies and tools to easily integrate new and/or improved sensor capabilities, as well as improved mission applications to meet emerging and urgent operational needs. AF DCGS is also aligned with USD(I)'s efforts to improve data sharing through its Common Data Fabric. AF DCGS integrates services and applications from both commercial-off-the-shelf and government-off-the-shelf sources to the maximum extent possible to fulfill operational requirements and data sharing requirements across the DoD DCGS community. AF DCGS consists of a hybrid cloud (mix of private on-premise and public commercial cloud) architecture.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>
<p>Program management consists of four ACAT III efforts: GEOINT Transformation, SIGINT Transformation, Multi-INT Infrastructure, and Network Infrastructure Transformation.</p> <p>1. GEOINT Transformation: Rapidly integrates new and updated GEOINT capabilities (Commercial Off-The-Shelf (COTS)/Government Off-The-Shelf(GOTS)/Custom software), enables quick/seamless integration of new sensors, data types, sensor planning, and command and control (C2) capabilities into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible.</p> <p>2. SIGINT Transformation: Rapidly integrates new and updated SIGINT capabilities (COTS/GOTS/Custom s/w), enables quick/seamless integration of new sensors, data types, sensor planning, command and control (C2) capabilities into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible.</p> <p>3. Multi-INT Transformation: Rapidly integrates new and updated enterprise applications (COTS/GOTS/Custom s/w), to include voice and chat communications, collaboration and situational awareness, multi-INT fusion, and data analytics capabilities (to include Artificial Intelligence/Machine Learning AI/ML, Automation, and Augmentation (AAA)). Also includes Intelligent Modeling and Predictive Analysis of Cyberspace Targeting (IMPACT) program, which develops concepts, Tactics/ Techniques/Procedures (TTPs) and technologies for synchronizing ISR and non-kinetic capabilities. Rapidly integrates new and updated data exchange and interoperability capabilities in support of USD(I)'s Common Data Fabric (CDF) Initiative. Addresses program office test and evaluation activities</p> <p>4. Network Infrastructure Transformation: Continue to update the AF DCGS infrastructure to a cyber-resilient, open, scalable, commercial-based, architecture, improving data ingest, transfer, and storage capabilities, collaboration, and content driven discovery. AF DCGS operates in a hybrid cloud environment, consisting of on Open Architecture (OA) DCGS Platform as a Service, on-premise/private cloud portion and Virtual ISR Integration Enclave (VI2E) unclassified, Secret and Top Secret environment as the commercial/public cloud portion. Network infrastructure transformation also handles integration of additional line of site capabilities.</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, and 0606398F. In FY21, \$0.000M was expended for civilian pay expenses in this program element, and in FY22, \$0.800M 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>FY 2023 Base</u></b>	<b><u>FY 2023 OCO</u></b>	<b><u>FY 2023 Total</u></b>
Previous President's Budget	14.126	24.568	0.000	0.000	0.000
Current President's Budget	14.126	24.568	26.901	0.000	26.901
Total Adjustments	0.000	0.000	26.901	0.000	26.901
• 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	26.901	0.000	26.901

**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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305208F / Distributed Common Groun d/Surface Systems				Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674826: Common Imagery Ground / Surface Systems	-	14.126	24.568	26.901	0.000	26.901	27.452	27.965	28.554	29.189	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Program management consists of four ACAT III efforts: GEOINT Transformation, SIGINT Transformation, Multi-INT Infrastructure, and Network Infrastructure Transformation.

1. GEOINT Transformation: Rapidly integrates new and updated GEOINT capabilities (GOTS/COTS and custom software), enables quick/seamless integration of new sensors, data types, sensor planning, and command and control (C2) capabilities into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible.

2. SIGINT Transformation: Rapidly integrates new and updated SIGINT capabilities (COTS/GOTS/Custom s/w), enables quick/seamless integration of new sensors, data types, sensor planning, command and control (C2) capabilities into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible.

3. Multi-INT Transformation: Rapidly integrates new and updated enterprise applications (COTS/GOTS/Custom s/w), to include voice and chat communications, collaboration and situational awareness, multi-INT fusion, and data analytics capabilities (to include Artificial Intelligence/Machine Learning AI/ML, Automation, and Augmentation (AAA)). Also includes Intelligent Modeling and Predictive Analysis of Cyberspace Targeting (IMPACT) program, which develops concepts, Tactics/Techniques/Procedures (TTPs) and technologies for synchronizing ISR and non-kinetic capabilities. Rapidly integrates new and updated data exchange and interoperability capabilities in support of USD(I)'s Common Data Fabric (CDF) Initiative. Addresses program office test and evaluation activities

4. Network Infrastructure Transformation: Continue to update the AF DCGS infrastructure to a cyber-resilient, open, scalable, commercial-based, architecture, improving data ingest, transfer, and storage capabilities, collaboration, and content driven discovery. AF DCGS operates in a hybrid cloud environment, consisting of on Open Architecture (OA) DCGS Platform as a Service, on-premise/private cloud portion and Virtual ISR Integrations Enclave (VI2E) unclassified, Secret and Top Secret environment as the commercial/public cloud portion. Network infrastructure transformation also handles integration of additional line of site capabilities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver AF DCGS 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, and 0606398F. In FY21, \$0.000M was expended for civilian pay expenses in this program element, and in FY22, \$0.800M is forecasted for civilian pay expenses in this program element.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>		
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 2021	FY 2022	FY 2023
<p><b>Title:</b> GEOINT Transformation</p> <p><b>Description:</b> The GEOINT Transformation effort rapidly integrates new and updated GEOINT capabilities (COTS/GOTS/Custom s/w), enables quick/seamless integration of new sensors, data types, sensor planning, and command and control (C2) capabilities and migrates GEOINT-specific applications into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>• Continue High Altitude (HA) and Full Motion Video (FMV) Agile Release Trains to rapidly develop, integrate and test new and updated GEOINT-specific capabilities on DCGS hybrid cloud environment.</li></ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"><li>• Will continue High Altitude (HA) and Full Motion Video (FMV) Agile Release Trains to rapidly develop, integrate and test new GEOINT-specific capabilities on DCGS hybrid cloud environment.</li></ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>Funding increased due to additional development of High Altitude GEOINT operator exploitation and HA FMV capabilities in the HA GEOINT Agile Release Train.</p>			0.500	2.000	5.484
<p><b>Title:</b> SIGINT Transformation</p> <p><b>Description:</b> The SIGINT Transformation effort rapidly integrates new SIGINT capabilities (COTS/GOTS/Custom s/w), enables quick/seamless integration of new sensors, data types, sensor planning, command and control (C2) capabilities and migrates SIGINT-specific applications into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>• Continue SIGINT Modernization Agile Release Train to rapidly develop and integrate new and updated SIGINT-specific capabilities into DCGS hybrid cloud environment.</li></ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"><li>• Will continue SIGINT Modernization Agile Release Train to rapidly develop and integrate new SIGINT-specific capabilities into DCGS hybrid cloud environment.</li></ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>			3.153	6.230	7.058

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023
Funding increased due to new development of SIGINT capabilities in the SIGINT Modernization Agile Release Train.					
<p><b>Title:</b> Multi-INT Transformation</p> <p><b>Description:</b> The Multi-INT-1 effort rapidly integrates new and updated enterprise applications (COTS/GOTS/Custom s/w), to include voice and chat communications, collaboration and situational awareness, multi-INT fusion, and data analytics capabilities (to include AI/ML, Automation, and Augmentation (AAA)). Also includes Intelligent Modeling and Predictive Analysis of Cyberspace Targeting (IMPACT) program, which develops concepts, Tactics/Techniques/Procedures (TTPs) and technologies for synchronizing ISR and non-kinetic capabilities. Addressees program office test and evaluation activities</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>• Continue to rapidly develop and integrate new and update Multi-INT and data analytics capabilities into DCGS hybrid cloud environment</li><li>• Continue agile development and fielding of IMPACT program capabilities</li><li>• Continue development of the Enterprise Collaboration Capability (Voice portion)</li><li>• Continue program office test and evaluation activities</li></ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"><li>• Will continue to rapidly develop and integrate new Multi-INT and data analytics capabilities into DCGS hybrid cloud environment</li><li>• Will continue agile development and field IMPACT program capabilities</li><li>• Will continue to rapidly develop and field ECC (Voice Portion)</li><li>• Will continue program office test and evaluation activities</li></ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>Funding decreased due to reduction in funding needed for Cross Domain Chat.</p>			9.973	14.338	12.032
<p><b>Title:</b> Network Infrastructure Transformation</p> <p><b>Description:</b> The Network Infrastructure Transformation effort continues to modernize the AF DCGS infrastructure to a cyber-resilient, open, scalable, commercial-based, architecture, improving data ingest, transfer, and storage capabilities, collaboration, and content driven discovery. AF DCGS operates in hybrid cloud environment, consisting on OA DCGS Platform as a Service, on premise/private cloud portion and Vi2E unclassified, Secret and Top Secret environment as the commercial/public cloud portion. Network infrastructure transformation also handles integration of additional line of site capabilities.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>• Continue to develop and integrate open architecture, mission-assured hybrid-cloud infrastructure and enterprise services.</li></ul> <p><b>FY 2023 Plans:</b></p>			0.500	2.000	2.327

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force								<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0305208F / <i>Distributed Common Ground / Surface Systems</i>				<b>Project (Number/Name)</b> 674826 / <i>Common Imagery Ground / Surface Systems</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	
<ul style="list-style-type: none"> <li>Will continue to develop and integrate open architecture, mission-assured hybrid-cloud infrastructure and enterprise services.</li> </ul>											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to additional development of Hybrid Cloud infrastructure and enterprise services.											
<b>Accomplishments/Planned Programs Subtotals</b>								14.126	24.568	26.901	
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 04 Line Item, 846080: DCGS-AF	117.940	136.296	137.971	-	137.971	133.545	34.336	74.637	143.680	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
AF DCGS acquisition strategy is to use approved lean and agile industry practices and leverage to the maximum extent possible commercial off the shelf, government off the shelf, and mission partner capabilities to continuously develop and field new and improved operational capabilities hosted on its open, hybrid cloud environment to meet mission requirements. Contracting strategy involves a combination of Basic Ordering Agreements (BOAs), Indefinite Delivery/Indefinite Quantity (IDIQ) contracts awarded to execute program funds and delivery/task orders are negotiated/awarded individually.											
The program is managed as four ACAT III efforts: GEOINT Transformation, SIGINT Transformation, Multi-INT-1, and Network Infrastructure Transformation.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>				Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
GEOINT Transformation	Various	Various : Various	-	0.500	May 2021	2.000	Feb 2022	5.184	Feb 2023	-		5.184	Continuing	Continuing	-
SIGINT Transformation	Various	Various : Various	-	2.038	Dec 2020	4.880	Dec 2021	6.658	Dec 2022	-		6.658	Continuing	Continuing	-
Multi-INT Transformation	Various	Various : Various	-	5.720	Dec 2020	8.983	Jan 2022	9.107	Jan 2023	-		9.107	Continuing	Continuing	-
Network Infrastructure Transformation	Various	Various : Various	-	0.500	Jun 2021	2.000	Jan 2022	2.327	Jan 2023	-		2.327	Continuing	Continuing	-
Subtotal			-	8.758		17.863		23.276		-		23.276	Continuing	Continuing	N/A
Remarks															
Note on "various" entries - Contract Method, Contract Type, Performing Activity, Target Value of Contract are entered as "various" because there are multiple projects within each upgrade and depending on the type of effort to be completed determines the contract vehicle to use. There is no way on this document to delineate the contracts that support each upgrade as they are numerous.															
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Multi-INT Transformation	Various	Various : Various	-	1.318	Jan 2021	1.405	Jan 2022	2.125	Jan 2023	-		2.125	Continuing	Continuing	-
DCA Positions	Various	Various : Various	-	-		0.800	May 2022	0.800	Mar 2023	-		0.800	Continuing	Continuing	-
Subtotal			-	1.318		2.205		2.925		-		2.925	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PMA	Various	Various : Various	-	4.050	Dec 2020	4.500	Dec 2021	0.700	Dec 2022	-		0.700	Continuing	Continuing	-
Subtotal			-	4.050		4.500		0.700		-		0.700	Continuing	Continuing	N/A
Remarks															
Note on "various" entries - Contract Method, Contract Type, Performing Activity, Target Value of Contract are entered as "various" because there are multiple projects within in each upgrade and depending on the type of effort to be completed determines the contract vehicle to use. There is no way on this document to delineate the contracts that support each upgrade as they are numerous.															

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force										<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>					<b>Project (Number/Name)</b> 674826 / <i>Common Imagery Ground / Surface Systems</i>			
	<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	-	14.126		24.568		26.901		-		26.901	Continuing	Continuing	N/A
<b>Remarks</b>													

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)			
3600 / 7								PE 0305208F / Distributed Common Ground/Surface Systems								674826 / Common Imagery Ground / Surface Systems			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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 Distributed Common Ground System																												
GEOINT Transformation HA and FMV Agile Release Trains (ART)																												
SIGINT Transformation ART																												
Multi-INT Transformation ART																												
Multi-INT Transformation: Enterprise Voice Communication Capability (ECC)																												
Multi-INT Transformation: Intelligent Modeling and Predictive Analysis of Cyberspace Targeting (IMPACT)																												
Network Infrastructure Transformation: OA Hybrid Cloud Services																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / <i>Distributed Common Ground/Surface Systems</i>	Project (Number/Name) 674826 / <i>Common Imagery Ground / Surface Systems</i>	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>AF Distributed Common Ground System</i></b>				
GEOINT Transformation HA and FMV Agile Release Trains (ART)	1	2021	4	2027
SIGINT Transformation ART	1	2021	4	2027
Multi-INT Transformation ART	1	2021	4	2027
Multi-INT Transformation: Enterprise Voice Communication Capability (ECC)	1	2021	4	2023
Multi-INT Transformation: Intelligent Modeling and Predictive Analysis of Cyberspace Targeting (IMPACT)	2	2021	4	2027
Network Infrastructure Transformation: OA Hybrid Cloud Services	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	163.278	83.124	68.801	0.000	68.801	68.208	12.947	0.000	0.000	0.000	396.358
675149: RQ-4 Capability Enhancements	0.000	163.278	83.124	68.801	0.000	68.801	68.208	12.947	0.000	0.000	0.000	396.358
Program MDAP/MAIS Code: 252												
A. Mission Description and Budget Item Justification												
USAF divested the Block 20 aircraft in FY21 and Block 30 aircraft in FY22. To win high-end conflict, the future AF design must deliver ISR capabilities and concepts of operation that can survive against peer/near-peer threats. To accomplish this in the FYDP the USAF will pivot to focus on Block 30 closeout actions and supporting the Block 40 fleet until its planned divestiture in FY27.												
This program element funds Air Force projects related to RQ-4 Block 40 and RQ-4 Capability Enhancements. The majority of the modernization funding was transferred to the Capability Enhancement project (675149) to support upgrades and modifications, including established ACAT I and II programs, to the fielded RQ-4 weapon system to meet evolving threats and warfighter requirements.												
When judged feasible and affordable, this program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Studies and activities may be initiated to further explore the utility of incorporating the emerging architectural standards such as the USAF Unmanned Aerial Systems (UAS) Command and Control Initiative (UCI) or the DoD's Unmanned Control Segment standards (UCS) and Open Mission Systems (OMS). Ground Segment Modernization Program (GSMP) will incorporate UCI and UCS standards.												
RQ-4 UAV 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 RQ-4 UAV capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY21 5.331M was expended for civilian pay expenses in this program element, and in FY22 5.8M 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.												

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	163.291	83.124	0.000	0.000	0.000
Current President's Budget	163.278	83.124	68.801	0.000	68.801
Total Adjustments	-0.013	0.000	68.801	0.000	68.801
• 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	-0.013	0.000	68.801	0.000	68.801

**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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675149 / RQ-4 Capability Enhancements			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675149: RQ-4 Capability Enhancements	0.000	163.278	83.124	68.801	0.000	68.801	68.208	12.947	0.000	0.000	0.000	396.358
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The RQ-4 Remotely Piloted Aircraft (RPA) provides a high altitude, deep look, long-endurance Intelligence, Surveillance, and Reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios.

Funding in this project supports design, development, integration, and testing of capabilities needed to meet validated requirements for RQ-4 aircraft, including continuing aircraft system upgrade for current and alternate sensor payloads, additional radar modes, reliability and maintainability improvements. Funding also supports continuing aircraft airframe updates, aircraft operations surety, cybersecurity, airspace and interoperability enhancements, information assurance, and mission critical repair of Government Furnished Equipment (GFE).

This project will include systems engineering/program management, configuration and data management, test and evaluation, management services, Deficiency Report (DR)/Military Intelligence Program (MIP) Investigations, studies and analysis and fielding support for RQ-4 aircraft and Ground Segment/Communication Systems. This reflects contracting/acquisition strategy for these common elements within the Global Hawk program to provide efficiencies.

Activities include airspace, interoperability and communication enhancements and updates, periodic Operational Flight Program updates and releases, airframe and software upgrades, sensor enhancements including data distribution and storage, support for demonstration and technology insertion, development and testing of ice protection system, enhanced mission flexibility to accommodate changes to mission objectives inflight, enhancements to support multi-domain contested environment operations, Authority to Operate surety enhancements, and studies and analysis supporting system enhancements.

The ground segment currently includes the Mission Control Elements (MCE), the Launch and Recovery Elements (LRE), and the networking resources required to disseminate intelligence information while remaining compliant with DoD cybersecurity network requirements to operate in the DoD Information Network (DoDIN).

Ground Segment Modernization Program (GSMP) resolves fleet grounding Diminishing Manufacturing Sources (DMS) and obsolescence issues associated with ground segment equipment and provides critical warfighter capabilities such as building-based multi-aircraft control. It will also enhance interoperability data dissemination as well as provide training capability. This funding also addresses DMS resolution for other mission critical equipment. Funding will support design, development, integration and testing of GSMP and the weapon system's legacy ground elements and communications capabilities to enhance functionality and maintain interoperability prior to GSMP fielding. Funding will also integrate Dynamic Mission Operations (DYNAMO), a waypoint modification system enhancement solution.

The RQ-4 program will maintain and upgrade interoperability for RQ-4 aircraft with system of systems partners and continue to incorporate applicable synergies with other platforms, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements. The networking capability for intelligence dissemination is required to provide the data transport interface between the Weapons System, Operations Centers, and external Intelligence Community customers.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements		
<p>When judged feasible and affordable, this program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Studies and activities may be initiated to further explore the utility of incorporating the emerging architectural standards such as the USAF Unmanned Aerial Systems (UAS) Command and Control Initiative (UCI) or the DoD's Unmanned Control Segment standards (UCS) and Open Mission Systems (OMS). GSMP will incorporate UCI and UCS standards.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver RQ-4 UAV weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605831F. In FY21 5.331M was expended for civilian pay expenses, and in FY22 5.8M is forecasted for civilian pay expenses in this program element.</p>				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<p><b>Title:</b> RQ-4 Ground Segment Modernization Program (GSMP)</p> <p><b>Description:</b> GSMP resolves fleet grounding DMS and obsolescence issues associated with ground segment equipment and provides critical warfighter capabilities such as building-based multi-aircraft control. It will also enhance interoperability data dissemination as well as provide training capability.</p> <p><b>FY 2022 Plans:</b></p> <p>-Conducting Test and Evaluation (DT&amp;E) of 2nd of 2 planned SW releases.</p> <p>-Conducting Operational Test and Evaluation (OT&amp;E) of system.</p> <p><b>FY 2023 Plans:</b></p> <p>-Will conduct Operational Test and Evaluation of GSMP system.</p> <p>-Will conduct development and testing of high priority corrections of deficiencies found during DT&amp;E and/or OT&amp;E.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>-Decrease due to development ramp down before production</p>		93.331	42.500	37.700
<p><b>Title:</b> RQ-4 Infrastructure</p> <p><b>Description:</b> RQ-4 Infrastructure includes system engineering, program management, test and evaluation, and fielding support for all RQ-4 projects as well as periodic Operational Flight Program (OFP) updates and releases, development testing, and Other Government Costs (OGC). This funding was previously included in the RQ-4 Capability Enhancements Accomplishment/Planned Program, including funding for the 412th TW at Edwards AFB, AFOTEC, JTIC DCGS and other interoperability partners. This supports Waypoint Modification - Dynamic Mission Operations (DYNAMO).</p> <p><b>FY 2022 Plans:</b></p> <p>- Supporting 2nd phase of Developmental Testing of GSMP</p> <p>- Supporting Operational Testing of GSMP</p>		69.947	40.624	31.101

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 675149 / RQ-4 Capability Enhancements	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
- Supporting Enterprise Services/Flight Test Services and Comm System Upgrades to aircraft and ground stations			
<b><i>FY 2023 Plans:</i></b> -Will support Operational Testing of GSMP. -Will support completion of DYNAMO testing. -Will support Enterprise Services/Flight Test Services and Comm System Upgrades to aircraft and ground stations.			
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> -Funding decreased due to test support ramp down for final development projects.			
<b>Accomplishments/Planned Programs Subtotals</b>	163.278	83.124	68.801

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item HAWK00: RQ-4 Mods	3.350	3.205	1.286	-	1.286	30.056	9.087	9.637	0.373	0.000	56.994
• APAF 07 Line Item RQ4DIS: RQ-4 Post Production Support	1.750	24.592	40.845	-	40.845	30.090	0.000	-	-	0.000	97.277

**Remarks**

**D. Acquisition Strategy**

The RQ-4 program uses an evolutionary acquisition strategy to provide the warfighter with a near-term combat capability with increased time-phased capability improvements as technology and risk achieve satisfactory levels. Northrop Grumman Corporation is the prime contractor developing and delivering the system to the warfighter. A suite of contract vehicles is used for development efforts: primarily, Indefinite Delivery, Indefinite Quantity (IDIQ) contracts cover development, system upgrade, production, retrofit, fielding, and sustainment efforts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force													Date: April 2022		
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675149 / RQ-4 Capability Enhancements					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
RQ-4 Ground Segment Modernization Program (GSMP)	SS/CPIF	Northrop Grumman Integrated Systems : San Diego, CA	0.000	81.489	Mar 2021	42.500	Oct 2021	37.700	Oct 2022	-		37.700	Continuing	Continuing	414.785
RQ-4 Infrastructure	Various	Various : Various	0.000	35.289	Mar 2021	25.034	Oct 2021	13.311	Oct 2022	-		13.311	Continuing	Continuing	203.878
RQ-4 Waypoint Modification	SS/CPIF	NGAS : San Diego, CA	0.000	29.000	Nov 2021	-		-		-		-	0.000	29.000	-
Subtotal			0.000	145.778		67.534		51.011		-		51.011	Continuing	Continuing	N/A
Remarks Target Value of the RQ-4 EMD, IDIQ, Infrastructure and EPIC Contracts are not segregated by Budget Project Number. Target Value of GSMP contract includes \$43.414M of funding in Budget Project Number 675147, RQ-4 Grnd Segment/Comm System															
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Non Prime Technical Support	Various	Various : Dayton, OH	0.000	1.290	Jan 2021	1.290	Jan 2022	1.290	Jan 2023	-		1.290	Continuing	Continuing	-
Subtotal			0.000	1.290		1.290		1.290		-		1.290	Continuing	Continuing	N/A
Remarks Target Value of the RQ-4 effort is not segregated by Budget Project Number.															
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Flight Test & Evaluation	MIPR	412 TW : Edwards AFB, CA	0.000	5.342	Feb 2021	10.000	Oct 2021	10.000	Oct 2022	-		10.000	Continuing	Continuing	-
Subtotal			0.000	5.342		10.000		10.000		-		10.000	Continuing	Continuing	N/A
Remarks Target Value of the RQ-4 effort is not segregated by Budget Project Number.															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675149 / RQ-4 Capability Enhancements					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSC: A&AS	Various	Various : Dayton, OH	0.000	4.200	Feb 2021	2.300	Oct 2021	3.500	Oct 2022	-		3.500	Continuing	Continuing	-
PSC: Other Government Costs	Various	Various : Dayton, OH	0.000	6.668	Oct 2020	2.000	Oct 2021	3.000	Oct 2022	-		3.000	Continuing	Continuing	-
Subtotal			0.000	10.868		4.300		6.500		-		6.500	Continuing	Continuing	N/A
Remarks															
Target Value of the RQ-4 effort is not segregated by Budget Project Number.															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	163.278		83.124		68.801		-		68.801	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0305220F / RQ-4 UAV					675149 / RQ-4 Capability Enhancements			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RQ-4 Capability Enhancements																												
Ground Segment Modernization Program Development and Test																												
RQ-4 Infrastructure & Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>RQ-4 Capability Enhancements</i>				
Ground Segment Modernization Program Development and Test	1	2021	1	2023
RQ-4 Infrastructure & Test	1	2021	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305221F I Network-Centric Collaborative Targeting							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	15.022	17.224	17.564	0.000	17.564	12.587	8.883	8.992	9.192	Continuing	Continuing
675197: NCCT Core Technology	-	15.022	17.224	17.564	0.000	17.564	12.587	8.883	8.992	9.192	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Network Centric Collaborative Targeting (NCCT) is the Air Force program of record for platform agnostic, cooperative geo-location and is responsible for developing the fusion engine supporting the horizontal and/or vertical integration of Joint Intelligence, Surveillance and Reconnaissance (ISR) sensor systems. The result of such integration is a multi-intelligence (multi-INT) sensor network. Operationally, NCCT provides a tactical collaborative multi-INT geolocation capability employed against high-value targets. NCCT software supports Machine-to-Machine (M2M) cross-cueing and Internet Protocol (IP) connectivity to coordinate collection activities across the NCCT network. NCCT correlation and fusion software ingests collection data to produce a single, composite track (geolocation and identification) in near real-time for high-value targets. NCCT research and development funding supports evolutionary studies and development of the NCCT message set and network management systems (for example Operations Interfaces, Network Controllers, Fusion Engines, Data Guards, Interface to Command & Control, and Interface to All-Domain Overhead Cooperative Operations (AOCO)), and global web-enabled services, while satisfying DoD standards and Information Assurance requirements.

NCCT includes network management software, a network messaging standard, correlation and fusion software, software supporting tactical-to-national Signals Intelligence (SIGINT) Concept of Operations (CONOPS), multi-level security hardware and software items and operator interfaces. Development funds support software modifications required for technology modernization specific to network and fusion architecture design, data fusion algorithms and cyber security, while keeping pace with evolving adversary tactics, techniques, and procedures (TTPs). FY 2023 funding will be dedicated to fully integrating DevSecOps across the NCCT cloud-enabled architecture to support rapid iteration across the enterprise with Joint All-Domain Command and Control (JADC2) platforms/systems, and enable the Air Force sensing grid. FY 2023 funding will also focus on the development of new multi-INT use cases, implementation of automation gained through synaptic intelligence based AI/ML, and the preservation of rapid software delivery based on continuous user feedback.

Due to the rapidly changing threat environment and operational demand from platforms leveraging NCCT capabilities, the acquisition program manager has the authority to redirect funding as necessary to meet currently stated and/or emerging/evolving operational requirements.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver NCCT 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. Activities encompassed within PME upgrade may include, but not limited to, assembly, test and checkout; mission system upgrades, external communications upgrades, software development, systems engineering, and program management administration (PMA) costs.

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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity		R-1 Program Element (Number/Name)				
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0305221F I Network-Centric Collaborative Targeting				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	15.022	17.224	0.000	0.000	0.000	
Current President's Budget	15.022	17.224	17.564	0.000	17.564	
Total Adjustments	0.000	0.000	17.564	0.000	17.564	
• 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	17.564	0.000	17.564	
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Core Technology				15.022	17.224	17.564
Description: Accomplishments and planned efforts include development and upgrade of NCCT; technical support to users, fielding new user capabilities, and management activities						
FY 2022 Plans:						
FY 2022 is completing the transition of NCCT to a cloud-enabled architecture, while supporting integration across the enterprise with Joint All-Domain Command and Control (JADC2) platforms & systems, and enabling the Air Force sensing grid. FY 2022 funding is also integrating multi-INT use cases while leveraging rapid software deliveries based on continuous user feedback.						
FY 2023 Plans:						
FY 2023 funding will be dedicated to fully integrating DevSecOps into the NCCT cloud-enabled architecture to support integration across the enterprise with Joint All-Domain Command and Control (JADC2) platforms/systems, and enable the Air Force sensing grid. FY23 funding will also focus on the development of new multi-INT use cases, implementation of automation gained through synaptic intelligence based AI/ML, and the preservation of rapid software delivery based on continuous user feedback.						
FY 2022 to FY 2023 Increase/Decrease Statement:						
FY23 increased due to inflation.						
Accomplishments/Planned Programs Subtotals				15.022	17.224	17.564

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force								Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development				R-1 Program Element (Number/Name) PE 0305221F I Network-Centric Collaborative Targeting							
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 Line Item 832070: Intelligence Comm Equipment	2.997	3.225	3.799	-	3.799	3.395	3.310	3.481	3.558	Continuing	Continuing
Remarks											
E. Acquisition Strategy											
<p>The Network-Centric Collaborative Targeting (NCCT) capabilities are developed, maintained and sustained through evolutionary upgrades and any Quick Reaction Capability derived requirements. The 645th Aeronautical System Group (645 AESG) has cradle to grave lifecycle management responsibility of NCCT and rapid acquisition authorities are executed in accordance with the 645 AESG's Program Management Directive (PMD), Class Justification and Approval (J&amp;A), and Life Cycle Management Plan (LCMP). Due to the rapidly changing threat environment and operational demand from platforms leveraging NCCT capabilities, the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging/evolving Combatant Commander requirements.</p> <p>645 AESG, Wright Patterson AFB OH, manages the Cost Plus Fixed Fee (CPFF) contracts used to develop NCCT Core Technology. 645 AESG will develop NCCT software on common hardware for systems and platforms designated to field this ISR capability. Individual platform program management offices may contract directly with their prime contractors or through the 645 AESG for integration of NCCT capabilities on their respective systems and platforms.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305221F / Network-Centric Collaborative Targeting						Project (Number/Name) 675197 / NCCT Core Technology					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
Core Technology Development B	SS/CPFF	L-3 ComCept : Rockwall, TX	-	14.122	Mar 2021	-		-		-		-	Continuing	Continuing	-		
Core Technology Development (Agile)	SS/CPFF	L-3 ComCept : Rockwall, TX	-	-		16.324	Mar 2022	16.664	Mar 2023	-		16.664	Continuing	Continuing	-		
Subtotal			-	14.122		16.324		16.664		-		16.664	Continuing	Continuing	N/A		
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
PSC	Allot	645 AESG : Dayton, OH	-	0.900	Mar 2021	0.900	Mar 2022	0.900	Mar 2023	-		0.900	Continuing	Continuing	-		
Subtotal			-	0.900		0.900		0.900		-		0.900	Continuing	Continuing	N/A		
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals			-	15.022		17.224		17.564		-		17.564	Continuing	Continuing	N/A		
Remarks																	

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force																<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7								<b>R-1 Program Element (Number/Name)</b> PE 0305221F / <i>Network-Centric Collaborative Targeting</i>								<b>Project (Number/Name)</b> 675197 / <i>NCCT Core Technology</i>			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Core Technology</b>																												
V5 Series Field Upgrades																												
V6 Development, Integration, and Test																												
V6 Series Fielding and Updates																												
V7 Development, Integration, and Test																												
V7 Series Fielding and Updates																												
V8 Development, Integration and Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305221F / Network-Centric Collaborative Targeting	Project (Number/Name) 675197 / NCCT Core Technology	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Core Technology				
V5 Series Field Upgrades	1	2021	2	2022
V6 Development, Integration, and Test	1	2021	2	2022
V6 Series Fielding and Updates	4	2022	1	2024
V7 Development, Integration, and Test	4	2022	1	2024
V7 Series Fielding and Updates	3	2023	4	2024
V8 Development, Integration and Test	4	2023	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305238F I NATO AGS							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	36.664	19.473	0.826	0.000	0.826	0.843	0.858	0.876	0.895	Continuing	Continuing
676001: NATO AGS	-	36.664	19.473	0.826	0.000	0.826	0.843	0.858	0.876	0.895	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

This program funds the U.S. contribution to the Alliance Ground Surveillance (AGS) system, a North Atlantic Treaty Organization (NATO), Direct Commercial Sale acquisition. AGS is an airborne ground surveillance capability that provides continuous, wide area surveillance in all weather conditions. It will provide NATO decision makers with near real time information and situational awareness concerning friendly, neutral and opposing ground and maritime forces to support mission planning and execution, including force protection and targeting. All NATO nations will have access to AGS collection data, creating opportunities for burden sharing with the processing and exploitation of Intelligence, Surveillance, and Reconnaissance (ISR) data.

The AGS program includes: air and ground segment acquisitions, operations of the NATO AGS Management Agency (NAGSMA), development of operations and support definition and establishment of an initial support capability. The air segment consists of five (5) air vehicles based on unique exportable configurations of the United States Air Force Global Hawk air frame, Navy Triton command and control architecture and the U.S. Multi-Platform Radar Technology Insertion Program (MP-RTIP) radar. The U.S. will also integrate new Maritime Moving Target and Inverse Synthetic Aperture Radar capability into the MP-RTIP radar for NATO AGS. The ground segment consists of fixed site and transportable/mobile ground stations for air vehicle Command and Control (C2), data exploitation and distribution. Operations and continuing In-Service Support will be funded through a future NATO Military Commanders' Capability Package funded within the NATO Security Investment Program (NSIP).

U.S. participation in NATO AGS was ratified by Secretary of Defense (SECDEF) signature/approval of the NATO AGS Program Memorandum of Understanding (PMOU) in June 2009 and includes 15 nations. In FY 2012, OSD transferred the NATO AGS program to the U.S. Air Force (USAF) for management and execution of the Research and Development effort.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver NATO AGS 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 PY \$0.00M was expended for civilian pay expenses in this program element, and in CY \$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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305238F / NATO AGS				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	36.664	19.473	0.000	0.000	0.000	
Current President's Budget	36.664	19.473	0.826	0.000	0.826	
Total Adjustments	0.000	0.000	0.826	0.000	0.826	
• 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	0.826	0.000	0.826	
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Design / Development of NATO Alliance Ground Surveillance (AGS)				0.254	4.384	0.200
Description: U.S. contribution to NATO for AGS development acquisition and initial fielding. Supports configuration changes at a system level and air vehicle exportability modifications.						
FY 2022 Plans:						
- Continues to support U.S. Government's contribution to NATO AGS Management Agency (NAGSMA) closeout costs.						
FY 2023 Plans:						
- Will continue to support U.S. Government's contribution to NATO AGS Management Agency (NAGSMA) closeout costs.						
FY 2022 to FY 2023 Increase/Decrease Statement:						
- Funding decreased due to completion of program office liquidation.						
Title: Design/Development of Maritime Modes				23.463	13.261	0.000
Description: Supports development and flight testing of maritime modes capability for RTIP and additional configuration changes that cannot be performed under the direct commercial sale contract between Northrop Grumman and NAGSMA.						
FY 2022 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force / BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305238F / NATO AGS		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
- Integrates new software into ground systems for test. Will integrate and test software on remaining NATO AGS aircraft. <b>FY 2023 Plans:</b> - Planning completion of Maritime Modes and Program Protection Integration in FY22. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> - Funding decreased due to planned completion of Maritime Modes and Program Protection Integration in FY22.				
<b>Title:</b> Technical Support for NATO Alliance Ground Surveillance (AGS) <b>Description:</b> Provide engineering and logistics support for NATO AGS development, fielding, deferred capabilities, and obsolescence studies. <b>FY 2022 Plans:</b> - Continues engineering, logistics, and program office support for Maritime Modes development and fielding. Will support evaluation of fielded aircraft to inform studies on sustainment requirements. <b>FY 2023 Plans:</b> - Will transition engineering, logistics, and program office support from initial fielding to sustainment activities, including AGS participation in NATO's UNIFIED VISION series. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> - Funding decreased due to transition of engineering, logistics, and program office support from development to sustainment activities.		0.103	1.778	0.626
<b>Title:</b> Test and Evaluation Support for NATO Alliance Ground Surveillance (AGS) <b>Description:</b> Provide testing and evaluation via the Air Force Test Center. <b>FY 2022 Plans:</b> - Conducting Maritime Modes flight testing. <b>FY 2023 Plans:</b> - Planning completion of test and evaluation support in conjunction with completion of Maritime Modes integration in FY22. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> - Funding decreased due to planned completion of test and evaluation support in conjunction with completion of Maritime Modes integration in FY22.		12.844	0.050	0.000
<b>Accomplishments/Planned Programs Subtotals</b>		36.664	19.473	0.826

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305238F I NATO AGS						
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• RDTE 07 PE 0305220F: RQ-4 UAV	163.291	83.124	96.477	-	96.477	105.717	28.246	0.000	0.000	Continuing	Continuing
Remarks											
E. Acquisition Strategy											
Acquisition of the AGS system is being accomplished via a single delivery strategy. The system has been delivered via a fixed price direct commercial sale contract between Northrop Grumman Integrated System Sector International, Incorporated (NGISSII) & NATO, which was signed on 20 May 2012. The program is managed by the NATO AGS Management Agency (NAGSMA) and will closeout and liquidate in 2023.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305238F / NATO AGS				Project (Number/Name) 676001 / NATO AGS					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
NATO AGS Design / Development	SS/FFP	NATO AGS Management Agency : Brussels, Belgium	-	0.254	Dec 2020	4.384	Dec 2021	0.200	Dec 2022	-		0.200	Continuing	Continuing	0.200
Maritime Modes Design / Development	SS/CPIF	AFLCMC/HB : WPAFB, OH	-	23.463	Dec 2020	13.261	Dec 2021	0.000	Dec 2022	-		0.000	Continuing	Continuing	-
Subtotal			-	23.717		17.645		0.200		-		0.200	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
NATO AGS Technical Support	SS/FFP	Multiple : Hanscom, WPAFB, OH	-	0.103	Dec 2020	1.778	Dec 2021	0.626	Dec 2022	-		0.626	Continuing	Continuing	0.626
Subtotal			-	0.103		1.778		0.626		-		0.626	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
NATO AGS Test and Evaluation Support	SS/FFP	Multiple: AFLCMC/ WI, AFLCMC/HB, 412 TW, 88 CG : Hanscom, WPAFB, Edwards	-	12.844	Dec 2020	0.050	Dec 2021	0.000	Dec 2022	-		0.000	Continuing	Continuing	-
Subtotal			-	12.844		0.050		0.000		-		0.000	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	36.664		19.473		0.826		-		0.826	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305238F / NATO AGS		Project (Number/Name) 676001 / NATO AGS				
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks The Industrial Structure consists of Northrop Grumman (Northrop Grumman Integrated Systems Sector International, Incorporated - NGISSII) prime contractor, three subcontractors, and 15 participating nation industries that will receive direct work. There are no indirect offsets. The technical support of the NATO AGS program includes Advisory & Assistance Services to NATO.										

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force															<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7										<b>R-1 Program Element (Number/Name)</b> PE 0305238F / NATO AGS					<b>Project (Number/Name)</b> 676001 / NATO AGS				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>NATO AGS</b>																												
Design and Development - NATO AGS																												
Aircraft #5 Delivery to NATO (October 2020)																												
System Level Performance Verification (December 2019 - March 2021)																												
IOC (February 2021)																												
FOC (November 2024)																												
Test & Eval Support to NATO AGS																												
Design & Development - Maritime Modes																												
Tech Support - NATO AGS																												
Maritime Mode Test Support																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0305238F / NATO AGS		<b>Project (Number/Name)</b> 676001 / NATO AGS

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>NATO AGS</b>				
Design and Development - NATO AGS	1	2021	4	2023
Aircraft #5 Delivery to NATO (October 2020)	1	2021	1	2021
System Level Performance Verification (December 2019 - March 2021)	1	2021	2	2021
IOC (February 2021)	2	2021	2	2021
FOC (November 2024)	1	2025	1	2025
Test & Eval Support to NATO AGS	1	2021	1	2021
Design & Development - Maritime Modes	1	2021	4	2022
Tech Support - NATO AGS	1	2021	4	2027
Maritime Mode Test Support	1	2021	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305240F I Support to DCGS Enterprise							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	33.486	40.421	28.774	0.000	28.774	33.550	30.876	31.253	31.948	Continuing	Continuing
674826: Common Imagery Ground / Surface Systems	-	1.027	2.330	2.389	0.000	2.389	2.400	2.405	2.455	2.510	Continuing	Continuing
675265: Common Imagery Processor (CIP)	-	32.459	38.091	26.385	0.000	26.385	31.150	28.471	28.798	29.438	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This Program Element funds the Imagery Processing effort which consists of the Virtual Imagery Processing Capability (VIP-C) program and associated Imagery Processing Research and Development.

1) The Imagery Processing effort develops the Virtual Imagery Processing Capability (VIP-C) and the High Performance Compute (HPC) Environment within the DCGS architecture. The VIP-C and HPC environment provides end-to-end image processing to include raw data ingest, data format standardization to facilitate exploitation, secondary image processing, metadata conditioning, and image quality enhancements. It also covers a comprehensive plan to employ advanced technologies, automation, and augmentation at speed and scale to close the gap between image collection and actionable intelligence. Current efforts are focused on 1) ensuring new sensors being fielded and associated data types can be processed and normalized 2) improving the Machine Assisted Geospatial Intelligence (GEOINT) Exploitation (MAGE) capability.

2)The DCGS Enterprise Interoperability and Cyber Defense efforts provide support to the Office of the Under Secretary of Defense for Intelligence and Security (OUSD(I&S)), AF DCGS and NATO interoperability efforts. This includes the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.

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, 0.00M was expended for civilian pay expenses in this program element, and in FY22, 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.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305240F / <i>Support to DCGS Enterprise</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	33.486	40.421	0.000	0.000	0.000
Current President's Budget	33.486	40.421	28.774	0.000	28.774
Total Adjustments	0.000	0.000	28.774	0.000	28.774
• 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	28.774	0.000	28.774

**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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise				Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
674826: Common Imagery Ground / Surface Systems	-	1.027	2.330	2.389	0.000	2.389	2.400	2.405	2.455	2.510	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
This project element funds the Common Imagery Ground / Surface Systems enterprise support capabilities. This includes support to OUSD(I&S) and AF DCGS priority efforts.												
The funding provides support to OUSD(I&S), AF DCGS and NATO interoperability efforts. This includes the development, testing, and implementation of international standards (to include NATO standardization agreements) to ensure joint, allied, and coalition interoperability.												
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 \$0.00M is forecasted for civilian pay expenses in this program element.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: DCGS Enterprise Interoperability								1.027	2.330	2.389	-	2.389
Description: Provide support to OUSD(I&S), AF DCGS and NATO Interoperability Enterprise efforts.												
FY 2022 Plans: Continue to support OUSD(I&S), AF DCGS and NATO Interoperability Enterprise efforts.												
FY 2023 Base Plans: Will continue to support OUSD(I&S), AF DCGS and NATO Interoperability Enterprise efforts.												
FY 2022 to FY 2023 Increase/Decrease Statement: Increase is an adjustment for inflation.												
Accomplishments/Planned Programs Subtotals								1.027	2.330	2.389	-	2.389
C. Other Program Funding Summary (\$ in Millions)												
N/A												

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems
C. Other Program Funding Summary (\$ in Millions)		
<u>Remarks</u>		
D. Acquisition Strategy		
<p>The Air Force uses an evolutionary, incremental acquisition approach with development cycles and sprints to develop, field, and upgrade the system and structure contracts for the improved capabilities through full and open competition to the maximum extent possible. Additionally, strategic partnerships and agreements with National Laboratories and other agencies will be utilized.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise				Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DCGS Enterprise Interoperability	C/Various	Various : Various	-	1.027	Apr 2021	2.330	Apr 2022	2.389	Apr 2023	-		2.389	Continuing	Continuing	-
Subtotal			-	1.027		2.330		2.389		-		2.389	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.027		2.330		2.389		-		2.389	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DCGS Enterprise Interoperability																												
Support to OUSD(I&S), AF DCGS and NATO Interoperability Enterprise																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise	Project (Number/Name) 674826 / Common Imagery Ground / Surface Systems

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
DCGS Enterprise Interoperability				
Support to OUSD(I&S), AF DCGS and NATO Interoperability Enterprise	1	2021	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise				Project (Number/Name) 675265 / Common Imagery Processor (CIP)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675265: Common Imagery Processor (CIP)	-	32.459	38.091	26.385	0.000	26.385	31.150	28.471	28.798	29.438	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Imagery Processing effort develops the Virtual Imagery Processing Capability (VIP-C) within the DCGS architecture. VIP-C accepts airborne imagery data, processes it into an exploitable format, and provides it to other elements within the weapon system and/or the DCGS Enterprise. Current efforts include further developing the virtual software capability to improve processing across the enterprise and testing, development, and demonstrations integrating updated and new/emerging sensors into DCGS. In addition, the project involves improving the Machine Assisted Geospatial Intelligence (GEOINT) Exploitation (MAGE) capability to employ advanced technologies, automation, and augmentation at speed and scale to close the gap between image collection and actionable intelligence.

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, 0.00M was expended for civilian pay expenses in this program element, and in FY22, \$1.00M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Imagery Processor	32.459	38.091	26.385	0.000	26.385
<b>Description:</b> Continue developing VIP-C to keep pace with growing sensor baseline and enhance imagery data quality.					
<b>FY 2022 Plans:</b> Continue to upgrade and improve VIP-C to enable better geo-coordinate accuracy, facilitate automated intelligence discovery and integrate new algorithms. This includes developing and integrating into a Cloud infrastructure and cyber defense.					
Continue MAGE research and development by leveraging Department of Energy and Air Force Research Laboratory expertise. This includes identification of targets through machine learning algorithms, use and refinement of test harness, validation of new algorithms, and generation of test data and methods.					
<b>FY 2023 Base Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305240F / Support to DCGS Enterprise	<b>Project (Number/Name)</b> 675265 / Common Imagery Processor (CIP)	

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Will continue to upgrade and improve VIP-C to enable better geo-coordinate accuracy, facilitate automated intelligence discovery and integrate new algorithms. This includes developing and integrating into a Cloud infrastructure and cyber defense.					
Will continue MAGE research and development by leveraging Department of Energy and Air Force Research Laboratory expertise. This includes identification of targets through machine learning algorithms, use and refinement of test harness, validation of new algorithms, and generation of test data and methods.					
<b><i>FY 2023 OCO Plans:</i></b> N/A					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Decrease in funding due to completion of certain MAGE development efforts.					
<b>Accomplishments/Planned Programs Subtotals</b>	32.459	38.091	26.385	0.000	26.385

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPAF 04 Line Item 846080: DCGS-AF	22.288	124.774	79.742	-	79.742	73.113	33.234	29.970	30.630	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

For imagery processing the Air Force uses an evolutionary acquisition approach with increments and spirals to develop, field, and upgrade the system and structure contracts for the improved capabilities through full and open competition to the maximum extent possible. In terms of management, Air Force leads the Cross Service Working Group that aligns imagery processing capabilities across the Joint Services in support of USD(I) direction.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305240F / Support to DCGS Enterprise				Project (Number/Name) 675265 / Common Imagery Processor (CIP)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Imagery Processing Software Development	Various	Various : Various	-	32.459	Dec 2020	37.091	Dec 2021	25.385	Dec 2022	-		25.385	Continuing	Continuing	-
Subtotal			-	32.459		37.091		25.385		-		25.385	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Authority Civilian Pay	C/CPAF	Not specified. : TBD	-	0.000		1.000	Jun 2022	1.000	Jun 2023	-		1.000	Continuing	Continuing	-
Subtotal			-	0.000		1.000		1.000		-		1.000	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	32.459		38.091		26.385		-		26.385	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0305240F / Support to DCGS Enterprise		<b>Project (Number/Name)</b> 675265 / Common Imagery Processor (CIP)	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>VIP-C/ MAGE</b>																												
Machine Assisted GEOINT Exploitation Investment																												
SW Release 3.62																												
SW Release 3.64																												
SW Release 3x- consists of 2-3 fieldings throughout FY23																												
SW Release 3x consists of 2-3 fieldings throughout FY24																												
SW Release 3x consists of 2-3 fieldings throughout FY25																												
SW Release 3x consists of 2-3 fieldings throughout FY26																												
SW release 3x consists of 2-3 fieldings throughout FY27																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305240F / Support to DCGS Enterprise	<b>Project (Number/Name)</b> 675265 / Common Imagery Processor (CIP)	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>VIP-C/ MAGE</b>				
Machine Assisted GEOINT Exploitation Investment	1	2021	4	2023
SW Release 3.62	1	2022	3	2022
SW Release 3.64	3	2022	1	2023
SW Release 3x- consists of 2-3 fieldings throughout FY23	1	2023	1	2024
SW Release 3x consists of 2-3 fieldings throughout FY24	1	2024	1	2025
SW Release 3x consists of 2-3 fieldings throughout FY25	1	2025	1	2026
SW Release 3x consists of 2-3 fieldings throughout FY26	1	2026	1	2027
SW release 3x consists of 2-3 fieldings throughout FY27	1	2027	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305600F I International Intelligence Technology and Architectures							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	13.603	14.473	15.036	0.000	15.036	16.256	16.947	17.218	17.602	Continuing	Continuing
675898: International Intelligence Technology and Arc	-	13.603	14.473	15.036	0.000	15.036	16.256	16.947	17.218	17.602	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

International Intelligence Technology and Architectures (IITA) oversees, manages, and provides the United States (US) component of the multi-national US Battlefield Information Collection and Exploitation Systems - Extended (US BICES-X). The continued development effort of IITA will provide a collaborative environment and intelligence sharing enterprise required for processing and disseminating critical intelligence information across Department of Defense (DoD), Combat Support Agencies (CSA), North Atlantic Treaty Organization (NATO), allied and coalition forces and multiple Combatant Commands (CCMD) for the Office of the Under Secretary of Defense, Intelligence and Security (OUSD(I&S)).

The US BICES RDT&E activities include the following:

- 1) Assessing new and existing intelligence sharing technologies being developed within DoD and the intelligence community.
- 2) Defining which technologies can significantly advance intelligence sharing capabilities of US and Allied/Coalition forces.
- 3) Integrating technologies into the current US BICES-X Enterprise and emerging US international intelligence architectures and systems consistent with the Defense Intelligence Information Enterprise (DI2E) Framework and Mission Partner Environment (MPE) supporting global operations.

US BICES-X responds to CCMDs and military services to develop solutions for enhanced intelligence information sharing capabilities and provisions US BICES-X equipment to US and allied/partner location. IITA is assessing potential impacts of new intelligence architectures to support the CCMDs and services. The IITA program also includes the DoD intelligence document exploitation system (Harmony), Multi-Domain Dissemination System of Joint Worldwide Intelligence Communications System (JWICS), Secure Internet Protocol Router Network (SIPRNET) access to US BICES, and Full Motion Video (FMV).

Research and Development funding will:

- Provide increased intelligence information sharing capabilities in support of US and coalition forces utilizing the US BICES and NATO virtual networks and provide increased database information via Distributed Common Ground System Family of Systems.
- Expand available intelligence disciplines (Geospatial Intelligence, Signal Intelligence, and potentially Human Intelligence) to support US and allied/coalition forces.
- Support increased intelligence advanced analytics tools, Joint Intelligence Operation Center-IT and DI2E developments to significantly increase the timeliness of intelligence and bring US BICES/NATO Special Operations Forces Headquarters/NATO Intelligence Fusion Center capabilities into the current technology baselines.
- Develop and enhance a federated Trusted Network Environment (TNE) that incorporates Foreign Partner information sharing networks globally to support the National Defense Strategy.
- Develop multi-level security intelligence bi-laterals and multi-laterals to meet Combatant Commander Integrated Priority Lists.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305600F I International Intelligence Technology and Architectures						
- Expand capabilities for bi-lateral and multi-lateral federated TNEs in support of CCMD requirements.								
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 \$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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total		
Previous President's Budget		17.283	14.473	0.000	0.000	0.000		
Current President's Budget		13.603	14.473	15.036	0.000	15.036		
Total Adjustments		-3.680	0.000	15.036	0.000	15.036		
• 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		-3.680	0.000					
• SBIR/STTR Transfer		0.000	0.000					
• Other Adjustments		0.000	0.000	15.036	0.000	15.036		
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 budge positions for FY 2023 cannot be made in a relevant manner.								
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: International Intelligence Technology and Architectures				13.603	14.473	15.036	0.000	15.036
Description: Research and development in emerging and maturing technologies and capabilities for modernizing and transforming US BICES/US BICES-X for improved agility, scalability, access, cybersecurity, and data and information sharing tools and infrastructure.								
FY 2022 Plans:								

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0305600F / <i>International Intelligence Technology and Architectures</i>						
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>											
					<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>		
Continuing to develop US BICES-X capabilities including further integration of TNE into the MPE, and development and testing of coalition ISR coalition capabilities. These efforts will enable the modernization and transformation of the US BICES/BICES-X worldwide enterprise to enable instantiation or interconnection of any partner network to support any operation.											
<b>FY 2023 Base Plans:</b> Continuing to develop US BICES-X capabilities including further integration of TNE into the MPE, and development and testing of coalition ISR coalition capabilities. These efforts will enable the modernization and transformation of the US BICES/BICES-X worldwide enterprise to enable instantiation or interconnection of any partner network to support any operation.											
<b>FY 2023 OCO Plans:</b> N/A											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increase to meet user requirements to develop evolving mission sets.											
<b>Accomplishments/Planned Programs Subtotals</b>					13.603	14.473	15.036	0.000	15.036		
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• O&M BA 01 PE 030506F: <i>International Intelligence Technology and Architecture</i>	127.616	145.238	139.165	0.000	139.165	136.725	137.529	140.182	142.800	Continuing	Continuing
• OPAF 03 Line item 832050: <i>International Intelligence Technology and Architecture</i>	10.783	5.809	7.043	0.000	7.043	5.378	4.660	4.924	5.032	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> Utilize existing General Dynamics Mission Systems (GDMS) contract number FA8240-18-D-0360. The contract is structured as an Indefinite Delivery Indefinite Quantity (IDIQ) contract with a period of performance beginning 1 April 2018 through 31 March 2024. US BICES also utilizes the Air Force Research Laboratory as required for all third-party lab-based security assessments of TNE upgrade releases.											

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0305600F / <i>International Intelligence Technology and Architectures</i>						<b>Project (Number/Name)</b> 675898 / <i>International Intelligence Technology and Arc</i>			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
TNE Development	Various	AFRL, GDMS AZ, TX : Rome, NY	-	13.603	Jan 2021	14.473	Feb 2022	15.036	Feb 2023	-		15.036	Continuing	Continuing	-
<b>Subtotal</b>			-	13.603		14.473		15.036		-		15.036	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	13.603		14.473		15.036		-		15.036	Continuing	Continuing	N/A
<b>Remarks</b> N/A															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0305600F / International Intelligence Technology and Architectures					675898 / International Intelligence Technology and Arc			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Trusted Network Environment Software Version 5.0 features cloud-based implementation and virtualized connection methods, and updates to FMV																												
TNE																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305600F / International Intelligence Technology and Architectures	Project (Number/Name) 675898 / International Intelligence Technology and Arc	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Trusted Network Environment Software Version 5.0 features cloud-based implementation and virtualized connection methods, and updates to FMV</i>				
TNE	3	2021	4	2027

### Note

GAL - Global Address List  
 OS - Operating System  
 VDI - Virtual Desktop Infrastructure  
 VoIP - Voice of IP  
 UX - User Experience  
 FMV - Full Motion Video  
 HD/VTC - High Definition / Video Teleconferencing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305881F I Rapid Cyber Acquisition							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	4.098	4.326	3.739	0.000	3.739	9.472	9.648	9.852	10.071	Continuing	Continuing
670374: Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt	-	4.098	4.326	3.739	0.000	3.739	9.472	9.648	9.852	10.071	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Rapid Cyber Acquisition (RCA) initiative is a materiel (hardware, software, and tool development) and non-materiel (technical support) effort to enable delivery of new cyber capabilities at the pace of warfighting relevance. Combatant and Joint Force Commanders require up-to-date, tailored cyber capabilities to meet the continuously evolving threat in 0-60 day timeframes to provide the nation's ability to win in the highly-dynamic cyberspace domain.

The RCA initiative expedites cyber development and modifications of USAF cyber capabilities through the integration with and technical support to other Service and Government Agency activities to leverage select Air Force-developed technologies and/or operational capabilities. RCA develops material or non-material cyber solutions and the tools and environment necessary to conduct rapid prototyping, integration, and transition activities of cyber capabilities. Activities include but are not limited to development of software/hardware systems, integration and transition of lab-developed cyber capabilities, developmental testing, operational evaluation, manpower, studies, analysis, pilots, demonstrations, and risk reduction efforts for emerging technologies.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver Rapid Cyber Acquisition capability for emergent or unanticipated 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, and 0606398F. In FY21 \$0.000M was expended for civilian pay expenses in this program element, and in FY22 \$ 0.000M is forecasted for civilian pay expenses in this program element.

The FY23 funding request was reduced by \$0.818M 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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0305881F I Rapid Cyber Acquisition			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	4.254	4.326	0.000	0.000	0.000
Current President's Budget	4.098	4.326	3.739	0.000	3.739
Total Adjustments	-0.156	0.000	3.739	0.000	3.739
• 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	-0.156	0.000			
• Other Adjustments	0.000	0.000	3.739	0.000	3.739
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.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Rapid Cyber Acquisition (RCA)	4.098	4.326	3.739	0.000	3.739
Description: Effort utilizes hardware, software, and technical support services to deliver the tools and environments required to perform rapid prototyping, integration, and transition activities for cyber capabilities, enabling quick reaction fielding of up-to-date capabilities required by Combatant and Joint Force Commanders.					
FY 2022 Plans:					
- Continue to provide professional and technical subject matter expertise to deliver direction and guidance for offensive cyber operations, and computer network exploitation to support Air Force mission objectives					
- Build, maintain, and execute multidisciplinary targeting, target systems analysis, developmental planning capabilities in support of the USAF cyber mission					
- Deliver tools and environment solutions to meet specific threat-based, Combatant Command, Joint Force Commander, AF major command, and other Government Agency requirements					
- Onboard, and utilize a highly skilled rapid reaction team to prototype and deliver cyber capabilities, and perform quick look operational and technical assessments					

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0305881F <i>I Rapid Cyber Acquisition</i>				
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p>- Provide an enhanced secure lab capability to support research, prototyping, development, and testing of cyber warfare capabilities</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Continue to maintain, and execute multidisciplinary targeting, target systems analysis, developmental planning capabilities in support of the USAF cyber mission</p> <p>- Utilize developed solutions to plan standardized environments, add Hardware-in-the-Loop capabilities, deploy to edge devices, and build an authoritative pipeline solution to meet cyber operator requirements</p> <p>- Develop on-boarding pipeline to develop and utilize skilled rapid reaction teams to prototype and deliver cyber capability and perform quick look operational and technical assessments</p> <p>- Increase secure lab capability capacity to research, develop, prototype, and test cyber warfare capabilities</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>- The FY23 funding request was reduced by \$0.818M to account for the availability of prior year execution balances.</p>						
<b>Accomplishments/Planned Programs Subtotals</b>		4.098	4.326	3.739	0.000	3.739
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A						
<b>Remarks</b>						
<b>E. Acquisition Strategy</b> The Rapid Cyber Acquisition (RCA) initiative utilizes a tailorable acquisition strategy that facilitates rapid delivery of material and nonmaterial solutions to solve operational cyber requirements. This approach allows flexibility for solutions to enter the acquisitions process at any phase of the acquisition life cycle. RCA provides the rapid development environment and secure DevOps capacity to meet urgent operational needs/requirements.						

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305881F / Rapid Cyber Acquisition				Project (Number/Name) 670374 / Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Rapid Cyber Acquisition Development	Various	Various : Various	-	-		4.326	Nov 2021	3.739	Nov 2022	-		3.739	Continuing	Continuing	3.739
Subtotal			-	-		4.326		3.739		-		3.739	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Cyber Capabilities Support Office (CCSO) Interagency Personnel Agreement (IPA)	SS/FFP	MIT Lincoln Laboratory : Lexington, MA	-	0.145	Nov 2020	-		-		-		-	0.000	0.145	-
Cyber Capability Design	C/FFP	X8 Solutions, Inc : Oak Hill, VA	-	1.331	Mar 2021	-		-		-		-	0.000	1.331	-
Internal Development	SS/CPFF	JHU Applied Physics Jab : Baltimore, MD	-	1.522	Feb 2021	-		-		-		-	0.000	1.522	-
Subtotal			-	2.998		-		-		-		-	0.000	2.998	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Joint Information Range Development Environment (CCSO Lab Environment)	SS/CPFF	Novetta Solutions : Mclean, VA	-	1.100	May 2021	-		-		-		-	0.000	1.100	-
Subtotal			-	1.100		-		-		-		-	0.000	1.100	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	4.098		4.326		3.739		-		3.739	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305881F / Rapid Cyber Acquisition			Project (Number/Name) 670374 / Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt			
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0305881F / *Rapid Cyber Acquisition*

## Project (Number/Name)

670374 / *Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt*

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Cyber Capability Support Office (CCSO)</b>																												
CCSO Technical Direction																												
Due Diligence Research and Analysis																												
Cyber Capability Design																												
Internal Development																												
JIOR Development Environment (CCSO Lab Environment)																												
<b>Rapid Cyber Acquisition</b>																												
RCA Activities																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305881F / <i>Rapid Cyber Acquisition</i>	<b>Project (Number/Name)</b> 670374 / <i>Electronic Combat Spt, C3 Protection/Multi-Mission, Technology and Spt</i>

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Cyber Capability Support Office (CCSO)</i></b>				
CCSO Technical Direction	1	2021	4	2021
Due Diligence Research and Analysis	1	2021	4	2021
Cyber Capability Design	1	2021	4	2021
Internal Development	1	2021	4	2021
JIOR Development Environment (CCSO Lab Environment)	1	2021	4	2021
<b><i>Rapid Cyber Acquisition</i></b>				
RCA Activities	1	2022	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305984F I Personnel Recovery Command & Ctrl (PRC2)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	2.122	2.567	2.702	0.000	2.702	2.758	2.810	2.868	2.932	Continuing	Continuing
675221: Personnel Recovery Command and Control (PRC2)	-	2.122	2.567	2.702	0.000	2.702	2.758	2.810	2.868	2.932	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This project funds operational development necessary to acquire, modify, and sustain a segment of Air Force's C2 capabilities and services associated with Personnel Recovery (PR). The Personnel Recovery Command and Control (PRC2) program develops and delivers tools and services for planning, collaborating and managing search and rescue efforts, as well as disseminating related information to all personnel recovery mission coordinators across the PR network. PRC2 provides an adaptive and networked system, delivering timely situational awareness information supporting personnel accountability and recovery mission management worldwide. PRC2 delivers a globally accessible, collaborative, inter-operable and integrated set of capabilities to prevent, prepare for and respond to joint/coalition military personnel recovery activities, and civilian rescue missions. The Joint Personnel Recovery (JPR) Initial Capability Document (ICD) (2012) articulates capabilities needed for PRC2. PRMM 2.0 is at Initial Operational Capability (IOC) and PRMM 3.0 is in development. Annex A to the Personnel Recovery Mission Version 3.0 is the requirement document for initial and full operational capability (IOC/FOC) criteria.

The system collects, stores and delivers personnel/identity biometric data, emergency locator beacon registrations, Isolated Personnel (IP) reports, evasion plans of action, incident reports and other information management capabilities. The information is used for predictive, preventive and personnel vulnerability analysis and assessment in support of PR across the Department of Defense and other national and international entities. Activities also include studies and analysis to support both current program planning and execution, as well as future program planning.

In FY 2023, Personnel Recover Mission Manager (PRMM) 3.0 modifications will continue to use an Agile development, security, and operations (DevSecOps) strategy to develop and test in two week increments (sprints) with capability to field by individual story after fielding Configuration Control Board (CCB) approval from Major Command (MAJCOM). The modifications will improve/validate IP events/alerts and enable case files for Defense Prisoner of War/Missing Personnel Office (DPMO) and Joint Personnel Recovery Agency (JPRA). PRMM 3.0 modifications will reflect the requirements and priorities identified by Air Combat Command (ACC) as the personnel recovery environment evolves to meet the needs of the warfighter and personnel recovery 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 element 0605831F. 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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0305984F I Personnel Recovery Command & Ctrl (PRC2)			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	2.203	2.567	0.000	0.000	0.000
Current President's Budget	2.122	2.567	2.702	0.000	2.702
Total Adjustments	-0.081	0.000	2.702	0.000	2.702
• 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	-0.081	0.000	2.702	0.000	2.702
Change Summary Explanation					
FY2023: 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 FY 2023 cannot be made in a relevant manner.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: PRC2 - PRMM Development	1.997	2.392	2.502	0.000	2.502
Description: PRC2 will use an Agile development, security, and operations (DevSecOps) strategy to test and field tools and services for planning and managing search and rescue efforts, and disseminate the related information for personnel recovery.					
FY 2022 Plans:					
- Will develop, test and have field-ready PRMM versions X.X.X.A through X.X.X.B in two-week increments with capability to field by individual story. The development effort will encompass changes to a more Map Centric and user intuitive design. An interface with Common Distress Reporting System (CDRS) provides various user interface upgrades and application improvements for Personnel Recovery Coordination.					
FY 2023 Base Plans:					
- Will develop, test and have field-ready PRMM versions X.X.X.B through X.X.X.D in two-week increments with capability to field by individual story. The development effort will encompass changes to a more Map Centric					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force						Date: April 2022					
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development				R-1 Program Element (Number/Name) PE 0305984F I Personnel Recovery Command & Ctrl (PRC2)							
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total			
and user intuitive design. An interface with Common Distress Reporting System (CDRS) provides various user interface upgrades and application improvements for Personnel Recovery Coordination.											
FY 2023 OCO Plans: N/A											
FY 2022 to FY 2023 Increase/Decrease Statement: N/A											
Title: PRC2 - PRMM Test and Evaluation				0.125	0.175	0.200	0.000	0.200			
Description: Test and Evaluation											
FY 2022 Plans: - PRMM Versions X.X.X.A through X.X.X.B - Testing & Evaluation											
FY 2023 Base Plans: PRMM Versions X.X.X.B through X.X.X.D - Testing & Evaluation											
FY 2023 OCO Plans: N/A											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increase due to inflation											
Accomplishments/Planned Programs Subtotals				2.122	2.567	2.702	0.000	2.702			
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 834520: Theater Battle Mgt C2 System	0.347	0.369	0.000	-	0.000	0.000	0.000	0.000	-	Continuing	Continuing
Remarks											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0305984F I Personnel Recovery Command & Ctrl (PRC2)	
<b>E. Acquisition Strategy</b> PRC2 product support is provided to the program office by the 517th Software Engineering Squadron (517 SWES), Hill AFB Utah, in accordance with a memorandum of agreement and on a fee-for-service basis. This strategy to utilize the 517 SWES for agile product development and sustainment was reviewed and approved by the Air Force Program Executive Officer for Digital, and implemented in mid-FY 2014. The work done by the 517 SWES includes, but is not limited to, modernization development, sustainment support services, and software maintenance of the PRC2 system.		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0305984F / <i>Personnel Recovery Command &amp; Ctrl (PRC2)</i>						<b>Project (Number/Name)</b> 675221 / <i>Personnel Recovery Command and Control (PRC2)</i>			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PRC2 - PRMM Agile Software Development	PO	Ogden ALC : Hill AFB, UT	-	1.997	Dec 2020	2.382	Dec 2021	2.502	Dec 2022	-		2.502	Continuing	Continuing	-
<b>Subtotal</b>			-	1.997		2.382		2.502		-		2.502	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PRC2 - PRMM Test and Evaluation	PO	45th Test Squadron : Eglin AFB, FL	-	0.115	Dec 2020	0.175	Dec 2021	0.190	Dec 2022	-		0.190	Continuing	Continuing	-
<b>Subtotal</b>			-	0.115		0.175		0.190		-		0.190	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PRC2 - PRMM Program Support	TBD	Various : Hill AFB, UT	-	0.010	Mar 2021	0.010	Mar 2022	0.010	Mar 2023	-		0.010	Continuing	Continuing	-
<b>Subtotal</b>			-	0.010		0.010		0.010		-		0.010	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	2.122		2.567		2.702		-		2.702	Continuing	Continuing	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305984F / Personnel Recovery Com mand & Ctrl (PRC2)					Project (Number/Name) 675221 / Personnel Recovery Command and Control (PRC2)			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Personnel Recovery Command & Control (PRC2)																												
PRMM Ver X.X.X.A - X.X.X.B Development, Testing and Fielding																												
PRMM Ver X.X.X.B - X.X.X.C Development, Testing and Fielding																												
PRMM Ver X.X.X.C - X.X.X.D Development, Testing and Fielding																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305984F / Personnel Recovery Com mand & Ctrl (PRC2)	Project (Number/Name) 675221 / Personnel Recovery Command and Control (PRC2)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Personnel Recovery Command & Control (PRC2)				
PRMM Ver X.X.X.A - X.X.X.B Development, Testing and Fielding	1	2022	2	2022
PRMM Ver X.X.X.B - X.X.X.C Development, Testing and Fielding	2	2022	2	2023
PRMM Ver X.X.X.C - X.X.X.D Development, Testing and Fielding	2	2023	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0307577F I Intelligence Mission Data (IMD)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	6.266	6.169	6.332	0.000	6.332	7.090	3.651	3.726	3.809	Continuing	Continuing
675306: Analysis Enterprise	-	6.266	6.169	6.332	0.000	6.332	7.090	3.651	3.726	3.809	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

Product Development

IMD Production Tools Development Contract Type : \*Contract Type are primarily Time and Material with some Firm Fixed Price.

## A. Mission Description and Budget Item Justification

Intelligence Mission Data efforts in BPAC 675306 fund RDT&E to enable Advanced Non-cooperative Target Recognition (NCTR) collection, Operational Reconnaissance and traditional ELINT capabilities, advanced all-source analysis and production of IMD across EWIR, C&P, M&S, and Signatures to inform acquisition efforts, enable combat ID and ensure survivability for air superiority and global strike platforms.

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 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	6.266	6.169	0.000	0.000	0.000
Current President's Budget	6.266	6.169	6.332	0.000	6.332
Total Adjustments	0.000	0.000	6.332	0.000	6.332
• 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	6.332	0.000	6.332

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0307577F I Intelligence Mission Data (IMD)							
<b>Change Summary Explanation</b> 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.  FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.												
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>										<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> IMD Production Tools										6.266	6.169	6.332
<b>Description:</b> Creation of automated tools to process data and develop improved analysis, production, and dissemination tools to support centralized data warehousing & data discover-ability enabling streamlined rapid reprogramming for operational & acquisition end users.												
<b>FY 2022 Plans:</b> Continue development of automated tools.												
<b>FY 2023 Plans:</b> Continue development of automated tools.												
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to inflation												
<b>Accomplishments/Planned Programs Subtotals</b>										6.266	6.169	6.332
<b>D. Other Program Funding Summary (\$ in Millions)</b>												
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	
• OPAF 03 030577F: Intelligence Mission Data	0.476	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing	
<b>Remarks</b>												
<b>E. Acquisition Strategy</b> Contract type and strategy will be assessed each year; however, it is anticipated that there will be a mix of contract types.												

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0307577F / <i>Intelligence Mission Data (IMD)</i>				<b>Project (Number/Name)</b> 675306 / <i>Analysis Enterprise</i>				

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	TBD	AFMC : WPAFB, OH	-	0.000		-		-		-		-	Continuing	Continuing	-
IMD Production Tools Development	Various	NASIC : WPAFB, OH	-	6.266	Feb 2021	6.169	Feb 2022	6.332	Feb 2023	-		6.332	Continuing	Continuing	-
<b>Subtotal</b>			-	6.266		6.169		6.332		-		6.332	Continuing	Continuing	N/A

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	6.266	6.169	6.332	-	6.332	Continuing	Continuing	N/A

  

**Remarks**

Contract award is expected 90 days after budget authority for FY22.

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0307577F / Intelligence Mission Data (I MD)						Project (Number/Name) 675306 / Analysis Enterprise			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NCTR and IMD Tool Development																												
SIGINT/EWIR Tools Development																												
SIGNATURE Tool Development																												
C&P Tool Development																												
M&S Tool Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0307577F / Intelligence Mission Data (IMD)	Project (Number/Name) 675306 / Analysis Enterprise	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>NCTR and IMD Tool Development</i></b>				
SIGINT/EWIR Tools Development	1	2021	4	2025
SIGNATURE Tool Development	1	2021	4	2025
C&P Tool Development	1	2021	4	2025
M&S Tool Development	1	2021	4	2021

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0401115F / C-130 Airlift Squadron							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	48.698	12.552	0.407	0.000	0.407	0.415	0.000	0.000	0.000	Continuing	Continuing
672030: C-130H MUOS/ SATURN Radio	-	0.000	0.393	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.393
675250: C-130H Avionics Modernization Program (AMP) Increment 2	-	48.698	12.159	0.407	0.000	0.407	0.415	0.000	0.000	0.000	Continuing	Continuing

## **A. Mission Description and Budget Item Justification**

The C-130H is a medium sized tactical transport aircraft providing multi-purpose theater support throughout the globe. The C-130H fleet supports several diverse Air Force roles, including but not limited to tactical and inter-theater airlift and airdrop support, Arctic resupply, special operations support, aeromedical evacuation, aerial spraying, firefighting duties, and natural disaster and humanitarian relief missions.

Funding provides weapon system modifications and upgrades to meet USAF mission requirements for the LC/C-130H fleets.

C-130H AMP Increment 2 includes digital avionics upgrades (e.g. Flight Management System, improved navigation), cockpit modernization (e.g. glass/engine flight displays) and resolves select obsolescence and Diminishing Manufacturing Source (DMS) issues. RDT&E efforts will cover software development, design, integration, developmental and operational test, studies and risk reduction efforts, trial kit buy and installation, technical order development validation and verification, spares and peculiar support equipment in support of trial kit installs, Systems Integration Laboratory (SIL) development, type 1 training and C-130H aircrew and maintenance training systems and course ware development efforts, program office support and other efforts necessary to fulfill program requirements.

The development and fielding of the MUOS/SATURN Radio program (Project 672030) will be executed under the AMP Increment 2 program (Project 675250). The MUOS/Saturn Radio program updates radios due to future DMS/integration issues and the incorporation of MUOS/SATURN capabilities. The funding is required for the Non-Recurring Effort associated with integration, testing, Technical Orders, Engineering drawing's, Trial Kit Installations, Verification Kit Installations, and spectrum authorization.

This funding includes Rapid Global Mobility (RGM) platform related activities including but not limited to prototyping, capability development, process activities, planning analysis and systems engineering activities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver C-130 Airlift Squadron 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 2021 \$0.803 million was expended for civilian pay expenses in this program element, and in FY 2022 \$1.000 million is forecasted for civilian pay expenses in this program element.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0401115F I C-130 Airlift Squadron				
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		41.896	9.752	0.000	0.000	0.000
Current President's Budget		48.698	12.552	0.407	0.000	0.407
Total Adjustments		6.802	2.800	0.407	0.000	0.407
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	2.800			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		7.700	0.000			
• SBIR/STTR Transfer		-0.898	0.000			
• Other Adjustments		0.000	0.000	0.407	0.000	0.407
Congressional Add Details (\$ in Millions, and Includes General Reductions)						
Project: 675250: C-130H Avionics Modernization Program (AMP) Increment 2						
Congressional Add: Infrared Suppression						
Congressional Add Subtotals for Project: 675250						
Congressional Add Totals for all Projects						
Change Summary Explanation						
FY 2021 funding was increased by a total of \$6.802 million which included a \$7.700 million Below Threshold Reprogramming Action increase for AMP 2 increment development efforts and a decrease of \$0.898 million for Small Business Innovation Research.						
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 FY 2023 cannot be made in a relevant manner.						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron				Project (Number/Name) 672030 / C-130H MUOS/SATURN Radio			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672030: C-130H MUOS/ SATURN Radio	-	0.000	0.393	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.393
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Funding for this effort changed from Project 672030, C-130H MUOS/SATURN Radio to Project 675250, C-130H Avionics Modernization Program (AMP) Increment 2 in FY23.

The development and fielding of the MUOS/SATURN Radio program will be executed under the AMP Increment 2 program via the incorporation of the ARC-210 radio. The ARC-210 radio addresses future Diminishing Manufacturing Source (DMS)/integration issues and incorporates the MUOS/SATURN capabilities. The funding is required for the Non-Recurring Effort associated with integration, testing, TO's, Engineering drawing's, TKI, VKI, and spectrum authorization.

The C-130H MUOS/SATURN Radio program modifies up to 134 C-130H USAF-owned aircraft consisting of H3s, H2.5s, H2s, and LC-130H aircraft. The modification effort will have up to three prototype aircraft representative of variations in the mission designs and required for accomplishment of the Engineering and Manufacturing Development (EMD) phase with the remaining aircraft modified in the production phase.

This funding includes Rapid Global Mobility (RGM) platform related activities including but not limited to prototyping, capability development, process activities, planning analysis and systems engineering activities.

The program may also include any Contractor Manpower Equivalent (CME)/A&AS support deemed necessary to support the program objectives.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver C-130H MUOS/SATURN Radio 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 2021 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$0.000 million is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> C-130H MUOS/SATURN Radio	0.000	0.393	0.000
<b>Description:</b> The development and fielding of the MUOS/SATURN Radio program will be executed under the AMP Increment 2 program. Beginning in FY 2023, transfer of Project 672030, C-130H MUOS/SATURN funding to Project 675250, AMP Increment 2.			
<b>FY 2022 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0401115F / C-130 Airlift Squadron			<b>Project (Number/Name)</b> 672030 / C-130H MUOS/SATURN Radio				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>		
<p>Program support to incorporate the ARC-210 Radio into the AMP Inc 2 product baseline. Beginning in FY 2023, transfer of Project 672030, C-130H MUOS/SATURN funding to Project 675250, AMP Increment 2. Any remaining effort will be accomplished in the C-130H AMP Incr. 2 program and the MUOS/SATURN Radio program will be executed via the incorporation of the ARC-210 radio.</p> <p><b>FY 2023 Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to transfer of Project 672030, C-130H MUOS/SATURN funding to Project 675250, AMP Increment 2.</p>											
<b>Accomplishments/Planned Programs Subtotals</b>							0.000	0.393	0.000		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTE 07 0401115F: C-130 Airlift Squadron	48.698	9.359	0.407	-	0.407	0.415	-	-	-	Continuing	Continuing
<b>Remarks</b>											
The development and fielding of Project, 672030, MUOS/SATURN Radio program will be executed under Project 675250, C-130H AMP Increment 2 via the incorporation of the ARC-210 radio.											
<b>D. Acquisition Strategy</b>											
The MUOS/SATURN Radio effort was added to the C-130H AMP Increment 2 contract through an Undefined Contract Action (UCA) 3rd quarter of 2020 and a definitive contract modification 3rd quarter of 2021. Current efforts are primarily focused on the Engineering and Manufacturing Development (EMD). The C-130H AMP Increment 2 contract was awarded 3rd quarter of 2019.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron				Project (Number/Name) 672030 / C-130H MUOS/SATURN Radio					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Increment 2 EMD UCA	C/FPIF	L3Harris:Waco, TX : TBD	-	-		0.393		-		-		-	0.000	0.393	16.199
Subtotal			-	-		0.393		-		-		-	0.000	0.393	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		0.393		-		-		-	0.000	0.393	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity										R-1 Program Element (Number/Name)									
3600 / 7										PE 0401115F / C-130 Airlift Squadron									
										Project (Number/Name)									
										672030 / C-130H MUOS/SATURN Radio									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
C-130H MUOS/SATURN Radio																												
MUOS/SATURN RADIO Design & Integration under AMP Increment 2																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron	Project (Number/Name) 672030 / C-130H MUOS/SATURN Radio

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
C-130H MUOS/SATURN Radio				
MUOS/SATURN RADIO Design & Integration under AMP Increment 2	1	2021	3	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron				Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675250: C-130H Avionics Modernization Program (AMP) Increment 2	-	48.698	12.159	0.407	0.000	0.407	0.415	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The C-130H AMP Increment 2 upgrades the C-130H fleet with comprehensive avionics and cockpit modernization which replaces aging unreliable equipment and adds combat capability enhancements. It also updates radios due to future Diminishing Manufacturing Sources (DMS)/integration issues and incorporates MUOS/SATURN radio capabilities. It also addresses select obsolescence and DMS issues with solutions that may include life of type buys or bridge buys. 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.

Funding provides weapon system modifications and upgrades to meet USAF mission requirements for the LC/C-130H fleets.

RDT&E efforts include but are not limited to software development, design, integration, development and operational test, studies and risk reduction efforts, trial kit buy and installation, technical order development validation and verification, peculiar support equipment and spares in support of trial kit installs, SIL development, type 1 training, and C-130H aircrew and maintenance training systems and courseware development efforts, program office support and other efforts required to fulfill requirements.

The C-130H AMP Increment 2 program modifies up to 134 C-130H USAF owned aircraft consisting of H3s, H2.5s, H2s, and LC-130H aircraft. The modification effort will have up to three prototype aircraft representative of variations in the mission designs and required for accomplishment of the Engineering and Manufacturing Development (EMD) phase with the remaining aircraft modified in the production phase.

The development and fielding of the MUOS/SATURN program will be executed under the AMP Increment 2 program. The MUOS radio funding is required for the Non-Recurring Effort associated with integration, testing, Technical Order's, Engineering drawings, Trial Kit Installations, Verification Kit Installations, and spectrum authorization.

This funding includes Rapid Global Mobility (RGM) platform related activities including but not limited to prototyping, capability development, process activities, planning analysis and systems engineering activities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver C-130H AMP Increment 2 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,

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron		Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2		
0605833F, 0605898F, 0606398F. In FY 2021 \$0.803 million was expended for civilian pay expenses in this program element, and in FY 2022 \$1.000 million is forecasted for civilian pay expenses in this program element.						
B. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: C-130H Avionics Modernization Program (AMP) Increment 2				48.698	9.359	0.407
Description: The program is currently executing the Engineering and Manufacturing Development (EMD) phase activities.						
FY 2022 Plans: Continuation of EMD activities to include but are not limited to software development, design, integration, development and operational test, program office support, studies and risk reduction efforts, trial kit buy and installation, technical order development validation and verification, peculiar support equipment and spares in support of trial kit installs, SIL development, type 1 training, and C-130H aircrew and maintenance training systems and courseware development efforts and other efforts required to fulfill program requirements. The program also begins the transition to LRIP.						
FY 2023 Plans: Conclusion of EMD activities, primarily related to development and operational test completion and weapon system trainer and courseware completion. Other remaining actions may include but are not limited to software development, design, integration, program office support, studies and risk reduction efforts, trial kit buy and installation, technical order development validation and verification, peculiar support equipment and spares in support of trial kit installs, SIL development, type 1 training, and other efforts required to fulfill program requirements.						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to ramp down and anticipated completion of the EMD phase of the program.						
Accomplishments/Planned Programs Subtotals				48.698	9.359	0.407
				FY 2021	FY 2022	
Congressional Add: Infrared Suppression				0.000	2.800	
FY 2021 Accomplishments: N/A						
FY 2022 Plans: EMD activities to include but not limited to software development, design, integration, development and operational test, program office support, studies and risk reduction efforts, trial kit buy and installation, technical order development validation and verification, peculiar support equipment and spares in support of trial kit installs, SIL development, type 1 training, and C-130H aircrew and maintenance training systems and courseware development efforts and other efforts required to fulfill program requirements.						
Congressional Adds Subtotals				0.000	2.800	

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron				Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2				
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• APAF 05 Line Item C13000: C-130	0.000	13.184	107.891	-	107.891	94.006	108.439	126.419	193.073	Continuing	Continuing	
• APAF 06 Line Item 000999: Initial Spares/Repair Parts	0.000	0.419	1.153	-	1.153	0.871	2.653	3.187	3.286	Continuing	Continuing	
Remarks												
The C-130H Avionics Modernization Program (AMP) Increment 2 procurement funding begins in FY22.												
Project 672030, MUOS/SATURN Radio program will be executed under Project 675250, AMP Increment 2 program via the incorporation of the ARC-210 radio.												
D. Acquisition Strategy												
C-130H AMP Increment 2 contract was awarded 3rd quarter of 2019. Current efforts are primarily focused on the Engineering and Manufacturing Development (EMD) activities under a Fixed-Price Incentive (Firm) contract structure.												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron				Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130H AMP Increment 2 EMD Contract	C/FPIF	L3Harris : Waco, TX	-	34.728	Nov 2020	0.331	Nov 2021	0.407	Nov 2022	-		0.407	Continuing	Continuing	91.739
Joint Mission Planning System	C/FPIF	TBD : TBD	-	3.000		-		-		-		-	Continuing	Continuing	4.700
Infrared Suppression	C/TBD	TBD : TBD	-	-		2.800	Mar 2023	0.000		-		0.000	0.000	2.800	2.800
Subtotal			-	37.728		3.131		0.407		-		0.407	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Other Government Costs	TBD	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	3.777
Direct Cite Civilian Pay	C/CPAF	Not specified. : TBD	-	0.803		1.000		0.000		-		0.000	Continuing	Continuing	0.960
Subtotal			-	0.803		1.000		0.000		-		0.000	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130H AMP Increment 2 Development Testing	PO	TBD : TBD	-	3.900	Nov 2020	4.500	Nov 2021	0.000		-		0.000	Continuing	Continuing	8.800
Subtotal			-	3.900		4.500		0.000		-		0.000	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130H AMP Increment 2 PSC Contractor Services	Various	Not Specified : TBD	-	6.117	Feb 2021	3.055	Feb 2022	0.000		-		0.000	Continuing	Continuing	14.238

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0401115F / C-130 Airlift Squadron						<b>Project (Number/Name)</b> 675250 / C-130H Avionics Modernization Program (AMP) Increment 2			
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
C-130H AMP Increment 2 PSC - Government Cost	Various	Not Specified : TBD	-	0.150	Oct 2020	0.473	Oct 2021	0.000		-		0.000	Continuing	Continuing	0.773
<b>Subtotal</b>			-	6.267		3.528		0.000		-		0.000	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	48.698		12.159		0.407		-		0.407	Continuing	Continuing	N/A
<b>Remarks</b> FINANCIAL PERFORMANCE: AMP Increment 2 is evaluated against traditional Research and Development (R&D) program expenditure benchmarks. Unlike many traditional R&D programs, however, the AMP Increment 2 EMD phase contract is an FPIF contract with progress payments. Twenty 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 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0401115F / C-130 Airlift Squadron									
										Project (Number/Name) 675250 / C-130H Avionics Modernization Program (AMP) Increment 2									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>C-130H AMP Increment 2</b>																												
Design/Integration																												
Delta Critical Design Review																												
Design/Integration Training Development																												
Development Testing																												
Functional Configuration Audit																												
Milestone C																												
<b>Infrared Suppression</b>																												
Design/Integration																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0401115F / C-130 Airlift Squadron	<b>Project (Number/Name)</b> 675250 / C-130H Avionics Modernization Program (AMP) Increment 2	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>C-130H AMP Increment 2</i></b>				
Design/Integration	1	2021	2	2024
Delta Critical Design Review	2	2021	2	2021
Design/Integration Training Development	1	2021	2	2024
Development Testing	4	2021	4	2022
Functional Configuration Audit	4	2022	4	2022
Milestone C	4	2022	4	2022
<b><i>Infrared Suppression</i></b>				
Design/Integration	2	2023	2	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0401119F I C-5 Airlift Squadrons (IF)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	22.742	17.507	6.100	0.000	6.100	0.000	20.673	51.348	52.490	0.000	170.860
671307: C-5 REPLACE MULTIFUNCT CONTROL AND DISPLAY (RMCD)	-	22.742	17.507	6.100	0.000	6.100	0.000	20.673	51.348	52.490	0.000	170.860
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

C-5M Replace multi-functional controls and display (RMCD) program is a comprehensive effort to ensure appropriate RMCD Line Replaceable Units (LRU) are developed and installed on the C-5M allowing aircraft operation in accordance with civil airspace access mandates for both US National Airspace System (NAS) and international civil airspace. The C-5M RMCD program ensures system standardization and interoperability with other DoD systems to the maximum extent possible and directly supports airworthiness certification. The purpose of the program is to find a suitable replacement for the current Multi-functional Display Unit (MFDU) LRUs while maintaining existing interfaces to legacy equipment and providing for future growth opportunities. Additionally, the replacement LRUs must have the Ethernet load capability to reduce Operational Flight Programs (OFP) load times, and the program will implement a power solution for Mission Planning Equipment (MPE). Operational Flight Programs (OFP) updates/aggregation are required to support the latest aircraft display technologies and will be designed to ensure seamless integration into the platform. Aircraft wiring will be replaced/upgraded as required. Use of mixed displays (current and new) is not permissible due to human factors considerations. It is anticipated equipment will be predominately commercial off-the-shelf or non-developmental items.

The RMCD program is a modification to mitigate the obsolescence of the current control and display units. This effort centers around modifying the current display units to obtain sufficient capacity/capability to support integration of new system capabilities with margin for growth by upgrading displays and correcting any mission essential deficiencies identified during development, including additions of an Ethernet loading capability and a power solution for the MPE. This modification may include software development, data, cyber security, testing, installation, spares, Systems Integration Lab (SIL), program support, etc.

The modification helps to maintain aircraft availability as the new multi-functional controls and displays replaces the current controls and displays, which are experiencing severe diminishing manufacturing source (DMS) issues. Failure to upgrade the displays to support aircraft availability will create a significant operational impact to the support of Geographic Combatant Command (GCCs) and maintaining U.S. National objectives.

Funding supports studies and analysis, risk reduction efforts, Advisory and Assistance Services (A&AS), program support costs, change orders, and other government costs such as travel, directorate support, government furnished equipment (GFE), and over and above costs. Funding also provides Diminishing Manufacturing Sources (DMS) through studies and analysis.

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,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0401119F I C-5 Airlift Squadrons (IF)				
0606398F. In FY 2021 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$0.000 million is forecasted 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.						
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		30.560	17.507	0.000	0.000	0.000
Current President's Budget		22.742	17.507	6.100	0.000	6.100
Total Adjustments		-7.818	0.000	6.100	0.000	6.100
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		-0.056	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	0.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		-6.690	0.000			
• SBIR/STTR Transfer		-1.072	0.000			
• Other Adjustments		0.000	0.000	6.100	0.000	6.100
Change Summary Explanation						
FY 2021 funding was decreased by a total of \$7.818 million which included reprogramming actions for \$6.690 million for higher Air Force priorities and \$1.072 million for Small Business Innovation Research.						
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 FY 2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: C-5 Replace Multi-Functional Controls and Display				22.742	17.507	6.100
Description: Replace Multi-Functional Controls and Display will enable the C-5M to achieve wartime mission requirements by maintaining fleet availability (mission capable rate).						
FY 2022 Plans:						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development						R-1 Program Element (Number/Name) PE 0401119F I C-5 Airlift Squadrons (IF)						
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2021	FY 2022	FY 2023
Awarded amendment 1 for Other Transaction Authority (OTA for hardware development and system certification on 13 Jan 22. Based on current FY 2022 funding levels modify the current Sole Source Phase 0 Lockheed Martin Aerospace contract to bring forward Multifunction Display Unit Application Client and Display Services software development to reach Preliminary Design Review and produce Engineering Wide Area Displays and Graphics Processors for test. Break remaining Engineering and Manufacturing Development (EMD) tasks into smaller options to award in the future pending funding levels. Potential options would include certified flight worthy hardware, Full Qualification Testing, Tech Insertion, Test, and Training. Additional FY 2022 requirements will finance 578th Independent Validation & Verification and Systems Integration Laboratory testing through FY 2023 to support independent testing and airworthiness certification												
FY 2023 Plans: Continue EMD activity options and continue hardware development to deliver Engineering Units for Displays and Graphics Processor Units.												
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to ramp-down of EMD activities and reduction of hardware development efforts.												
Accomplishments/Planned Programs Subtotals										22.742	17.507	6.100
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost	
• APAF 05 C00500: C-5	50.279	17.583	12.040	-	12.040	24.306	57.780	32.149	32.845	0.000	226.982	
• APAF 05 0401119F: C-5 Airlift Squadrons	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
• APAF 06 0401119F: C-5 Airlift Squadrons	0.200	0.000	1.269	-	1.269	2.047	3.144	0.000	0.000	0.000	6.660	
• APAF 05 0401897F: TRAINING	0.000	7.848	33.987	-	33.987	0.000	0.000	0.000	0.000	0.000	41.835	
Remarks												
E. Acquisition Strategy												
Program Acquisition Strategy Panel (ASP) approved program's acquisition strategy on 4 Apr 20. This strategy approved executing an Other Transaction Authority (OTA) contract to procure proof of concept hardware for test/analysis, award a Sole Source EMD contract to Lockheed Martin Aerospace for system software and hardware tech insertion, system integration, data management, systems engineering, logistics, test and training to modify 2 aircraft. At completion of EMD, the program would move into Milestone C for LRIP and production to follow.												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0401119F / <i>C-5 Airlift Squadrons (IF)</i>	
Delta ASP #1 to add risk reduction for hardware development and contractor software development oversight/metrics to use Agile development processes approved 08 Oct 20. Delta ASP #2 to exercise OT Hardware Amendment 1 approved 17 Dec 21. Delta ASP #3 in draft to align EMD contractor requirements based on limited funding in FY23/24 and to document software development strategy in work.		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0401119F / C-5 Airlift Squadrons (IF)						<b>Project (Number/Name)</b> 671307 / C-5 REPLACE MULTIFUNCT CONTROL AND DISPLAY (RMCD)			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Phase 0 / Integration Contract	SS/CPIF	Lockheed Martin : Marietta, GA	-	3.492	Jun 2021	7.332	Apr 2022	6.100	Nov 2022	-		6.100	Continuing	Continuing	-
Organic Software Development	PO	AFMC 578 SWES/ MXDPAA : Robins AFB, GA	-	1.853		-		-		-		-	Continuing	Continuing	-
Other Transaction Authority (OTA)	SS/FP	SOSSEC, Inc : Salem, NH	-	12.469	Jan 2022	6.495	Apr 2022	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	17.814		13.827		6.100		-		6.100	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Change Orders	Various	TBD : TBD	-	-		0.017		-		-		-	Continuing	Continuing	-
Technical Deliverables	Various	TBD : TBD	-	-		-		-		-		-	Continuing	Continuing	-
PSC-OGCs	Various	WPAFB/RobinsAFB : TBD	-	0.853		-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.853		0.017		-		-		-	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Contractor Test/SIL	Various	TBD : TBD	-	-		-		-		-		-	Continuing	Continuing	-
SIL	PO	AFLCMC/WLS : Robins AFB, GA	-	0.212		0.403	Jun 2022	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.212		0.403		-		-		-	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)				Project (Number/Name) 671307 / C-5 REPLACE MULTIFUNCT CONTROL AND DISPLAY (RMCD)					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSC - Contractor Services	Various	Various : TBD	-	3.863		3.260		-		-		-	Continuing	Continuing	-
SBIR assessment	TBD	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	3.863		3.260		-		-		-	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	22.742		17.507		6.100		-		6.100	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force										<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0401119F / C-5 Airlift Squadrons (IF)					<b>Project (Number/Name)</b> 671307 / C-5 REPLACE MULTIFUNCT CONTROL AND DISPLAY (RMCD)			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Replace Multi-Functional Control &amp; Display</i></b>																												
OTA H/W Contract Award																												
Milestone B																												
SIL																												
Phase 0 / Integration Contract																												
PDR																												
CDR																												
Milestone C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401119F / C-5 Airlift Squadrons (IF)	Project (Number/Name) 671307 / C-5 REPLACE MULTIFUNCT CONTROL AND DISPLAY (RMCD)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Replace Multi-Functional Control &amp; Display</i>				
OTA H/W Contract Award	2	2021	2	2024
Milestone B	3	2023	3	2023
SIL	3	2023	4	2024
Phase 0 / Integration Contract	3	2021	4	2025
PDR	1	2023	1	2023
CDR	3	2023	3	2023
Milestone C	4	2025	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0401130F I C-17 Aircraft (IF)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	11.653	16.360	25.387	0.000	25.387	0.000	0.000	0.000	0.000	0.000	53.400
672569: C-17A Aircraft	-	11.653	16.360	25.387	0.000	25.387	0.000	0.000	0.000	0.000	0.000	53.400
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

The C-17 can perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in both strategic and theater environments. Airlift provides essential flexibility when responding to contingencies on short notice anywhere in the world. It is a major element of America's national security strategy and constitutes the most responsive means of meeting mobility requirements. Specific tasks associated with the airlift mission include deployment, employment, sustaining support, retrograde, and combat redeployment. Not only can the C-17 deliver outsize cargo to austere tactical environments, but it also reduces ground time during air/land operations. The C-17 will perform its airlift mission well into this century.

C-17 Research, Development, Test & Evaluation (RDT&E) funding efforts support, but are not limited to: Aircraft performance improvements, aircraft mission execution and airspace access mandates (i.e., Communications/Navigation Improvements); flight test activities and facilities; development of solutions for obsolescence and safety of flight issues; systems engineering/program support; support for avionics laboratories; software development, test and integration; block development/change management; developments of solutions for needed upgrades to combat obsolescence and safety of flight issues; and proposal preparation for new projects. In FY23, funding efforts will include Roll-On Conference Capsule (ROCC) and Beyond Line of Sight (BLOS).

This funding includes Rapid Global Mobility (RGM) platform-related rapid capability development process activities including early planning, analysis and systems engineering activities which provide linkages between operational needs, system performance requirements, technology needs and opportunities, potential lifecycle costs and enabling the technical foundation for material development.

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 C-17 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 2021 \$0.683 million was expended for civilian pay expenses in this program element, and in FY 2022 \$0.695 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.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0401130F I C-17 Aircraft (IF)				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	9.935	16.360	0.000	0.000	0.000	
Current President's Budget	11.653	16.360	25.387	0.000	25.387	
Total Adjustments	1.718	0.000	25.387	0.000	25.387	
• Congressional General Reductions	-0.018	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	1.940	0.000				
• SBIR/STTR Transfer	-0.260	0.000				
• Other Adjustments	0.056	0.000	25.387	0.000	25.387	
Change Summary Explanation						
FY 2021 funding was increased by a net total of \$1.718 million which included a \$1.940 million Below Threshold Reprogramming increase for BLOS efforts and a decrease of \$0.260 million for Small Business Innovation Research.						
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Beyond Line of Sight (BLOS)				10.327	15.434	23.721
Description: Beyond Line-Of-Sight (BLOS) modernization modification is a development, integration, and retrofit program for C-17 communications. BLOS modifies and improves hardware and software for voice and data communications on the C-17. The program will modify both integrated aircraft avionics as well as back-end mission communications and could utilize both military and commercial satellite systems to extend communication ranges. The current efforts include but are not limited to Aero-I/Aero-H modernizations and Comm Mod. It includes support for on-going flight test, software labs, and system engineering.						
FY 2022 Plans: BLOS effort continues with major design milestones occurring for efforts related to Test & Evaluation,Lab H/W & S/W Qualification.						
FY 2023 Plans:						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0401130F I C-17 Aircraft (IF)						
C. Accomplishments/Planned Programs (\$ in Millions)									FY 2021	FY 2022	FY 2023
BLOS program efforts continue with Test & Evaluation activities and certification efforts, as well as TO verification and training, aircraft cyber assessments and quick reaction support/test activities.											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increase due ramp-up in flight test, software labs, system engineering and engineering/acquisition studies not related to requirements generation.											
Title: Roll-On Conference Capsule (ROCC)									1.326	0.926	1.666
Description: ROCC is a program to replace current Silver Bullet Capsules and includes development/design. Effort will allow US Government senior leaders and staff to work, communicate, and rest in airworthy capsules during long range missions into threat areas, with the protection of the C-17A Globemaster III's defensive systems capability. Specifically, the development phase of the ROCC, (formerly referred to as the Silver Bullet Replacement (SBR) program) will require non-recurring engineering, manufacture of the first article and testing. Support for flight test, software labs, system engineering, program management and engineering/ acquisition studies not related to requirements generation are included in the overall cost.											
FY 2022 Plans: Continuation of ROCC development efforts to include flight test, software labs, system engineering, program management and engineering/acquisition studies support.											
FY 2023 Plans: Continuation of ROCC development efforts to include mitigation actions for head injury risk and seat structure risk, integration test, software labs, system engineering, and certification activities.											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increase due to ramp-up in final development efforts and performance verification efforts.											
Accomplishments/Planned Programs Subtotals									11.653	16.360	25.387
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 Line Item C01700: C-17A	44.798	59.570	152.009	-	152.009	141.563	90.318	123.135	144.831	0.000	756.224
• APAF 07 Line Item C01700: C-17A	0.000	0.000	-	-	-	-	-	-	-	0.000	0.000
• APAF 06 Line Item 000999: Initial Spares/Repair Parts	47.774	21.090	10.707	-	10.707	19.620	31.092	31.603	32.288	0.000	194.174

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0401130F I C-17 Aircraft (IF)						
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 03 Line Item 834070: <i>Mobility Command and Control</i>	-	-	-	-	-	-	-	-	-	0.000	0.000
<b>Remarks</b>											
<b>E. Acquisition Strategy</b>											
<p>The C-17 Acquisition Strategy is based on several separate contracts to support the entire scope of the C-17 weapon system. Globemaster Operational Enhancement (GLOBE) is an indefinite delivery, indefinite quantity (IDIQ) contract used to purchase services and research articles (through delivery orders) to support all RDT&amp;E with our prime contractor. In addition, purchase orders are used to support flight test activities within the projects at Edwards AFB. Additional contract vehicles could be utilized as required.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0401130F / C-17 Aircraft (IF)						Project (Number/Name) 672569 / C-17A Aircraft					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total					
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract		
C-17 BLOS- Beyond Line of Sight	Various	Boeing : Long Beach, CA	-	10.327		15.434		23.138		-		23.138	Continuing	Continuing	72.136		
C-17 ROCC- Roll -On Conference Capsule	Various	Select Tech : Centerville, OH	-	0.643		0.231		1.666		-		1.666	Continuing	Continuing	10.788		
Subtotal			-	10.970		15.665		24.804		-		24.804	Continuing	Continuing	N/A		
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Authority Civilian Pay	Various	Not specified. : TBD	-	0.683		0.695		0.583		-		0.583	Continuing	Continuing	-		
Subtotal			-	0.683		0.695		0.583		-		0.583	Continuing	Continuing	N/A		
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals			-	11.653		16.360		25.387		-		25.387	Continuing	Continuing	N/A		
Remarks																	

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0401130F / C-17 Aircraft (IF)					672569 / C-17A Aircraft			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
C-17																												
Beyond Line of Sight (BLOS) (ACAT III)																												
Roll-On Conference Capsules (ROCC) (ACAT III)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401130F / C-17 Aircraft (IF)	Project (Number/Name) 672569 / C-17A Aircraft

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
C-17				
Beyond Line of Sight (BLOS) (ACAT III)	1	2021	3	2023
Roll-On Conference Capsules (ROCC) (ACAT III)	1	2021	2	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0401132F I C-130J Program							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	6.179	24.112	11.060	0.000	11.060	14.104	14.365	14.668	14.995	Continuing	Continuing
675061: C-130J	0.000	6.179	7.607	9.632	0.000	9.632	14.104	14.365	14.668	14.995	Continuing	Continuing
675305: C-130J Prog	0.000	0.000	16.505	1.428	0.000	1.428	0.000	0.000	0.000	0.000	0.000	17.933
Program MDAP/MAIS Code: 220												
Note In FY 2022, PE 0401132F, (C-130J Program), Project 675061, (C-130J) efforts were transferred to, Project 675305, (C-130J Prog), in order to create a follow on ACAT III program to separate Communications Modernization from the C-130J ACAT I program.												
A. Mission Description and Budget Item Justification The C-130J is a medium-sized transport aircraft capable of performing a variety of combat delivery (tactical airlift) operations across a broad range of mission environments. The C-130J aircraft, with its extended (by 15 feet) fuselage, provides additional cargo carrying capacity for the USAF combat delivery mission compared with legacy C-130E/H and the C-130J (short). Special mission variants of the C-130J conduct airborne psychological operations (EC-130J), weather reconnaissance (WC-130J), search and rescue (HC-130J), and special operations (MC-130J and AC-130J). All aircraft variants must be capable of worldwide operations.  This project provides RDT&E funding for required capabilities that are grouped as "Block" upgrades or "Capability" or Enhancement and Deficiencies (EnD) updates. Content/requirements for block modifications is documented in International Program Directives (IPDs) and as determined in the Cooperative Systems and Software Upgrade Requirements Management (COSSURM) prioritized requirements process. This project will integrate the common-core capabilities developed under this program into the C-130J.  This program element may include necessary civilian pay expenses required to manage, execute, and deliver C130J 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 2021 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$0.000 million is forecasted 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".  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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0401132F I C-130J Program			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	10.656	14.112	0.000	0.000	0.000
Current President's Budget	6.179	24.112	11.060	0.000	11.060
Total Adjustments	-4.477	10.000	11.060	0.000	11.060
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	10.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-4.250	0.000			
• SBIR/STTR Transfer	-0.227	0.000			
• Other Adjustments	0.000	0.000	11.060	0.000	11.060
<b>Congressional Add Details (\$ in Millions, and Includes General Reductions)</b>					
Project: 675305: C-130J Prog Congressional Add: Digital Heads Up Display (HUD) and Enhanced Vision System (EVS)  Congressional Add Subtotals for Project: 675305  Congressional Add Totals for all Projects				FY 2021	FY 2022
				0.000	10.000
				0.000	10.000
				0.000	10.000
<b>Change Summary Explanation</b>					
FY 2021 funding was reduced by a total of \$4.477 million which included a \$4.250 million reprogramming action for higher Air Force priorities and \$0.227 million for Small Business Innovation Research.					
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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401132F / C-130J Program				Project (Number/Name) 675061 / C-130J			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675061: C-130J	0.000	6.179	7.607	9.632	0.000	9.632	14.104	14.365	14.668	14.995	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

In FY 2022, PE 0401132F, (C-130J Program), Project 675061, (C-130J) efforts were transferred to, Project 675305, (C-130J Prog), in order to create a follow on ACAT III program to separate Communications Modernization from the C-130J ACAT I program.

## A. Mission Description and Budget Item Justification

The C-130J is a medium-sized transport aircraft capable of performing a variety of combat delivery (tactical airlift) operations across a broad range of mission environments. The C-130J aircraft, with its extended (by 15 feet) fuselage, provides additional cargo carrying capacity for the USAF combat delivery mission compared with legacy C-130E/H and the C-130J (short). Special mission variants of the C-130J conduct airborne psychological operations (EC-130J), weather reconnaissance (WC-130J), search and rescue (HC-130J), and special operations (MC-130J and AC-130J). All aircraft variants must be capable of worldwide operations.

This project also provides RDT&E funding for required capabilities that are grouped as "Block" upgrades or "Capability" or Enhancement and Deficiencies (EnD) updates. Content/requirements for these efforts is documented in International Program Directives (IPDs) as determined through the Cooperative Systems and Software Upgrade Requirements Management (COSSURM) process or other approved C-130J Joint User Group (JUG) processes. Activities required to complete development and integration of the common-core capabilities for all United States' variants are included in this project. In addition, this project includes early acquisition and engineering studies and initiatives related to the C-130J such as, but not limited to, capability gap resolution, emerging technology assessments, exploration and adaptation, systems integration assessments and technology transition; to include digital transformation.

This project also provides RDT&E funding for requirements that are outside of the "Block" upgrades, "Capability" updates, "Enhancement and Deficiencies" (EnD) updates, or COSSURM process. These efforts may include, but are not limited to, communication, data link, Global Positioning Systems (GPS), electronic warfare, formation flight system, digital pathfinder initiatives and mission support system updates. The requirements are identified and concurred between the C-130J Program Office and Air Mobility Command (AMC). Requirements are documented through the C-130J Program Office approval process.

This project provides RDT&E funding for studies and risk reduction activities and Program Support Costs (PSC).

This project includes RDT&E funding for the following C-130J aircraft variants: C-130J stretch aircraft, C-130J short aircraft, EC-130J aircraft, WC-130J aircraft, HC-130J aircraft, MC-130J aircraft, and AC-130J aircraft.

This project included RDT&E funding for Rapid Global Mobility (RGM) platform related activities including, but not limited to, prototyping, capability development, process activities, planning analysis, digital acquisition and systems engineering activities.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0401132F / C-130J Program		Project (Number/Name) 675061 / C-130J		
<p>This program includes funding for Mobile User Objective System (MUOS), which began in FY 2020 under project 675061. In FY21, the name of this effort changed to Communication Modernization. Development, integration, and test of the new radio and communication systems including, but not limited to, Mobile User Objective System (MUOS), Second-generation Anti-jam Tactical UHF Radio for NATO (SATURN), Joint Range Extension Application Protocols (JREAP) to modernize Military Satellite Communication System (MILSATCOM), Ultra High Frequency (UHF), High Frequency (HF), special mission processing, and data link messaging. These systems will provide secure, global Line of Sight (LOS) and Beyond Line of Sight (BLOS) satellite voice and data connectivity utilizing modern satellite constellations. Furthermore, these systems will also be integrated into other C-130J capabilities, such as Radio Frequency (RF) components including ALR-69A and DRFM (Digital Radio Frequency Memory Countermeasure). Starting in FY22, funding for this effort will continue under project 675305.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver C130J 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 2021 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$0.000 million is forecasted for civilian pay expenses in this program element.</p> <p>"This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D".</p>						
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Block 8.1		2.124	3.673	3.066	0.000	3.066
Description: BLOCK 8.1 Adds Identification Friend or Foe (IFF) Mode 5, Civil Data Link, Automatic Dependent Surveillance - Broadcast (ADS-B), Air Traffic Services (ATS)/Airline Operational Control (AOC) Data Link for Line of Sight (LOS) and Beyond Line of Sight (BLOS) communication, enhanced covert lighting, improved Public Address(PA) System, and Approach Procedure with Vertical guidance (APV)/ Localizer Performance with Vertical guidance (LPV) approach capability. Major avionics platforms impacted include, but are not limited to, Flight Management System (FMS) Software, Mission Computer (MC) Software, Bus Interface Unit (BIU) software, special mission processing, and Maintenance Management System (MMS).						
FY 2022 Plans: Continue Block 8.1 TKI for WC-130J						
FY 2023 Base Plans: Continuation of WC-130J Trial Kit Installation (TKI) Non-Recurring Engineering (NRE)						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to reduced WC-130J TKI NRE requirements.						
Title: Test & Evaluation		0.525	0.645	0.970	0.000	0.970

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0401132F / C-130J Program		Project (Number/Name) 675061 / C-130J		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Description:</b> Test and evaluation planning, conduct and support for developmental and operational testing of C-130J programs; to include, but not limited to the Block 8.1 and CMU2 (8.1.2) programs.</p> <p><b>FY 2022 Plans:</b> CMU 2 (8.1.2) testing requirements for FY22.</p> <p><b>FY 2023 Base Plans:</b> Testing for CMU2 (8.1.2)</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to ramp-up testing for CMU2 (8.1.2)</p>						
<p><b>Title:</b> Capability Management Update (CMU)</p> <p><b>Description:</b> Project 657061, Capabilities Management Upgrades (CMU), changed to Enhancement &amp; Deficiencies (EnD) beginning in FY 2023.</p> <p>CMU 1 (8.1.1) and CMU 2 (8.1.2) refine and build on Block upgrade modifications that improve operational effectiveness, satisfy emerging operational needs, and enhance human machine interface (HMI) to allow a workload that meets human factors standards and maintains the present crew complement. Major systems software impacted includes, but not limited to, FMS Software, MC Software, BIU software, and MMS, Mission Computer (MC), Communications Navigation Identification - System Processor (CNI-SP), Special Mission Display Processor (SMDP) and Data Transfer and Diagnostic System (DTADS).</p> <p><b>FY 2022 Plans:</b> Continuation of software development for Capability Management Update (CMU) 1 and CMU 2 efforts, fielded as Block 8.1.1 and 8.1.2 respectively.</p> <p><b>FY 2023 Base Plans:</b> Continuation of CMU2 program Block 8.1.1 and 8.1.2 activities.</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p>		1.025	1.045	1.927	0.000	1.927

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0401132F / C-130J Program		Project (Number/Name) 675061 / C-130J		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funding increased due to ramp-up of CMU2 block 8.1.1 and 8.1.2 program activities.						
<p><b>Title:</b> Communication Modernization</p> <p><b>Description:</b> Beginning in FY 2022, funding for this effort changed from Project 675061, Communication Modernization to Project 675305, Communication Modernization.</p> <p>Development and integration of the new radio and communication systems including, but not limited to, Mobile User Objective System (MUOS), Second-generation Anti-jam Tactical UHF Radio for NATO (SATURN), Joint Range Extension Application Protocols (JREAP) to modernize Military Satellite Communication System (MILSATCOM), Ultra High Frequency (UHF), High Frequency (HF), special mission processing, and data link messaging. These systems will provide secure, global Line of Sight (LOS) and Beyond Line of Sight (BLOS) satellite voice and data connectivity utilizing modern satellite constellations. Furthermore, these systems will also be integrated into other C-130J capabilities, such as Radio Frequency (RF) components including ALR-69A and DRFM (Digital Radio Frequency Memory Countermeasure).</p> <p><b>FY 2022 Plans:</b> N/A</p> <p><b>FY 2023 Base Plans:</b> N/A</p> <p><b>FY 2023 OCO Plans:</b> N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>		0.241	0.000	0.000	0.000	0.000
<p><b>Title:</b> Enhancement &amp; Deficiencies (EnD)</p> <p><b>Description:</b> Project 657061, Enhancement &amp; Deficiencies (EnD), changed from Capabilities Management Upgrades (CMU) beginning in FY 2023.</p> <p>EnD 1 (8.1.3) and EnD 2 (8.1.4) refine and continue to build upon the Block upgrade modifications that improve operational effectiveness, satisfy emerging operational needs, and enhance human machine interface (HMI) to allow a workload that meets human factors standards and maintains the present crew complement. Major systems software impacted includes, but not limited to, Flight Management System (FMS) Software, Mission Computer (MC) Software, Communications Navigation Identification - System Processor (CNI-SP), Special</p>		0.000	0.000	0.989	0.000	0.989

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0401132F / C-130J Program		Project (Number/Name) 675061 / C-130J		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Mission Display Processor (SMDP), Data Transfer and Diagnostic System (DTADS), Bus Interface Unit (BIU) software, special mission processing, and Maintenance Management System (MMS).  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Base Plans:</b> Initial fielding of Blocks EnD 8.1.3 and EnD 8.1.4 activities.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to Enhancement & Deficiencies 1 contract award activities.						
<b>Title:</b> Cooperative Systems and Software Upgrade Requirements Management (COSSURM)  <b>Description:</b> Continuing effort to collect potential requirements for inclusion into a Capability Management Update, or Enhancement and Deficiencies (EnD) Common Non-Recurring Engineering (CNRE) effort.  <b>FY 2022 Plans:</b> Continuation of CMU/EnD COSSURM requirements review and analysis.  <b>FY 2023 Base Plans:</b> Continuation of COSSURM planning and development of EnD requirements and JUG website.  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to additional activities for EnD requirements and Joint Users Group (JUG) website development.		0.000	0.090	0.180	0.000	0.180
<b>Title:</b> Other Initiatives  <b>Description:</b> C-130J Initiatives/Studies and digital transformation efforts.  <b>FY 2022 Plans:</b> Continuation of Pod Study, Mission Planning, software updates and DevSecOps software pipeline pathfinder  <b>FY 2023 Base Plans:</b>		1.764	2.154	2.500	0.000	2.500

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0401132F / C-130J Program		<b>Project (Number/Name)</b> 675061 / C-130J	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Continuation of Pod Study and Future Initiatives  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to increase in AMC pod study initiatives.					
<b>Title:</b> Below Threshold Reprogramming (BTR)  <b>Description:</b> An FY21 BTR (-0.500M) occurred after the FY23 budget numbers were set. Actual FY21 funding available is \$5.679M.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Base Plans:</b> N/A	0.500	0.000	0.000	-	0.000
<b>Accomplishments/Planned Programs Subtotals</b>	6.179	7.607	9.632	0.000	9.632

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 Line Item C1300J: C-130J Mods	134.090	113.127	-	-	-	0.000	0.000	-	-	0.000	247.217
• APAF 02 Line Item C130J0: C-130J	8.412	8.585	0.000	-	0.000	0.000	0.000	-	-	0.000	16.997
• RDTE 05 C130J AMBIT: AMBIT	1.740	1.350	0.000	-	0.000	0.000	0.000	-	-	0.000	3.090

**Remarks**  
Due to the FY21 -\$0.500M BTR, actual FY21 funding available is \$5.679M.

**D. Acquisition Strategy**  
The C-130J aircraft will be modified using a "block upgrade" strategy. The Communication, Navigation, and Surveillance and Air Traffic Management (CNS/ATM), navigation safety requirement will initially be met in three block upgrades. Block 6.0 development was funded from FY03-07. Block 7.0 started in FY07, and Block 8.1 began in FY12. Subsequently, C-130J modifications will be grouped into smaller updates known as Capability Management Updates (CMU) or Enhancement and Deficiencies (EnD). Other AMC initiatives are upgrades to hardware and software that have arisen after the formation of the block upgrades and CMUs.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675061 / C-130J
<p>In order to better manage the fleet and to avoid having to simultaneously support three separate aircraft configurations (Block 6, Block 7 and Block 8.1) the USAF has decided to combine the Block 7 and Block 8.1 mods. This will allow aircraft and trainers to only have to be modified one time.</p> <p>The proportion of CNS/ATM and navigation safety requirements allocated to Blocks 6.0 through 8.1 was determined via a design trade study conducted by Lockheed Martin (the C-130J prime contractor) and verified by the C-130J system program office and AMC. The development costs are being shared via a global Project Arrangement (PA) by the United States (USAF, USMC, USCG), the United Kingdom, Italy, Australia, Denmark, Canada, and Norway. An international program office (IPO), with USAF lead (Wright Patterson AFB, OH), manages the block upgrades development and CMU efforts. Retrofit of a Block on the aircraft is the responsibility of each nation.</p> <p>To meet the Federal Aviation Administration 2020 mandate, the USAF installed the Block 8.1 ADS-B Out/Mode V IFF solution on all C-130J variants not scheduled to receive Block 8.1 by January 2020. This is Mod #8649, ADS-B Out Acceleration. All C-130Js will still require Block 8.1.</p> <p>In order to meet four DoD technology refresh mandates before end of year 2024, the communications modernization program will develop and field a federated and integrated communications system to Blocks 6.0 and 8.1 C-130J variants.</p> <p>In order to meet the American Mid-Band Initiative, the Station Keeping Equipment (SKE) replacement program will develop and field a new/upgraded formation flight system to Block 6.0 and 8.1 C-130J variants.</p> <p>In order to comply with FAA mandated frequency remapping and NSA mandated crypto-modernization, the aircraft Link 16 receiver transmitter will need to be upgraded to a next generation receiver. One example of the next generation receiver is the Multifunctional Information Distribution System Joint Tactical Radio System (LINK 16) (MIDS-JTRS) terminal.</p>		

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0401132F / C-130J Program	<b>Project (Number/Name)</b> 675061 / C-130J
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130J Block 8.1, Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPFF	Lockheed Martin Information Sytems : Marietta, GA	0.000	1.962	Dec 2020	2.835	Jun 2022	2.058	Feb 2023	-		2.058	0.000	6.855	180.030
C-130J Capability Management Upgrades (CMU), Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPFF	Lockheed Martin Aero : Marietta, GA	0.000	0.000	May 2021	0.000	Mar 2022	0.000		-		0.000	0.000	0.000	20.480
C-130J AMC-Initiatives, Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPFF	Lockheed Martin Aero : Marietta, GA	0.000	1.764	Jan 2021	2.154	May 2022	2.500	May 2023	-		2.500	0.000	6.418	14.730
C-130J Enhancement & Deficiencies (EnD), Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPFF	Lockheed Martin Aero : Marietta, GA	0.000	0.000		0.000		0.989	May 2023	-		0.989	0.000	0.989	-
C130J Cooperative Systems and Software Upgrade Requirements Management (COSSURM), Air Force Life Cycle Mgmt Ctr (AFMC), WPAFB, OH	SS/CPFF	Lockheed Martin Aero : Marietta, GA	0.000	-		-		0.000	May 2023	-		0.000	0.000	0.000	-
<b>Subtotal</b>			0.000	3.726		4.989		5.547		-		5.547	0.000	14.262	N/A

**Remarks**  
C-130J Block 8.1 Total Cost is below Target Value of Contract to account for the expected cost reduction initiatives on this Cost Plus Award Fee Contract.

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test and Evaluation	PO	Not specified. : EGLIN, FL	0.000	0.525		0.645	Apr 2022	0.970	Nov 2022	-		0.970	0.000	2.140	-
<b>Subtotal</b>			0.000	0.525		0.645		0.970		-		0.970	0.000	2.140	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0401132F / C-130J Program	<b>Project (Number/Name)</b> 675061 / C-130J
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Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130J IPO Support	TBD	N/A : NV	0.000	1.025	Feb 2021	1.045	Feb 2022	1.927	Feb 2023	-		1.927	0.000	3.997	15.014
C-130J COSSURM	TBD	RAF : NV	0.000	0.000		0.090	Apr 2022	0.180	Feb 2023	-		0.180	0.000	0.270	16.548
C-130J Support	TBD	N/A : OH	0.000	0.903	Feb 2021	0.838	Feb 2022	1.008	Feb 2023	-		1.008	0.000	2.749	15.014
<b>Subtotal</b>			0.000	1.928		1.973		3.115		-		3.115	0.000	7.016	N/A

**Remarks**

The current COSSURM contract is managed by the United Kingdom Royal Air Force (RAF) with the USG taking over as the primary contracting authority in FY23.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	0.000	6.179	7.607	9.632	-	9.632	0.000	23.418	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0401132F / C-130J Program	<b>Project (Number/Name)</b> 675061 / C-130J
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>C-130J</b>																												
Block 8.1 Development																												
Block 7.0/8.1 Trial Kit Installation (TKI) WC																												
CMU 2																												
EnD																												
COSSURM																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022	
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program		Project (Number/Name) 675061 / C-130J	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
C-130J				
Block 8.1 Development	2	2022	4	2024
Block 7.0/8.1 Trial Kit Installation (TKI) WC	2	2022	4	2025
CMU 2	1	2022	1	2025
EnD	3	2023	4	2027
COSSURM	4	2022	4	2027

**Note**  
Communication Modernization program continues under project 675305, starting in FY22.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0401132F / C-130J Program				Project (Number/Name) 675305 / C-130J Prog			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675305: C-130J Prog	0.000	0.000	16.505	1.428	0.000	1.428	0.000	0.000	0.000	0.000	0.000	17.933
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2022, PE 0401132F, (C-130J Program), Project 675061, (C-130J) efforts were transferred to, Project 675305, (C-130J Prog), in order to create a follow on ACAT III program to separate Communications Modernization from the C-130J ACAT I program.

**A. Mission Description and Budget Item Justification**

This program includes funding for Mobile User Objective System (MUOS), which began in FY 2020 under project 675061. In FY21, the name of this effort changed to Communication Modernization. Development and integration of the new radio and communication systems including, but not limited to, Mobile User Objective System (MUOS), Second-generation Anti-jam Tactical UHF Radio for NATO (SATURN), Joint Range Extension Application Protocols (JREAP) to modernize Military Satellite Communication System (MILSATCOM), Ultra High Frequency (UHF), High Frequency (HF), special mission processing, and data link messaging. These systems will provide secure, global Line of Sight (LOS) and Beyond Line of Sight (BLOS) satellite voice and data connectivity utilizing modern satellite constellations. Furthermore, these systems will also be integrated into other C-130J capabilities, such as Radio Frequency (RF) components including ALR-69A and DRFM (Digital Radio Frequency Memory Countermeasure). Starting in FY22, funding for this effort will continue under project 675305.

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 2021 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$0.000 million is forecasted for civilian pay expenses in this program element.

This Budget Program Activity Code also included FY22 Congressional Add, in the amount of 10.0M, to upgrade and enhance the digital HUD and Enhanced Vision System (EVS) to improve reliability and replace obsolete parts.

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

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> Communication Modernization	0.000	6.505	1.428	0.000	1.428
<b>Description:</b> Starting in FY 2022, funding for this effort changed from Project 675061, Communication Modernization to Project 675305, Communication Modernization. Development, integration, and testing of the new radio and communication systems including, but not limited to, Mobile User Objective System (MUOS), Second-generation Anti-jam Tactical UHF Radio for NATO (SATURN),					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0401132F / C-130J Program		<b>Project (Number/Name)</b> 675305 / C-130J Prog		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Joint Range Extension Application Protocols (JREAP) to modernize Military Satellite Communication System (MILSATCOM), Ultra High Frequency (UHF), High Frequency (HF), special mission processing, and data link messaging. These systems will provide secure, global Line of Sight (LOS) and Beyond Line of Sight (BLOS) satellite voice and data connectivity utilizing modern satellite constellations. Furthermore, these systems will also be integrated into other C-130J capabilities, such as Radio Frequency (RF) components including ALR-69A and DRFM (Digital Radio Frequency Memory Countermeasure (DRFM)).  <b>FY 2022 Plans:</b> Continue development of new radio systems to modernize MILSATCOM.  <b>FY 2023 Base Plans:</b> Continuation of Comm Modernization NRE for MILSATCOM Mod  <b>FY 2023 OCO Plans:</b> N/A  <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding decreased due to reduced Communication Modernization MILSATCOM Mod program activities.						
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	6.505	1.428	0.000	1.428
		<b>FY 2021</b>	<b>FY 2022</b>			
<b>Congressional Add:</b> Digital Heads Up Display (HUD) and Enhanced Vision System (EVS)  <b>FY 2021 Accomplishments:</b> N/A  <b>FY 2022 Plans:</b> To upgrade the digital HUD and EVS and to improve reliability and replace obsolete parts		0.000	10.000			
<b>Congressional Adds Subtotals</b>		0.000	10.000			
<b>C. Other Program Funding Summary (\$ in Millions)</b>						
N/A						
<b>Remarks</b>						
<b>D. Acquisition Strategy</b>						
In order to meet four DoD technology refresh mandates before end of year 2024, the communication modernization program will develop and field a federated and integrated communications system to Block 6.0 and 8.1 C-130J variants.						

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0401132F / C-130J Program				Project (Number/Name) 675305 / C-130J Prog					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Not specified.	SS/CPFF	Collins Aero/ Lockheed : Marietta, GA	0.000	0.000		10.000	Aug 2022	-		-		-	0.000	10.000	-
C-130J Communication Modernization, Air Force Life Cycle Mgmt Ctr (AMFC), WPAFB, OH	SS/CPFF	Lockheed Martin Aero : Marietta, GA	0.000	0.000		6.505	Aug 2022	1.428		-		1.428	0.000	7.933	-
Subtotal			0.000	0.000		16.505		1.428		-		1.428	0.000	17.933	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		16.505		1.428		-		1.428	0.000	17.933	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity										R-1 Program Element (Number/Name)									
3600 / 7										PE 0401132F / C-130J Program									
										Project (Number/Name)									
										675305 / C-130J Prog									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
C-130J																												
Communication Modernization (MILSATCOM)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401132F / C-130J Program	Project (Number/Name) 675305 / C-130J Prog

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
C-130J				
Communication Modernization (MILSATCOM)	4	2022	3	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 0401134F I Large Aircraft IR Countermeasures (LAIRCM)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	4.949	5.540	2.909	0.000	2.909	5.969	0.000	0.000	0.000	Continuing	Continuing
674942: Large Aircraft Infrared Counter Measures (LAIRCM)	-	4.949	5.540	2.909	0.000	2.909	5.969	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Large Aircraft Infrared Countermeasures (LAIRCM) system is an evolutionary acquisition program that provides significantly improved defensive systems capability for DoD aircraft to counter the infrared (IR) man-portable air-defense systems (MANPADS) missile threat. The current LAIRCM system configuration [AN/AAQ-24V] consists of missile warning sensors (MWS), a laser transmitter assembly, control interface unit and processors to detect, track, jam and counter incoming IR missiles. The number of sensors and transmitter assemblies per aircraft is determined by the size and signature of the aircraft. The system is fully automatic following system power-up. LAIRCM requirements are documented in the multi-command Operational Requirements Document (ORD) LAIRCM ORD 314-92, validated on 03 Aug 98. The system is currently installed on 54+ aircraft types and over 1200 aircraft.

The baseline program development is complete. Follow-on efforts are addressing integration onto new aircraft types and existing LAIRCM platforms, design changes to address Reliability Maintainability & Availability and system improvements to counter new and emerging threats.

LAIRCM upgrades include, but are not limited to, hardware and software upgrades and testing of the LAIRCM system to maintain defensive capability against new and emerging threats.

Current and future efforts include Threat Analysis; Modeling, Simulation and Emulation Testing; Virtual System Integration Lab (SIL) Development; and Studies and Analysis.

Threat Analysis: Threat analysis encompasses the activities to support threat exploitation analysis of a variety of threats (both known and emerging) against the current LAIRCM jam code with the intent of determining if jam code updates are required. Typical threat analysis activities include: threat seeker characterization; model development for advanced threat IR seekers; development and testing of new infrared countermeasures concepts, techniques, and hardware; new technology assessment for potential incorporation into the LAIRCM system, and the evaluation/exploitation of new threats and threat characteristics relative to infrared countermeasures (IRCM).

Modeling, Simulation, and Emulation Testing: Modeling, Simulation, and Emulation activities verify and validate the information obtained from the threat analysis activities. These activities include: evaluation of (IRCM) techniques used in defeating real threat hardware; developing and evaluating jam code; validating and verifying integration of LAIRCM system components to newly developed jam codes, software or hardware; evaluating system effectiveness; performing platform integration support tests; and conducting predictive risk reduction tests prior to Live Missile Fire Test (LMFT) or on aircraft flight testing.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0401134F I Large Aircraft IR Countermeasures (LAIRCM)				
<p>Virtual SIL Development: Incrementally design, develop, integrate, and test software code and purchase associated infrastructure (i.e., computers, servers, commercial off-the-shelf (COTS) software, etc.) necessary to develop and implement a virtual SIL providing a critical capability for testing the LAIRCM system to ensure continued effectiveness against current and emerging threats.</p> <p>Studies and Analysis: Includes logistics, programmatic, and engineering studies and analysis activities to ensure continued system viability and sustainability and compliance with acquisition directives. These activities may include the evaluation of low cost/high payback opportunities to reduce software development/implementation cost, enhance production efficiency, and improve life cycle costs through increased reliability and reduced repair and return cost.</p> <p>Program support cost efforts consist of, but are not limited to contract services and government costs.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver LAIRCM 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 2021 \$00.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$00.000 million 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>						
B. Program Change Summary (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		5.497	5.540	0.000	0.000	0.000
Current President's Budget		4.949	5.540	2.909	0.000	2.909
Total Adjustments		-0.548	0.000	2.909	0.000	2.909
• 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		-0.468	0.000			
• SBIR/STTR Transfer		-0.080	0.000			
• Other Adjustments		0.000	0.000	2.909	0.000	2.909
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 FY 2023 cannot be made in a relevant manner.						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0401134F I Large Aircraft IR Countermeasures (LAIRCM)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: LAIRCM Threat Analysis  Description: Encompasses the activities to support threat exploitation analysis of a variety of threats against the current LAIRCM jam code with the intent of determining if jam code updates are required.  FY 2022 Plans: Continue to work on Threat Analysis in the Guided Weapons Evaluation Facility (GWEF), ITWL with Northrop Grumman (NG), Jam Code Live Fire Missile Testing (LFMT), Test Support and other efforts with Air Force Research Laboratory (AFRL).  FY 2023 Base Plans: Continue to work on Threat Analysis in the Guided Weapons Evaluation Facility (GWEF), ITWL with Northrop Grumman (NG), Jam Code Live Fire Missile Testing (LFMT), Test Support and other efforts with Air Force Research Laboratory (AFRL).  FY 2023 OCO Plans: N/A  FY 2022 to FY 2023 Increase/Decrease Statement: Funding decrease due to reduction in Threat Exploitation Analysis in FY 2023.		4.428	5.190	2.559	0.000	2.559
Title: LAIRCM Modeling, Simulation and Emulation Testing  Description: Activities that verify and validate the information obtained from threat analysis activities.  FY 2022 Plans: Will continue to work in Modeling, Simulation and Emulation Tests. This is a continued effort from LAIRCM Development from previous years.  FY 2023 Base Plans: Continuation of Modeling, Simulation and Emulation Tests. This is a continued effort from LAIRCM Development from previous years.  FY 2023 OCO Plans: N/A  FY 2022 to FY 2023 Increase/Decrease Statement:		0.521	0.350	0.350	0.000	0.350

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force							<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>				<b>R-1 Program Element (Number/Name)</b> PE 0401134F / <i>Large Aircraft IR Countermeasures (LAIRCM)</i>							
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>							<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
N/A											
<b>Accomplishments/Planned Programs Subtotals</b>							4.949	5.540	2.909	0.000	2.909
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 Line Item LAIRCM: <i>Large Aircraft Infrared Countermeasures</i>	56.320	57.001	25.286	-	25.286	5.460	31.376	20.528	20.973	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> Efforts awarded on an annual basis, exercising existing contract options, support threat analysis and system effectiveness. The LAIRCM program office partners with the Air Force Research Laboratory (AFRL), the 46th Test Squadron, and the Guided Weapon Evaluation Facility (GWEF) to conduct threat analysis research and Modeling, Simulation, and Emulation Testing. AFRL provides hardware-in-the-loop developmental test simulation capability on a level-of-effort (LOE) basis. The current LAIRCM contract may be used to award the various study efforts.											

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Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0401134F / Large Aircraft IR Countermeasures (LAIRCM)

## Project (Number/Name)

674942 / Large Aircraft Infrared Counter Measures (LAIRCM)

## Test and Evaluation (\$ in Millions)

				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LAIRCM ETA Threat Analysis/Guided Weapon Evaluation Facility	PO	GWEF : Eglin AFB, FL	-	1.716	Jan 2021	0.804	Jan 2022	-		-		-	Continuing	Continuing	-
LAIRCM ETA Modeling, Simulation and Emulation Test	MIPR	AFRL/RYF-Test Support : WPAFB, OH	-	0.461	Nov 2020	0.350	Jan 2022	0.350	Dec 2022	-		0.350	Continuing	Continuing	-
LAIRCM ETA Threat Analysis/Air Force Research Laboratory (AFRL)	MIPR	AFRL/RYF-DIME : WPAFB, OH	-	0.755	Feb 2021	1.400	Jan 2022	0.550	Jan 2023	-		0.550	Continuing	Continuing	-
LAIRCM ETA System Cabling/Live Fire/ITWL	SS/TBD	NGC : Rolling Meadows, IL	-	1.957	Jan 2021	2.986	Feb 2022	2.009	Jan 2023	-		2.009	Continuing	Continuing	-
<b>Subtotal</b>			-	4.889		5.540		2.909		-		2.909	Continuing	Continuing	N/A

## Management Services (\$ in Millions)

				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LAIRCM ETA Government Travel	Various	Government Employees : WPAFB, OH	-	0.060		-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.060		-		-		-		-	Continuing	Continuing	N/A

## Remarks

Program moved Travel from 3600 to 3010. To be more in alignment to the phase of the program.

			Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			-	4.949	5.540	2.909	-	2.909	Continuing	Continuing	N/A

## Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0401134F / Large Aircraft IR Countermeasures (LAIRCM)										Project (Number/Name) 674942 / Large Aircraft Infrared Counter Measures (LAIRCM)									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LAIRCM																												
Threat Analysis																												
Modeling , Simulation, and Emulation Testing																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401134F / Large Aircraft IR Countermeasures (LAIRCM)	Project (Number/Name) 674942 / Large Aircraft Infrared Counter Measures (LAIRCM)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
LAIRCM				
Threat Analysis	1	2021	4	2024
Modeling , Simulation, and Emulation Testing	1	2021	4	2024

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0401218F / KC-135s							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	4.583	3.564	12.955	0.000	12.955	7.266	0.000	0.000	0.000	Continuing	Continuing
675261: <i>KC-135 Upgrades</i>	-	4.583	3.564	12.955	0.000	12.955	7.266	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program, BA 7, PE 0401218F, project 675261, Center Console Refresh, is a new start.  
This program, BA 7, PE 0401218F, project 675261, High Frequency Modernization, is a new start.  
This program, BA 7, PE 0401218F, project 675261, COMM 2 Crypto and Data, is a new start.

**A. Mission Description and Budget Item Justification**

The KC-135 currently utilizes the legacy V/UHF satellite system, UHF Follow-On (UFO), to communicate with their controlling Command & Control (C2) agencies and other warfighters. This program adds to the current system by providing Beyond Line Of Sight (BLOS) and Line Of Sight (LOS) capability for secure voice and C2 data communications exchange between MAF aircraft and C2 agencies and is capable of operating with new crypto algorithms being developed under the VINSON/ANDVT Crypto Modernization (VACM) Program.

This program has 4 combined 1067s to meet the requirement:

- 1) Mobile User Objective System (MUOS): Initial integration for MUOS capable radios on Block 45 aircraft in the COM 3 position with Integrated Waveform capability and SATURN backward capability for Line of Sight. ARC-210 Gen 3 radios on KC-135 will be obsolete in 2023. Requirement for ARC-210 Gen 3 radios, 10-050 Crypto, 15-046 MUOS, 16-053 SATURN, and 17-039 IW.
- 2) Center Console Refresh (CCR) consists of Fuel Management System (FMS) and Flight Display Systems (FDS) Upgrade to combat obsolescence and provide a platform for Digital Flight Instrumentation. Requirement generated and awaiting Control Review Board.
- 3) High Frequency Modernization (HF): Replace legacy HF radio with a modernized HF radio on KC-135 aircraft. A modernized HF communications capability is necessary to enable future sustainability and growth to operate in SATCOM-denied scenarios while maintaining global, secure voice and data between Mobility Air Force aircraft and command and control (C2) agencies to exchange classified information. Requirement: Modernized High Frequency (HF) Radio.
- 4) COMM2 Crypto and Data: Initial integration for ARC-210 Radio replacement in the COMM 2 position with HAVE QUICK II and SATURN capability and solution for the Video Data Link-2000 replacement. ARC-210 Gen 3 radios on KC-135 will be obsolete Oct 1, 2023. Continued VHF Secure Voice & UHF/VHF Anti-Jam radio capability requires legacy ARC-210 Radio replacement by NSA crypto modernization suspense.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022					
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0401218F I KC-135s						
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 2021 \$00.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$00.000 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total		
Previous President's Budget		4.583	3.564	0.000	0.000	0.000		
Current President's Budget		4.583	3.564	12.955	0.000	12.955		
Total Adjustments		0.000	0.000	12.955	0.000	12.955		
• 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	12.955	0.000	12.955		
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 FY 2023 cannot be made in a relevant manner.”								
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: KC-135 MUOS radio				4.583	3.564	3.795	0.000	3.795
Description: The KC-135 utilizes the legacy V/UHF satellite system, UHF Follow-On (UFO), to communicate with their controlling Command & Control (C2) agencies and other warfighters. This program upgrades COMM 3 by adding Beyond Line Of Sight (BLOS) and Line Of Sight (LOS) capability for secure voice and C2 data communications exchange between MAF aircraft and C2 agencies and is capable of operating with new crypto algorithms being developed under the VINSON/ANDVT Crypto Modernization (VACM) Program by National Security Agency.								

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0401218F I KC-135s				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY 2022 Plans: Prototype and integration efforts for first articles.						
FY 2023 Base Plans: Integration of program upgrades COMM 3 to include BLOS capability for secure voice and C2 data communications.						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to additional integration efforts for communication modernization upgrades.						
Title: Center Console Refresh		0.000	0.000	3.060	0.000	3.060
Description: Center Console Refresh (CCR) consists of Fuel Management System (FMS) and Flight Display Systems (FDS) Upgrade to combat obsolescence and provide a platform for Digital Flight Instrumentation.						
FY 2022 Plans: N/A						
FY 2023 Base Plans: CCR contracting activities to include source selection.						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increase due to ramp up of CCR activities.						
Title: High Frequency Modernization		0.000	0.000	1.300	0.000	1.300
Description: Replace legacy HF radio with a modernized HF radio on KC-135 aircraft. A modernized HF communications capability is necessary to enable future sustainability and growth to operate in SATCOM-denied scenarios while maintaining global, secure voice and data between MAF aircraft and command and control (C2) agencies to exchange classified information.						
FY 2022 Plans:						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force								Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development				R-1 Program Element (Number/Name) PE 0401218F I KC-135s							
C. Accomplishments/Planned Programs (\$ in Millions)						FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
N/A											
FY 2023 Base Plans: Testing and integration of modernized HF radio and communications capabilities.											
FY 2023 OCO Plans: N/A											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increase due to increase in testing and integration activities for modernized HF radio.											
Title: COMM 2 Crypto and Data						0.000	0.000	4.800	0.000	4.800	
Description: Initial integration for ARC-210 Radio replacement in the COMM 2 position with HAVE QUICK II and SATURN capability and solution for the VHF Data Link-2000 replacement. ARC-210 Gen 3 radios on KC-135 will be obsolete Oct 1, 2023. Continued VHF Secure Voice & UHF/VHF Anti-Jam radio capability requires legacy ARC-210 Radio replacement by NSA crypto modernization suspense.											
FY 2022 Plans: N/A											
FY 2023 Base Plans: Contract activities for initial integration of ARC-210 Gen 3 radio replacement.											
FY 2023 OCO Plans: N/A											
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increase due to ramp-up of EMD activities and contract award.											
Accomplishments/Planned Programs Subtotals						4.583	3.564	12.955	0.000	12.955	
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 C13500: C-135	0.000	0.000	47.256	0.000	47.256	31.064	28.591	21.233	62.462	Continuing	Continuing
Remarks											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0401218F / KC-135s	
<b>E. Acquisition Strategy</b>  MUOS Procure B-Kit components through PMA-209 a Navy IDIQ contract. Utilize existing contract vehicle for RDT&E effort. To include integration, testing, and prototypes. Potential small business for A-Kit and depot-level for installs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0401218F / KC-135s				Project (Number/Name) 675261 / KC-135 Upgrades					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MUOS Radios Product Development	SS/CPFF	Not specified. : TBD	-	3.810	Feb 2022	3.544	Jun 2022	3.777	Oct 2022	-		3.777	Continuing	Continuing	-
MUOS Long Lead B-Kit Procurement for RDT&E	MIPR	Not specified. : TBD	-	0.723	May 2021	-		-		-		-	Continuing	Continuing	-
COMM 2 Crypto and Data Long Lead B-Kit Procurement for RDT&E	TBD	Not specified. : TBD	-	-		-		4.800	Oct 2022	-		4.800	Continuing	Continuing	-
Not specified.	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	4.533		3.544		8.577		-		8.577	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MUOS Support	Various	Not specified. : TBD	-	0.050	Mar 2022	0.020		0.018		-		0.018	Continuing	Continuing	-
Subtotal			-	0.050		0.020		0.018		-		0.018	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
HF Test and Evaluation	TBD	Not specified. : TBD	-	-		-		1.300	Mar 2023	-		1.300	Continuing	Continuing	-
Subtotal			-	-		-		1.300		-		1.300	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
CCR Dir Cite Auth Civ Pay	TBD	Not specified. : TBD	-	-		-		1.360	Nov 2022	-		1.360	Continuing	Continuing	-
CCR RFP and Source Selection	TBD	Not specified. : TBD	-	-		-		1.700	Mar 2023	-		1.700	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0401218F / KC-135s				Project (Number/Name) 675261 / KC-135 Upgrades					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Subtotal			-	-		-		3.060		-		3.060	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	4.583		3.564		12.955		-		12.955	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0401218F / KC-135s								Project (Number/Name) 675261 / KC-135 Upgrades			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>KC-135 MUOS Radio</b>																												
Long Lead B-Kit components for RDT&E																												
Contract Award, EMD, and Test																												
<b>COMM 2 Crypto and Data</b>																												
Contract award, EMD and Test																												
<b>HF Modernization</b>																												
Integration and Test																												
<b>Center Console Refresh (CCR)</b>																												
Contract award, EMD and Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0401218F / KC-135s	Project (Number/Name) 675261 / KC-135 Upgrades

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>KC-135 MUOS Radio</b>				
Long Lead B-Kit components for RDT&E	2	2021	2	2022
Contract Award, EMD, and Test	3	2022	2	2024
<b>COMM 2 Crypto and Data</b>				
Contract award, EMD and Test	3	2023	3	2024
<b>HF Modernization</b>				
Integration and Test	2	2023	2	2024
<b>Center Console Refresh (CCR)</b>				
Contract award, EMD and Test	1	2023	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0401318F I CV-22							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	143.303	17.823	17.189	10.121	0.000	10.121	18.086	16.348	16.691	17.061	Continuing	Continuing
676033: CV-22 RDT&E POST PRODUCTION	143.303	17.823	17.189	10.121	0.000	10.121	18.086	16.348	16.691	17.061	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 212 Project MDAP/MAIS Code(s): N42												
A. Mission Description and Budget Item Justification The CV-22 is the Air Force Special Operations Forces (SOF) variant of the joint multi-mission V-22 tilt rotor aircraft. The CV-22 provides long-range, high-speed infiltration, exfiltration, and resupply to Special Forces teams in hostile, denied, and politically sensitive areas. The Navy is the lead service for the Joint V-22 program. The Joint Program Manager is responsible for managing all variants of the V-22. Department of the Navy (DoN) funds the development of the MV-22 and CMV-22. The Air Force funds the service common portion of the CV-22 while United States Special Operations Command (USSOCOM) funds the development and procurement of SOF peculiar systems. CV-22 RDT&E funding provides for the development, integration, and testing of service-common, mission critical aircraft modifications to improve operational effectiveness, platform survivability, and aircraft availability.  Airframe Enhancements: RDT&E funds the design, development, and testing of improvements to airframe structures, aircraft electro-mechanical and hydraulic hardware, and dynamic components to counteract the effects of structural fatigue and improve the durability and readiness of V-22 aircraft. Refinement of aircraft system's components to improve longevity and/or maintainability while protecting their performance are meant to allow continued CV-22 operation as the aircraft age.  Enhanced Self-Deployment: RDT&E funding provides for the design, development, and testing of aircraft modifications to improve aircraft self-deployment capabilities (e.g. operating range, global response time) to mitigate emerging threats to the aircraft and mission accomplishment, and to identify and assess emerging air vehicle, propulsion system, avionics architecture, electronic warfare, situational awareness, and other weapon system solutions to meet CV-22 Block 20 operational requirements.  CV-22 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 CV-22 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 2021 \$0.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$0.000 million is forecasted for civilian pay expenses in this program element.												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022					
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0401318F I CV-22						
The FY 2023 funding request was reduced by \$7.54 million to account for the availability of unexpended 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total		
Previous President's Budget		18.385	17.189	0.000	0.000	0.000		
Current President's Budget		17.823	17.189	10.121	0.000	10.121		
Total Adjustments		-0.562	0.000	10.121	0.000	10.121		
• 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		-0.562	0.000					
• Other Adjustments		0.000	0.000	10.121	0.000	10.121		
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.								
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Airframe Enhancement				11.414	10.498	7.021	-	7.021
Description: Airframe Enhancements, formerly known as Nacelle Modifications, funds the improvement of airframe structures, aircraft electro-mechanical hardware, and dynamic components to counteract the effects of structural fatigue and improve the durability and readiness of V-22 aircraft to include design, development, and testing of V-22 Nacelle components. This RDT&E funding provides for the design, development, and testing of redesign support or loadbearing airframe elements to provide structural reinforcement and improved longevity. Enhanced armor protective performance with reduced weight and space impacts are a possible area for development. Airframe Enhancement funds also provide for refinements of hydraulic, landing gear, or fuel system component to improve and protect their performance. Items such as pumps, lines, tanks/reservoirs/bladders and/or struts may receive enhancements to extend their life and improve their maintainability. Finally, Airframe Enhancements funds target exploring improvements to all V-22 dynamic components, from rotor								

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0401318F I CV-22				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
blades and heads to gearboxes and flight control surfaces with the goals of protecting them from vibrational and frictional wear and enhancing their reliability and readiness.						
FY 2022 Plans: Continue design, development, and testing of Airframe Enhancements						
FY 2023 Base Plans: Planned Projects include the following: Life Limited Aircraft Corrections (LLAC), Nacelle Vibration Suppression System (NVSS), Wheel Break Heat Stack, Leading Edge Angle Corrosion Protection, Infrared Suppressors, Shaft Driven Compressor Improvement, Gimbal Ring Redesign, Proprotor Gearbox Input Quill/ Clutch Redesign, and Proprotor Blades.						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to re-prioritizing resources and reduced design activities.						
Title: Enhanced Self-Deployment Capabilities		6.409	6.691	3.100	0.000	3.100
Description: Develops capabilities to enhance self-deployment, such as improved ice protection, engine performance, performance buyback, navigation, communications, and battle space awareness/networking capabilities/airborne mission networking (ABMN); situational awareness; electronic warfare; weapons systems; defensive avionics systems and architecture; weight reduction initiatives; modular avionics/cyber security implementation and other changes to the underlying aircraft systems necessary to enable these capabilities.						
FY 2022 Plans: Continue design and development activities to enhance situational awareness, Modular Avionics Architecture (MAA)/cyber security, and integration and develop FCC obsolescence effort.						
FY 2023 Base Plans: Continue design and development activities to enhance situational awareness, Modular Avionics Architecture (MAA)/cyber security, integration and develop FCC obsolescence effort, as well as Airborne Mission Networking (ABMN).						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement:						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0401318F I CV-22									
C. Accomplishments/Planned Programs (\$ in Millions)										FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funding decreased due to re-prioritizing resources and reduced design activities.														
Accomplishments/Planned Programs Subtotals										17.823	17.189	10.121	0.000	10.121
D. Other Program Funding Summary (\$ in Millions)														
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost			
• RDTE 07 PE 1160403BB: Special Operations, Aviation Systems	13.011	6.932	11.695	-	11.695	0.000	9.727	19.064	19.445	Continuing	Continuing			
• APAF 02 Line Item Special Operation: CV-22 Modification	58.033	41.762	75.629	-	75.629	113.267	107.335	88.225	86.931	Continuing	Continuing			
• APAF 04 0401318F: CV-22	206.220	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	206.220			
• APAF 05 Line Item V02200: CV-22 Mods	119.396	230.962	153.026	-	153.026	157.561	163.322	164.287	156.768	Continuing	Continuing			
• APAF 06 Line Item 000999: CV-22 Initial Spares/Repair Parts	6.574	10.525	2.254	-	2.254	0.000	0.000	0.000	0.000	0.000	19.353			
• APAF 07 Line Item C0V220: CV-22 Post-Production Support	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
• RDTE 05 PE 0604262N: V-22A Navy	128.100	105.729	125.233	-	125.233	136.158	106.511	122.453	105.024	Continuing	Continuing			
Remarks														
In addition to the funding identified in the table above, prior year funding includes \$575.836M in RDT&E, DW, BA07, PE 1160421BB: Special Operations														
E. Acquisition Strategy														
The V-22 Joint Program Office (Naval Air Systems Command (NAVAIRSYSCOM), PMA-275) is developing new capabilities for the V-22 in block increments.														
--Airframe Enhancements: Life Limited Aircraft Corrections (LLAC), Nacelle Vibration Suppression System (NVSS), Wheel Break Heat Stack, Leading Edge Angle Corrosion Protection, Infrared Suppressors, Shaft Driven Compressor Improvement, Gimbal Ring Joint Redesign, Proprotor Gearbox Input Quill/Clutch Redesign, Proprotor Blades will utilize a combination of sole source and competitive contracts.														
--Enhanced Self-Deployment Capabilities: Modular Avionics, Flight Control Computer, Airborne Mission Networking (ABMN) and performance buyback will utilize a combination of sole source and competitive contracts.														

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0401318F / CV-22	
Development activities for the V-22 program to date have been primarily performed by the prime contractor, Bell-Boeing, on a sole-source basis. Bell-Boeing is a strategic partnership between Bell Helicopter and Boeing Integrated Defense Systems. Efforts are underway to continue increasing competition where feasible, depending primarily on the level of platform integration required and Government rights to technical data.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0401318F / CV-22				Project (Number/Name) 676033 / CV-22 RDT&E POST PRODUCTION					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
V-22 Airframe Enhancements	Various	Various : Various	77.593	8.300	Mar 2021	5.750	Mar 2022	2.821	Mar 2023	-		2.821	18.600	113.064	-
CV-22 Osprey Enhanced Self-deployment Capability	Various	Various : Various	45.299	6.409	Jun 2021	6.691	Jun 2022	3.100	Jun 2023	-		3.100	53.469	114.968	0.000
Subtotal			122.892	14.709		12.441		5.921		-		5.921	72.069	228.032	N/A
Remarks															
Block 20 Development Target Value of Contract differs from total cost because most of the Block 20 development cost was funded in PE 0401318F, BA05. In addition, the SOF peculiar development efforts were funded by USSOCOM MFP-11 funding.															
Nacelle Improvements Development Target Value of Contract differs from total cost because this is a joint development funded by Navy and Air Force.															
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
CV-22 Osprey Engineering Technical Support and Studies	Various	Various : Various	7.969	1.400	Mar 2021	2.373	Mar 2022	1.900	Mar 2023	-		1.900	7.348	20.990	0.000
Subtotal			7.969	1.400		2.373		1.900		-		1.900	7.348	20.990	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
CV-22 Osprey Test & Evaluation Technical Support	Various	Various : Various	11.209	1.514	Dec 2020	2.175	Dec 2021	2.100	Dec 2022	-		2.100	5.148	22.146	0.000
Subtotal			11.209	1.514		2.175		2.100		-		2.100	5.148	22.146	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0401318F / CV-22				<b>Project (Number/Name)</b> 676033 / CV-22 RDT&E POST PRODUCTION					

  

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
CV-22 Osprey Program Support Costs	Various	AFLCMC/WIB : Patuxent River, MD	1.233	0.200	Nov 2020	0.200	Nov 2021	0.200	Nov 2022	-		0.200	1.696	3.529	-
<b>Subtotal</b>			1.233	0.200		0.200		0.200		-		0.200	1.696	3.529	N/A

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	143.303	17.823	17.189	10.121	-	10.121	86.261	274.697	N/A

  

**Remarks**

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0401318F / CV-22

## Project (Number/Name)

676033 / CV-22 RDT&E POST  
PRODUCTION

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>CV-22</b>																												
Airframe Enhancement																												
-- Life Limited Aircraft Correction (LLAC)																												
---Nacelle Vibration Suppression System (NVSS)																												
--Wheel Break Heat Stack																												
**Leading Edge Angle Corrosion Protection																												
**Infrared Suppressors																												
**Shaft Driven Compressor Improvement																												
**Gimbal Ring Joint Redesign																												
** Proprotor Gearbox Input Quill/Clutch Redesign																												
**Proprotor Blades																												
Enhanced Self-Deployment																												
-- Modular Avionics Architecture (MAA)																												
-- Flight Control Computer (FCC)																												
-- Airborne Mission Networking (ABMN)																												
-- Gen 6 MUOS																												
-- PNT Modernization																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0401318F / CV-22	<b>Project (Number/Name)</b> 676033 / CV-22 RDT&E POST PRODUCTION	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>CV-22</b>				
Airframe Enhancement	1	2021	4	2027
-- Life Limited Aircraft Correction (LLAC)	2	2022	3	2023
---Nacelle Vibration Suppression System (NVSS)	3	2023	4	2026
--Wheel Break Heat Stack	2	2024	2	2026
**Leading Edge Angle Corrosion Protection	2	2022	1	2024
**Infrared Suppressors	1	2021	2	2023
**Shaft Driven Compressor Improvement	1	2021	4	2023
**Gimbal Ring Joint Redesign	1	2021	4	2023
** Proprotor Gearbox Input Quill/Clutch Redesign	1	2021	2	2025
**Proprotor Blades	2	2025	4	2027
Enhanced Self-Deployment	1	2021	4	2027
-- Modular Avionics Architecture (MAA)	4	2022	4	2025
-- Flight Control Computer (FCC)	1	2021	1	2026
-- Airborne Mission Networking (ABMN)	2	2022	4	2025
-- Gen 6 MUOS	2	2022	4	2024
-- PNT Modernization	1	2023	1	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0408011F I Special Tactics / Combat Control							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	7.457	6.640	6.297	0.000	6.297	9.177	9.348	9.545	9.758	Continuing	Continuing
675138: ST System Development	-	7.457	6.640	6.297	0.000	6.297	9.177	9.348	9.545	9.758	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

The Special Tactics (ST) System Development project focuses on modernization development for the Special Warfare Acquisition Growth and Refresh (SWAGR). SWAGR will develop, test, train, and modernize the existing and future Family of Systems (FoS) that provide a state-of-the-art Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) capability. It also provides a suite of systems for all Air Force Specialty Codes supporting the ST community within the Air Force Special Operations Command's (AFSOC's) Special Warfare operators. ST System Development focuses on reducing the risk of fratricide and substantially reducing size and weight of the equipment carried through various core capabilities, which include but are not limited to: Human Machine Interface (HMI), Line of Sight (LOS) targeting, medical monitoring, and Machine-to-Machine (M2M) C4ISR System and all other ST capability needs.

This program will develop and enhance technologies for Special Warfare ST operators to recognize, identify, range, nominate, and designate targets during both day and night operations. SWAGR will also significantly reduce the time required to find, track, fix targets, and engage the enemy by providing highly accurate target grid coordinates in three dimensions, generating target imagery both pre- and post-strike, and transmitting target data to Command and Control centers. SWAGR systems are light, compact, and portable for use by dismounted Special Warfare ST operators. FY23-23 SWAGR funding will provide significant improvements in operational capability, situational awareness, and precision lethality in the battle space while continuing to build and enhance the SWAGR family of systems. This may be conducted through industry technology demonstrations, prototypes, and associated engineering support to posture the SWAGR for technology insertion. These efforts will deliver enhanced capability for the dismounted soldier in terms of dramatic weight reduction and increase mission effectiveness across the conflict spectrum. SWAGR also supports AFSOC Tactical Command and Control (TAC C2) programs to develop and enhance communications systems and equipment essential for ST combat controllers, pararescue, combat weather operators, and tactical air controller parties within AFSOC to perform their mission. The ST operators use this equipment to gather and transmit assault zone suitability and weather data and to perform tactical airfield/assault landing/drop zone operations. Due to the rapidly changing threat environment, the acquisition program manager has the authority to redirect funding as necessary to meet current slated and emerging requirements. The above efforts may change based on the need to support current Air Force mission requirements.

SWAGR 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 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 2023 Air Force			Date: April 2022					
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0408011F I Special Tactics / Combat Control						
0606398F. In PY 1.016MM was expended for civilian pay expenses in this program element, and in CY 1.058M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total		
Previous President's Budget		7.659	6.640	0.000	0.000	0.000		
Current President's Budget		7.457	6.640	6.297	0.000	6.297		
Total Adjustments		-0.202	0.000	6.297	0.000	6.297		
• Congressional General Reductions		-0.202	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	6.297	0.000	6.297		
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.								
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Human Machine Interface (HMI)				1.799	1.768	1.600	0.000	1.600
Description: HMI is a system of systems that provides integrated operator interface between all the machine components by using unified visual and auditory displays and controls, such as head-mounted displays, tactical earplug connectivity with man pack or handheld communications, integrated tactical computing solution, and power generation and management systems.								
FY 2022 Plans:								
- support digitally aided combat close air support operations. Plan to develop and operate tests or full spectrum certification (Joint Interoperable Test Command (JITC), Air Force System Interoperability Test (AFSIT), and Authority to Operate (ATO)).								

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0408011F I Special Tactics / Combat Control				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>- explore and define requirements for implementation of the Iridium waveform granting DoD dedicated airtime.</p> <p>- communications development: will upgrade HMI efforts which reduce the Size, Weight, and Power (SWAP) required to be carried by the Special Tactics Community. Specifically includes wireless technology.</p> <p>- require maturation of available technology for future dismounted communication contract in order to meet the requirements of the user.</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Will continue to support digitally aided combat close air support operations. Plan to develop and operate tests or full spectrum certification (Joint Interoperable Test Command (JITC), Air Force System Interoperability Test (AFSIT), and Authority to Operate (ATO)).</p> <p>- Will continue to explore and define requirements for implementation of the Iridium waveform granting DoD dedicated airtime.</p> <p>- Will continue communications development: will upgrade HMI efforts which reduce the Size, Weight, and Power (SWAP) required to be carried by the Special Tactics Community. Specifically includes wireless technology.</p> <p>- Will require maturation of available technology for future dismounted communication contract in order to meet the requirements of the user.</p> <p><b>FY 2023 OCO Plans:</b></p> <p>.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>Current FY23 funding allows for the development to continue with the HMI effort for the Special Tactics CDD.</p>						
<p><b>Title:</b> Line of Sight</p> <p><b>Description:</b> Line of Sight (LOS) targeting enables the Special Warfare ST operators to find, fix, track, target and, engage the enemy at close range during day or night operations by providing highly accurate target coordinates in three dimensions. LOS generates vital imagery both pre and post-strike at a fraction of the weight and is more efficient than legacy equipment carried by the operator. Non Line of sight (XLOS) targeting device exploration and development will help capture future capabilities to the Special Tactics community. XLOS devices allow for a remote expendable reporting environmental sensor that enhances AFSOC Special Operation Weather Team's (SOWT) ability to provide timely, accurate, and critical deep battle space weather reconnaissance and intelligence.</p> <p><b>FY 2022 Plans:</b></p>		0.259	0.278	0.222	0.000	0.222

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0408011F I Special Tactics / Combat Control				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>- explore and develop future Non Line of sight (XLOS) targeting device capabilities for Special Tactics community.</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Will continue to explore and develop future Non Line of sight (XLOS) targeting device capabilities for Special Tactics community.</p> <p><b>FY 2023 OCO Plans:</b></p> <p>.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>Current FY23 funding, slight decrease in overall budget, however funding allows for exploration and development to help capture future capabilities to the Special Tactics community.</p>						
<p><b>Title:</b> Machine-to-Machine (M2M) Software Development</p> <p><b>Description:</b> This program is a Modern Software Development Program (MSDP). The software acquisition uses a modern software development methodology and is not primarily in sustainment. It has no objective system and will use iterative development across the project's lifecycles.</p> <p>A suite of map-centric software applications that enables M2M transfer of precision targeting, information management, C4ISR (Command, Control Communications, Computers, Intelligence, Surveillance, and Reconnaissance), and Situational Awareness (SA) information. Provides the Special Warfare ST operators the ability to find, fix, track, target, and engage the enemy which greatly reduces the kill chain and drastically decreases the possibility of fratricide by enhancing the operator's SA on the battlefield.</p> <p><b>FY 2022 Plans:</b></p> <p>- explore requirements to address future FoS capability gaps.</p> <p>- Continue research and developmental efforts to support requirements in BAO FoS CDD, which includes but is not limited to Assault Zones, Fires, Weather, Personnel Recovery, and Enabling Capabilities.</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Will continue to explore requirements to address future FoS capability gaps.</p> <p>- Will continue research and developmental efforts to support requirements in BAO FoS CDD, which includes but is not limited to Assault Zones, Fires, Weather, Personnel Recovery, and Enabling Capabilities.</p> <p><b>FY 2023 OCO Plans:</b></p>		5.399	4.594	4.475	0.000	4.475

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0408011F / <i>Special Tactics / Combat Control</i>						
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>											
	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>						
.											
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY23 funding allows for the development to continue with the M2M effort for the Special Tactics CDD.											
<b>Accomplishments/Planned Programs Subtotals</b>						7.457	6.640	6.297	0.000	6.297	
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 837100: <i>Tactical C-E Equipment</i>	29.021	38.136	19.054	-	19.054	25.310	25.779	26.322	26.857	Continuing	Continuing
• OPAF 04 Line Item 842990: <i>Personal Safety and Rescue Equipment</i>	2.502	21.647	2.339	-	2.339	2.381	2.425	2.477	2.528	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> Special Warfare Acquisition Growth and Refresh (SWAGR) awarded a contract in FY16 to complete M2M software development. In FY20 this contract was extended to FY22, the plan is to compete a new M2M contract and award during FY22. This effort will include system engineering, design, integration, and fielding support for M2M software. Due to the rapidly changing threat environment, the acquisition program manager has the authority to redirect funding as necessary to meet current slated and emerging requirements. The above efforts may change based on the need to support current Air Force mission requirements. Wright Patterson AFB, OH manages the contract effort.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>				Project (Number/Name) 675138 / <i>ST System Development</i>					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Human Machine Interface (HMI)	C/Various	Various : Various	-	1.745	Dec 2020	1.442	Dec 2021	1.035	Dec 2022	-		1.035	Continuing	Continuing	-
Line of Sight	SS/ Various	Phsyical Optics Corporation : Torrance, CA	-	0.002	Nov 2020	0.002	Nov 2021	0.002	Nov 2022	-		0.002	Continuing	Continuing	-
Machine-To-Machine (M2M) Software Development	C/CPFF	General Dynamics IT : Dayton, OH	-	4.419	Feb 2021	3.438	Feb 2022	0.600	Oct 2022	-		0.600	Continuing	Continuing	-
Machine-To-Machine (M2M) Software Development(New Contract)	C/TBD	TBD : TBD	-	-		1.000		3.700	Oct 2022	-		3.700	Continuing	Continuing	-
Subtotal			-	6.166		5.882		5.337		-		5.337	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Test Agency Support	Various	46 TS : Eglin AFB, FL	-	0.532	Dec 2020	0.380	Dec 2021	0.530	Dec 2022	-		0.530	Continuing	Continuing	-
Subtotal			-	0.532		0.380		0.530		-		0.530	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	Various	Various : Various, NV	-	0.759	Dec 2020	0.378	Dec 2021	0.430	Dec 2022	-		0.430	Continuing	Continuing	-
Subtotal			-	0.759		0.378		0.430		-		0.430	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force											Date: April 2022		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>				Project (Number/Name) 675138 / <i>ST System Development</i>					
	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	7.457		6.640		6.297		-		6.297	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022																			
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat C ontrol</i>										Project (Number/Name) 675138 / <i>ST System Development</i>									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ST System Development																												
Human Machine Interface (HMI)																												
Line of Sight																												
Machine-To-Machine Software Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0408011F / <i>Special Tactics / Combat Control</i>	Project (Number/Name) 675138 / <i>ST System Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>ST System Development</i>				
Human Machine Interface (HMI)	1	2021	4	2027
Line of Sight	1	2021	4	2027
Machine-To-Machine Software Development	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0708055F I Maintenance, Repair & Overhaul System							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	20.422	26.921	19.892	0.000	19.892	0.000	0.000	0.000	0.000	0.000	67.235
675329: MAINTENANCE REPAIR AND OVERHAUL INTIATIVE	-	20.422	26.921	19.892	0.000	19.892	0.000	0.000	0.000	0.000	0.000	67.235
Program MDAP/MAIS Code: 523												
Note In FY 2020 PE 0708055F, Maintenance, Repair & Overhaul Initiative (MROi) efforts were transferred from Project 675207 to Project 675329, MROi, in order to improve transparency of this Business System Category II (BCAT II), formerly an ACAT I acquisition program.  As a result of the transition form DoDI 5000.02 to DoDI 5000.75, MROi was reclassified to a BCAT II program as reflected in the 11 Apr 2018 MROi Milestone B ADM.  A. Mission Description and Budget Item Justification The MROi program is a Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities and Policies (DOTMLPF-P) transformation and standardization of both the business processes and enabling materiel solution. MROi will provide Air Force Sustainment Center (AFSC) with an integrated capability for planning, scheduling, and executing organic depot maintenance to support agile planning, optimized workload assignment, resource allocation, integrated quality, and maintenance-driven Air Force Working Capital Fund (AFWCF) financials auditability. This integrated capability, by definition, represents a critical step forward toward resolution of the Air Force's Integrated Financial Systems Material Weakness.  MROi will implement a configured Oracle Enterprise Business Suite (EBS) commercial off-the-shelf (COTS) software product with required report, interface, conversion, extension, and workflow (RICE-W) objects.  MROi will implement throughout all AFSC commodities, electronics, missile, propulsion, aircraft, software, and maintenance support groups. MROi's implementation will include transitional interfaces with various legacy systems to support continuous operations within the depot maintenance and supporting financials environment.  FY 2023 funding will support continued development and integration of MROi, leading to a planned Full Deployment Decision/Full Deployment Authority to Proceed (ATP). The MROi implementer will continue to configure the Oracle suite for comprehensive program requirements; configure associated Commercial-Off-The-Shelf (COTS) support software; develop RICE-W software; and develop training materials. Collaborative and combined development along with operational testing is being performed iteratively throughout development, configuration, integration, and deployment release. Funds will also be used to perform logistics system risk reduction, data analysis, studies, and innovative integration efforts for common technology capabilities such as cloud migration, infrastructure and cloud developmental test and hosting environment, technology development and mobile applications, as well as to support interfaces with other systems.												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0708055F I Maintenance, Repair & Overhaul 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 FY21 0.000M was expended for civilian pay expenses in this program element, and in FY22 0.278M is forecasted 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.						
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		24.468	26.921	0.000	0.000	0.000
Current President's Budget		20.422	26.921	19.892	0.000	19.892
Total Adjustments		-4.046	0.000	19.892	0.000	19.892
• 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		-3.401	0.000			
• SBIR/STTR Transfer		-0.645	0.000			
• Other Adjustments		0.000	0.000	19.892	0.000	19.892
Change Summary Explanation						
The FY 2021 funding was decreased to accommodate other AF requirements.						
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-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0708055F / Maintenance, Repair & Overhaul System				Project (Number/Name) 675329 / MAINTENANCE REPAIR AND OVERHAUL INITIATIVE			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675329: MAINTENANCE REPAIR AND OVERHAUL INITIATIVE	-	20.422	26.921	19.892	0.000	19.892	0.000	0.000	0.000	0.000	0.000	67.235
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

In FY 2020 PE 0708055F, Project 675207, Maintenance, Repair & Overhaul Initiative (MROi), efforts transferred to PE 0708055F, Project 675329, MROi, in order to improve transparency of this Business System Category II (BCAT II), formerly an ACAT I acquisition program.

As a result of the transition from DoDI 5000.02 to DoDI 5000.75, MROi was reclassified to a BCAT II program as reflected in the 11 Apr 2018 MROi Milestone B ADM.

## A. Mission Description and Budget Item Justification

The MROi program is a Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities and Policies (DOTMLPF-P) transformation and standardization of both the business processes and enabling materiel solution. MROi will provide Air Force Sustainment Center (AFSC) with an integrated capability for planning, scheduling, and executing organic depot maintenance to support agile planning, optimized workload assignment, resource allocation, integrated quality, and maintenance-driven Air Force Working Capital Fund (AFWCF) financials auditability. This integrated capability, by definition, represents a critical step forward toward resolution of the Air Force's Integrated Financial Systems Material Weakness.

MROi will implement a configured Oracle Enterprise Business Suite (EBS) commercial off-the-shelf (COTS) software product with required report, interface, conversion, extension, and workflow (RICE-W) objects.

MROi will implement throughout all AFSC commodities, electronics, missile, propulsion, aircraft, software, and maintenance support groups. MROi's implementation will include transitional interfaces with various legacy systems to support continuous operations within the depot maintenance and supporting financials environment.

FY 2023 funding will support continued development and integration of MROi, leading to a planned Full Deployment Decision/Full Deployment Authority to Proceed (ATP). The MROi implementer will continue to configure the Oracle suite for comprehensive program requirements; configure associated Commercial-Off-The-Shelf (COTS) support software; develop RICE-W software; and develop training materials. Collaborative and combined development along with operational testing is being performed iteratively throughout development, configuration, integration, and deployment release. Funds will also be used to perform logistics system risk reduction, data analysis, studies, and innovative integration efforts for common technology capabilities such as cloud migration, infrastructure and cloud developmental test and hosting environment, technology development and mobile applications, as well as to support interfaces with other systems.

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-2A, RDT&E Project Justification: PB 2023 Air Force							Date: April 2022				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0708055F / Maintenance, Repair & Overhaul System			Project (Number/Name) 675329 / MAINTENANCE REPAIR AND OVERHAUL INITIATIVE				
0606398F. In FY21 0.000M was expended for civilian pay expenses in this program element, and in FY22 0.278M is forecasted for civilian pay expenses in this program element.											
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2021	FY 2022	FY 2023		
Title: Product Development							20.422	26.921	19.892		
Description: The MROi transformation effort will create an enterprise capability for agile planning, scheduling, and depot maintenance. Additionally it will, integrate the capture of auditable financial transactions at the point of work and optimize workload assignments and resource allocations.											
FY 2022 Plans:											
- Continue development and integration of MROi, leading to a planned Full Deployment Decision/Full Deployment Authority to Proceed (ATP).											
- Continue to configure the Oracle suite; configure associated Commercial-Off-The-Shelf (COTS) support software; develop Reports, Interfaces, Conversions and Extensions - Workflows (RICE-W) software; and develop training materials.											
- Continue to perform collaborative and combined development and operational testing iteratively throughout the development, configuration, integration, and deployment.											
FY 2023 Plans:											
- Will continue development and integration of MROi, leading to a planned Full Deployment Decision/Full Deployment Authority to Proceed (ATP).											
- Will continue to configure the Oracle suite; configure associated Commercial-Off-The-Shelf (COTS) support software; develop Reports, Interfaces, Conversions and Extensions - Workflows (RICE-W) software; and develop training materials.											
- Will continue to perform collaborative and combined development and operational testing iteratively throughout the development, configuration, integration, and deployment.											
- Will initiate responsibility of hosting/infrastructure architecture design that relates to MROi.											
FY 2022 to FY 2023 Increase/Decrease Statement:											
Funding reduced to support higher Air Force priorities											
Accomplishments/Planned Programs Subtotals							20.422	26.921	19.892		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 834480: Maintenance Repair & Overhaul Initiative	-	4.387	0.248	-	0.248	-	-	-	-	21.523	26.158

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0708055F / Maintenance, Repair & Overhaul System				<b>Project (Number/Name)</b> 675329 / MAINTENANCE REPAIR AND OVERHAUL INITIATIVE			
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
			<u>FY 2023</u>	<u>FY 2023</u>	<u>FY 2023</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Complete</u>	<u>Total Cost</u>
<u>Remarks</u>											
<b>D. Acquisition Strategy</b>											
<p>MROi uses an agile, incremental build-release acquisition strategy to deliver capability. The program used a competitive, best value strategy to select a system implementer utilizing the existing NETCENTS-2 Small Business Application Services contract for the original contract, which was awarded 11 Jul 2018 and concluded 16 Sep 2020. For the follow-on effort, the program used a competitive, best value strategy to select a system implementer utilizing the existing NETCENTS-2 Full and Open Large Business Application Services contract, awarded in Sep 20. Hosting Infrastructure is planned to be provided through the Enterprise Resource Planning - Common Services (ERP-CS) but MROi will fund program unique hosting infrastructure costs starting in FY23, as required.</p> <ul style="list-style-type: none"> <li>•Development Contract Strategy</li> <li>-Directed use of NETCENTS II Application Services IDIQ</li> <li>--Competitive, Best Value Full Trade-off procedures</li> <li>--Own technical baseline</li> <li>--Tech Stack Licenses</li> <li>--Follow-on increments with financial integration to be performed by large business</li> </ul>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0708055F / Maintenance, Repair & Overhaul System				Project (Number/Name) 675329 / MAINTENANCE REPAIR AND OVERHAUL INTIATIVE					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Maintenance, Repair and Overhaul Initiative: Configuration System Implementer	C/Various	NETCENTS-2 : WPAFB, OH	-	5.557	Jul 2021	11.492	Nov 2021	8.222	Nov 2022	-		8.222	Continuing	Continuing	-
Maintenance, Repair and Overhaul Initiative: MITRE FFRDC	C/CPFF	MITRE : Hanscom AFB, MA	-	0.108	Jul 2021	0.000		0.000		-		0.000	Continuing	Continuing	-
Maintenance, Repair and Overhaul Initiative: PMO Oracle Support	C/CPFF	Various : WPAFB, OH	-	0.537	Feb 2021	1.149	Dec 2021	1.092	Dec 2022	-		1.092	Continuing	Continuing	-
Maintenance, Repair and Overhaul Initiative: Integration and Engineering	MIPR	BAH : WPAFB, OH	-	1.385	May 2021	1.961	Jan 2022	1.602	Dec 2022	-		1.602	Continuing	Continuing	-
Maintenance, Repair and Overhaul Initiative: Oracle Trusted Agent	C/Various	DLT Solution, LLC : Gunter Annex, AL	-	0.299	May 2021	0.631	Nov 2021	0.374	Nov 2022	-		0.374	Continuing	Continuing	-
Maintenance, Repair and Overhaul Initiative: DISA	MIPR	DISA : Fort Mead, MD	-	0.957	Apr 2021	0.220	Nov 2021	0.000		-		0.000	Continuing	Continuing	-
Maintenance, Repair and Overhaul Initiative: EAS	C/FFP	Bowhead : Gunter Annex, AL	-	0.689	Dec 2020	0.789	Nov 2021	0.373	Nov 2022	-		0.373	Continuing	Continuing	-
Maintenance, Repair and Overhaul Initiative: Data platforms, services, integration, transformation and curation	C/FFP	TACG : WPAFB, OH	-	1.662	Dec 2020	1.722	Nov 2021	0.897	Nov 2022	-		0.897	Continuing	Continuing	-
Subtotal			-	11.194		17.964		12.560		-		12.560	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0708055F / Maintenance, Repair & Overhaul System				Project (Number/Name) 675329 / MAINTENANCE REPAIR AND OVERHAUL INTIATIVE					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Maintenance, Repair, and Overhaul Initiative: EPASS	C/CPFF	AFLCMC/AZS : Hanscom, MA	-	3.910	Jan 2021	2.746	Jan 2022	2.450	Nov 2022	-		2.450	Continuing	Continuing	-
Maintenance, Repair and Overhaul Initiative: Direct Cite Authority	Reqn	AFLCMC : Gunter Annex, AL	-	0.000		0.278	Oct 2021	0.285	Oct 2022	-		0.285	Continuing	Continuing	-
Subtotal			-	3.910		3.024		2.735		-		2.735	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Maintenance, Repair and Overhaul Initiative: Test Support	PO	96th Test Wing : Eglin, FL	-	0.253	Jan 2021	1.047	Jan 2022	0.334	Nov 2022	-		0.334	0.000	1.634	-
Maintenance, Repair and Overhaul Initiative: Test Licenses	C/FP	V3 Gate : Gunter Annex, AL	-	2.457	Apr 2021	2.770	Feb 2022	0.000		-		0.000	Continuing	Continuing	-
Maintenance, Repair and Overhaul Initiative: Joint Interoperability Test Command (JITC) Support	MIPR	GSA : WPAFB, OH	-	0.010	Mar 2021	0.005	Mar 2022	0.028	Dec 2022	-		0.028	0.000	0.043	-
Subtotal			-	2.720		3.822		0.362		-		0.362	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Maintenance, Repair, and Overhaul Initiative: PMA	Various	Various : TBD	-	1.499	Jun 2021	1.567	Nov 2021	1.997	Nov 2022	-		1.997	0.000	5.063	-
Maintenance, Repair and Overhaul Initiative: OCI Hosting Environment	TBD	TBD : TBD	-	0.000		0.000		1.343	Nov 2022	-		1.343	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0708055F / Maintenance, Repair & Overhaul System				Project (Number/Name) 675329 / MAINTENANCE REPAIR AND OVERHAUL INTIATIVE					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Maintenance, Repair, and Overhaul Initiative: License Renewal	C/FP	V3 Gate : Gunter Annex, AL	-	1.099	Jan 2021	0.544	Nov 2021	0.895	Mar 2023	-		0.895	Continuing	Continuing	-
Subtotal			-	2.598		2.111		4.235		-		4.235	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	20.422		26.921		19.892		-		19.892	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0708055F / Maintenance, Repair & Overhaul System		
			<b>Project (Number/Name)</b> 675329 / MAINTENANCE REPAIR AND OVERHAUL INITIATIVE		

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Maintenance, Repair and Overhaul Initiative</b>																												
MVP 1																												
MVP 1 Government Integrated Test 1.1																												
MVP 2-4 Development																												
Government Integrated Test (MVP 2-4.1)																												
Government Integrated Test (MVP 2-4.2)																												
Government Integrated Test (MVP 2-4.3)																												
MVP 5-6 Development																												
Government Integrated Test (MVP 5-6.1)																												
Government Integrated Test (MVP 5-6.2)																												
Initial Operational Test & Evaluation																												
Implementation																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0708055F / <i>Maintenance, Repair &amp; Overhaul System</i>	<b>Project (Number/Name)</b> 675329 / <i>MAINTENANCE REPAIR AND OVERHAUL INITIATIVE</i>	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Maintenance, Repair and Overhaul Initiative</i></b>				
MVP 1	1	2021	3	2021
MVP 1 Government Integrated Test 1.1	1	2021	3	2021
MVP 2-4 Development	1	2021	4	2023
Government Integrated Test (MVP 2-4.1)	1	2023	1	2023
Government Integrated Test (MVP 2-4.2)	3	2023	3	2023
Government Integrated Test (MVP 2-4.3)	1	2024	1	2024
MVP 5-6 Development	1	2024	2	2024
Government Integrated Test (MVP 5-6.1)	2	2024	2	2024
Government Integrated Test (MVP 5-6.2)	3	2024	3	2024
Initial Operational Test & Evaluation	4	2024	4	2024
Implementation	2	2024	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0708610F I Logistics Information Technology (LOGIT)							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	32.122	11.071	5.271	0.000	5.271	22.489	19.556	20.853	21.317	Continuing	Continuing
675207: Logistics IT System Modernization	-	32.122	11.071	5.271	0.000	5.271	22.489	19.556	20.853	21.317	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

The AF requires an integrated logistics capability that provides timely, accurate and reliable information to decision makers at all levels of command and across the full range of military operations.

Log IT is a portfolio of programs that currently addresses Transformation, Remediation, and Modernization of Operational Systems. Transformation focuses on transforming the Logistics IT enterprise to a more efficient, cost-effective integrated IT infrastructure. Remediation entails modifying operational Logistics software systems to address congressionally-mandated Financial Improvement & Audit Readiness requirements and remediating critical IT risks through the Logistics Strike Teams (consolidation, re-hosting, analytics). Modernization concentrates on software upgrades for operational systems to increase functional capabilities, reduce sustainment costs, meet statutory IT compliance requirements and improve user performance.

### **FIAR and Software Upgrades:**

- The remediation and modification of core logistics systems is necessary for the AF to meet statutory Financial Improvement Audit Readiness (FIAR) requirements and align with the Joint Chiefs of Staff J-4 Concept for Logistics, and the AF Portfolio Board's approved Logistics Flight Plan. The AF must concurrently sustain and modify identified logistics systems to achieve FIAR remediation by the statutory deadline; execute software upgrades to reduce high operating costs and meet evolving operational demands; implement statutory compliance requirements; improve system performance; and enable system consolidation efforts that lower the cyber threat space and reduce long-term portfolio costs.

- Identified systems include, but are not limited to, the Integrated Logistics System-Supply (ILS-S), Enhanced Technical Information Management System (ETIMS), Integrated Maintenance Data System (IMDS), and Reliability and Maintainability Information System (REMIS). Additional logistics systems may be included as financial audits are completed and system consolidation efforts mature.

### **Transformation:**

- The AF must transform its logistics business processes and transition away from using numerous custom stovepipe systems and processes that perform similar tasks. Eliminating process redundancies across the logistics enterprise will enable the AF to execute more secure, resilient, efficient, cost-effective and integrated logistics. The objective of transformation is to conduct Business Process Re-engineering (BPR) to identify and eliminate overlaps in business processes across core logistics systems

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>
<p>and, where appropriate, implement new IT systems that employ best commercial practices and modern cloud-based architectures.</p> <p>- The AF will take full advantage of the flexibilities provided by DoDI 5000.75, Business Systems Requirements and Acquisition guidance, as well as Agile development methodologies to identify requirements across the spectrum of Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy (DOTMLPF-P); and to acquire and deploy approved material solutions in the most efficient and effective manner possible utilizing the 5-phased Business Capability Acquisition Cycle (BCAC). These phases are structured to optimize a joint responsibility of functional and acquisition activities, leading to the successful delivery of the business capability. There will be an emphasis placed on acquisition of business systems aligned to commercial best practices utilizing commercial off-the shelf (COTS), government off-the-shelf (GOTS) solutions, and modern platforms that support continuous integration and continuous deployment (CI/CD) following a development, security, and operations (DevSecOps) methodology.</p> <p>- The AF logistics enterprise is comprised of multiple overarching functional areas, to include base and depot-level maintenance, end-to-end supply chain management, and predictive analysis and forecasting. The AF will standardize its business processes within each major logistics functional area through Transformational Capability Initiatives (TCIs). These TCIs include, but are not limited to: Maintenance, Repair and Overhaul Initiative (MROi PE 0708055F), Foundational Logistics Information Technology Enterprise System (FLITES), Supply Capability Initiative, Air Force Product Lifecycle Management Capability Initiative (AF-PLM), and Field Maintenance Capability Initiative. There may be one or more specific initiatives aligned to each of the major CI areas referenced above.</p> <p>Transformation Capability Initiatives (TCI):</p> <p>- TCI Foundational Logistics Information Technology Enterprise System (FLITES) provides the capability to manage comprehensive, accurate, reliable item master data (e.g., accurate identification and authorization of owners and users of items). FLITES is a key component of the Air Force (AF) Logistics Capability Transformation Plan. It will provide Item standardization and configuration management from a single authoritative source, ensuring foundational logistics processes are executed in concert to support the A4 logistics baseline. It will enable key integration and transformation capabilities, including Item Unique Identification (IUID) association to business transactions; streamlined management of part item attributes across supply, finance, engineering, technology, transportation, maintenance, and vendor communities; and provide translation capabilities between functional and technical business communities and systems.</p> <p>- TCI Supply Capability Initiative is focused on enabling simplified, standardized processes to fundamentally enhance the business operations and provide total asset visibility across the supply chain. These improvements have been identified in the USAF Logistics Capabilities Transformation Plan.</p> <p>- TCI Field Maintenance will improve the AF field maintenance capabilities across Mission Generation Network (MGN) and Repair Network (RN) (e.g. propulsion, avionics, command and control (C2) enabler systems, cyber systems, communications-electronics &amp; simulation, Precision Measurement Equipment Laboratory (PMEL), etc.) including the planning, scheduling, execution and oversight of functional deficiencies incurred over the past 10 years due to lack of prioritized funding and failure of the previous enterprise-wide modernization approach.</p> <p>-----</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022				
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0708610F I Logistics Information Technology (LOGIT)						
<p>- Funds will be used to perform studies, analysis, and innovative integration efforts for common technology capabilities such as cloud migration, technology development and mobile applications that cross and support all of the aforementioned initiatives.</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 0605831F. In FY21, 0.000M was expended for civilian pay expenses in this program element and in FY22, 0.150M is forecasted for civilian pay expenses in this program element.</p> <p>- This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.</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>								
B. Program Change Summary (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total		
Previous President's Budget		33.186	7.071	0.000	0.000	0.000		
Current President's Budget		32.122	11.071	5.271	0.000	5.271		
Total Adjustments		-1.064	4.000	5.271	0.000	5.271		
• 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		0.000	0.000					
• SBIR/STTR Transfer		-1.064	0.000					
• Other Adjustments		0.000	0.000	5.271	0.000	5.271		
Change Summary Explanation								
The FY 2023 funding request was reduced by \$5 million to account for the availability of prior year execution balances.								
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.								
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Enhanced Technical Information Management System Enhancements (ETIMS Enhancements)				4.600	0.300	1.806	0.000	1.806

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0708610F I Logistics Information Technology (LOGIT)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Description:</b> Modify ETIMS to enhance user capability/functionality. Modifications may include and improvements of services and capabilities to support electronic Tech Order distribution and viewing, deployment of the ETIMS Mobile Application, system changes to subsume functionality of other systems in support of terminating duplicate capability, systems enhancements to meet compliance requirements, and enhancements for information technology modernization.</p> <p><b>FY 2022 Plans:</b></p> <p>- Continue development and testing of ETIMS V01.04</p> <p>- Begin pre-acquisition activities for next ETIMS increment, V01.05</p> <p><b>FY 2023 Base Plans:</b></p> <p>- Will release ETIMS v01.04 mobile into production</p> <p>- Will award development contract for ETIMS v01.05</p> <p>- Will begin development and testing of ETIMS v01.05</p> <p><b>FY 2023 OCO Plans:</b></p> <p>N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>Funding increased to release ETIMS v01.04 mobile into production and begin development contract for ETIMS v01.05</p>						
<p><b>Title:</b> Logistics Enhancements</p> <p><b>Description:</b> Modify programs to meet existing and future compliance requirements. Support Logistics Application Rationalization. Modifications may include system changes to subsume functionality of other systems in support of terminating duplicate capability and systems, as well as enhancements to meet compliance requirements, such as Item Unique Identification (IUID), Defense Logistics Marking Standards (DLMS), and enhancements for information technology modernization. Programs include but are not limited to Integrated Maintenance Data System (IMDS), Reliability and Maintainability Information System (REMIS), and Integrated Logistics Support - Supply (ILS-S).</p> <p><b>FY 2022 Plans:</b></p> <p>-Pre-Acquisition activities will occur in Q4FY22</p> <p><b>FY 2023 Base Plans:</b></p>		0.000	0.050	0.050	0.000	0.050

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0708610F I Logistics Information Technology (LOGIT)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
- Will begin work on strike team directed requirements for consolidation of legacy programs						
FY 2023 OCO Plans: N/A						
FY 2022 to FY 2023 Increase/Decrease Statement: No funding increase/decrease.						
Title: Transformation Capability Initiative -Foundational Logistics Information Technology Enterprise System (FLITES)		19.443	9.850	2.697	0.000	2.697
Description: FLITES will provide comprehensive Item Catalog and Provisioning functions for the Logistics business systems, and will replace the Item Management Control System (IMCS) suite of legacy systems, at a minimum. It will be the central repository for the Item core business objects, providing standardization of Item cataloging processes, structure, attributes, propagation, and standardized views for all applicable Item types. Additionally, FLITES will receive product structure input from an engineering Product Lifecycle Management (PLM) type system. FLITES will contain the Item data that is the core underlying information for each Transformation Capability Initiative (TCI), and as such, will integrate with many logistics enterprise systems. FLITES is a pilot program within NDAA Section 873, "Agile or Iterative Development Methods to Tailor Major Software-Intensive Warfighting Systems and Defense Business Systems pilot program."						
In FY21, the program name was changed from Item Master Logistics Capability Initiative (IMLCI) to Foundational Logistics Information Technology Enterprise System (FLITES).						
FY 2022 Plans: - Continue to conduct recurring cyber-security and system performance testing concurrent with configuration - Continue to develop and test interfaces and data exchanges to other Logistics Systems - Deliver MVP 1 capability to replace IMCS - Begin fielding capability to production						
FY 2023 Base Plans: - Will continue tuning commercial platform on Cloud-One and Dev/Test environments to accomplish Full Deployment of FLITES - Will continue configuration of commercial platform to provide foundational logistics capability - Wil conduct recurring cyber-security and system performance testing concurrent with configuration						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0708610F I Logistics Information Technology (LOGIT)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<div>- Will develop and test interfaces and data exchanges to other Logistics Systems, as needed</div> <div>- Will continue fielding capability to pre-production environment for user familiarization and for use in production at least quarterly</div> <div>FY 2023 OCO Plans:</div> <div>N/A</div> <div>FY 2022 to FY 2023 Increase/Decrease Statement:</div> <div>Funding decreased due to development activities completing in FY23</div>						
<div>Title: Emerging Financial Improvement and Audit Readiness (Emerging FIAR)</div> <div>Description: Modify operational Logistics software systems to incorporate emerging FIAR requirements. These requirements are the result of on-going analysis of the Treasury Financial Management (TFM) Chapter 9500, as directed by OMB A-123 appendix D, and the DoD FMR volume 1, chapter 3. The results are identified and documented systems deficiencies that can only be satisfied via a material solution.</div> <div>FY 2022 Plans:</div> <div>Continue FIAR remediation efforts for the Reliability and Maintainability Information System (REMIS):</div> <div>- Complete remediation of 2019 FIAR audit Notice of Finding and Recommendation (NFR)</div> <div>- Continue remediation of 002 Segregation of Duties (SoD) and CFO Act deficiencies.</div> <div>FY 2023 Base Plans:</div> <div>Will continue FIAR remediation efforts for the Reliability and Maintainability Information System (REMIS):</div> <div>- Will begin remediation of 2021 FAIR Audit NFRs</div> <div>FY 2023 OCO Plans:</div> <div>N/A</div> <div>FY 2022 to FY 2023 Increase/Decrease Statement:</div> <div>- Funding increase due to initiations of FY21 FIAR Audit remediations.</div>		1.500	0.371	0.668	0.000	0.668
<div>Title: Logistics Strike Teams (Strike Teams)</div> <div>Description: Effort to collapse remaining 250 of original 359 logistic systems and enhance logistics analytics by applying more accurate methodologies that will 1) improve command and control, 2) enhance logistics data analytics and forecasting, and 3) eliminate redundancy and duplication 4) inject modern technologies</div>		6.579	0.500	0.050	0.000	0.050

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0708610F I Logistics Information Technology (LOGIT)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(e.g. cloud). Enhance logistics data analytics environment with machine learning, predictive, and prognostic capabilities; incorporate automated tools for rapid consolidation of duplicative analytics capabilities.						
<b>FY 2022 Plans:</b> Continue efforts to collapse remaining 218 of original 359 systems and enhance logistics analytics by applying more accurate methodologies that will: - improve command and control - enhance logistics data analytics and forecasting - eliminate redundancy and duplication - inject modern technologies (e.g. cloud) Continue to enhance logistics data analytics environment by: - machine learning - predictive, and prognostic capabilities - incorporate automated tools for rapid consolidation of duplicative analytics capabilities						
<b>FY 2023 Base Plans:</b> Continue efforts to collapse remaining 194 of original 359 systems and enhance logistics analytics by applying more accurate methodologies that will: - improve command and control - enhance logistics data analytics and forecasting - eliminate redundancy and duplication - inject modern technologies (e.g. cloud) - Enhance logistics data analytics environment by: - machine learning - predictive, and prognostic capabilities - incorporate automated tools for rapid consolidation of duplicative analytics capabilities						
<b>FY 2023 OCO Plans:</b> N/A						
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> FY23 funding reduced for higher AF priorities						
Accomplishments/Planned Programs Subtotals		32.122	11.071	5.271	0.000	5.271

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>						
<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 Line Item 834430: <i>Global Combat Support     System-Air Force (GCSS-AF)</i>	0.000	3.959	0.000	0.000	0.000	0.000	4.416	5.673	-	Continuing	Continuing
<b>Remarks</b>											
<b>E. Acquisition Strategy</b> Air Force Program Executive Office - Business and Enterprise Systems (AFPEO-BES) is evaluating systems under the DoDI 5000.75 to approve Authority To Proceed (ATP) for each core logistics system remediation/modification project.  Agile development practices transform IT acquisitions by incrementally delivering capabilities faster and responding more effectively to changes in operations, technology, and budgets. The four objectives of Agile software development are: 1. Focusing on small, frequent capability releases; 2. Valuing working software over comprehensive documentation; 3. Responding rapidly to changes in operations, technology, and budgets; 4. Actively involving users throughout development to ensure high operational value. In addition, exploitation of emerging cloud-native and containerized deployment on modern platforms will greatly enhance speed of delivery to users in a secure, scalable, and flexible manner.  The Logistics IT program utilizes the Agile software development methodology in the acquisition of these projects. Log IT supports multiple lines of effort and will employ multiple acquisition strategies to achieve the 3 Log IT objectives of FIAR and Software Upgrades, Transformation, and Transformation Capability Initiatives. Agile development, continuous integration and deployment are preferred methodologies that will be employed to the greatest extent possible to achieve maximum flexibility and cyber-resiliency, using an appropriate mix of contractor and government personnel.  Contract strategies will require multiple approaches with a focus on best value and rapid execution using contracts like the pre-competed Small Business Enterprise Application Solutions (SBEAS) multi-vendor indefinite delivery/indefinite quantity (ID/IQ) vehicle.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0708610F / Logistics Information Technology (LOGIT)				Project (Number/Name) 675207 / Logistics IT System Modernization					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ETIMS Enhancements - Prime Integration	C/CPAF	KIRA Info Solutions, : WPAFB, OH	-	4.040	Nov 2021	-		1.651	Jun 2023	-		1.651	0.000	5.691	-
Logistics Enhancements - Prime Integration	TBD	TBD : MAFB-Gunter Annex, AL	-	-		-		0.050	Dec 2022	-		0.050	0.000	0.050	-
FLITES - Development/ Production Software Tools	Various	Various : WPAFB, OH	-	0.008	Aug 2021	0.133	May 2022	0.119	Dec 2022	-		0.119	0.000	0.260	-
FLITES - Hosting	C/CPFF	SAIC : WPAFB, OH	-	0.847	Jan 2021	0.320	Sep 2022	0.560	Dec 2022	-		0.560	0.000	1.727	-
FLITES - Technical Services Contract	C/FFP	One Network : WPAFB, OH	-	10.317	Jan 2021	4.373	Aug 2022	0.855	Apr 2023	-		0.855	0.000	15.545	-
FLITES - Development Licenses	C/FFP	One Network : WPAFB, OH	-	2.917	Sep 2021	2.462	Jul 2022	-		-		-	0.000	5.379	-
FLITES - Java Developers	C/FFP	Bering Global Solutions : WPAFB, OH	-	1.330	Apr 2021	1.408	May 2022	0.504	Jan 2023	-		0.504	0.000	3.242	-
Emerging FIAR - REMIS CFO Reconciliation	C/FFP	Innovative Mgmt Concepts : WPAFB, OH	-	1.500	Aug 2021	0.000	Mar 2022	0.518	Dec 2022	-		0.518	0.000	2.018	-
Logistics Strike Teams	Various	GSA : TBD	-	5.499	Jan 2021	0.150	Mar 2022	0.050	Mar 2023	-		0.050	0.000	5.699	-
Subtotal			-	26.458		8.846		4.307		-		4.307	0.000	39.611	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ETIMS Enhancements - SME	C/FFP	DATUM : WPAFB, OH	-	0.410	Jun 2021	0.200	Jul 2022	-		-		-	0.000	0.610	-
ETIMS Enhancements - ISP	C/FFP	Bowhead : WPAFB, OH	-	0.150	Mar 2022	-		0.150	Nov 2022	-		0.150	0.000	0.300	-
FLITES - SME/Help Desk	C/FFP	TACG, LLC : WPAFB, OH	-	0.341	Jun 2021	0.315	May 2022	0.112	Apr 2023	-		0.112	0.000	0.768	-
FLITES - ISP	C/FFP	Bowhead : WPAFB, OH	-	0.166	Jun 2021	0.096	Jun 2022	0.060	Jan 2023	-		0.060	0.000	0.322	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0708610F / Logistics Information Technology (LOGIT)				Project (Number/Name) 675207 / Logistics IT System Modernization					
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Emerging FIAR - Direct Cite Authority	Reqn	AFLCMC : MAFB-Gunter, AL	-	-		0.150	Oct 2021	0.155	Oct 2022	-		0.155	0.000	0.305	-
LOGIT (All programs) - Software and Training	Various	Various : MAFB-Gunter, AL	-	1.391	Jun 2021	0.190	Mar 2022	0.178	Dec 2022	-		0.178	0.000	1.759	-
Subtotal			-	2.458		0.951		0.655		-		0.655	0.000	4.064	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
FLITES - LDTO	PO	96th Test Wing : Eglin AFB, FL	-	0.205	Jan 2021	0.013	Nov 2022	0.016	Mar 2023	-		0.016	0.000	0.234	-
Subtotal			-	0.205		0.013		0.016		-		0.016	0.000	0.234	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
FLITES - PMO Travel	Various	PEO : WPAFB, OH	-	0.003	Jul 2021	0.053	Feb 2022	0.029	Jan 2023	-		0.029	0.000	0.085	-
FLITES - EPASS	C/CPFF	Oasis : WPAFB, OH	-	1.300	Jan 2021	0.448	Apr 2022	0.091	Mar 2023	-		0.091	0.000	1.839	-
LOGIT (All Programs) - SBIR	Various	Not specified. : TBD	-	0.000	Jan 2021	0.440	Jan 2022	0.153	Feb 2023	-		0.153	0.000	0.593	-
LOGIT (All Programs) - Division/ PEO Support PMA	C/Various	Various : MAFB-Gunter, AL	-	1.698	Feb 2021	0.320	Mar 2022	0.020	Feb 2023	-		0.020	0.000	2.038	-
Subtotal			-	3.001		1.261		0.293		-		0.293	0.000	4.555	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	32.122		11.071		5.271		-		5.271	0.000	48.464	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022			
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0708610F / Logistics Information Technology (LOGIT)			Project (Number/Name) 675207 / Logistics IT System Modernization				
	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>		<b>Project (Number/Name)</b> 675207 / <i>Logistics IT System Modernization</i>	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>ETIMS Enhancements</b>																												
ETIMS Enhancements (v01.04) - Pre-Acquisition Activities																												
ETIMS Enhancements (v01.04 (1)) - Development / Testing / Prod																												
ETIMS Enhancements (v01.04 (1)) - Limited Deployment																												
ETIMS Enhancements (v01.04 (2))- Development / Testing / Prod																												
ETIMS Enhancements (v01.04 (2))- Limited Deployment																												
ETIMS Enhancements (V01.04 (3)) - Development / Testing / Prod																												
ETIMS Enhancements (v01.04 (3)) - Full Deployment																												
ETIMS Enhancements (v01.05) - Concept Activities																												
ETIMS Enhancements (v01.05) - Development / Testing / Prod																												
ETIMS Enhancements (v01.05) - Full Deployment																												
<b>Logistics Enhancements</b>																												
Logistics Enhancements - Pre-Acquisition Activities																												
Logistics Enhancements - Development / Testing																												
<b>Emerging FIAR - REMIS CFO Reconciliation</b>																												

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

**Date:** April 2022

### Appropriation/Budget Activity

3600 / 7

### R-1 Program Element (Number/Name)

PE 0708610F / Logistics Information Technology (LOGIT)

Project (Number/Name)

675207 / Logistics IT System Modernization

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708610F / Logistics Information Technology (LOGIT)	Project (Number/Name) 675207 / Logistics IT System Modernization	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>ETIMS Enhancements</b>				
ETIMS Enhancements (v01.04) - Pre-Acquisition Activities	4	2021	2	2022
ETIMS Enhancements (v01.04 (1)) - Development / Testing / Prod	2	2022	4	2022
ETIMS Enhancements (v01.04 (1)) - Limited Deployment	4	2022	4	2022
ETIMS Enhancements (v01.04 (2))- Development / Testing / Prod	4	2022	1	2023
ETIMS Enhancements (v01.04 (2))- Limited Deployment	1	2023	1	2023
ETIMS Enhancements (V01.04 (3)) -Development / Testing / Prod	1	2023	2	2023
ETIMS Enhancements (v01.04 (3)) - Full Deployment	2	2023	2	2023
ETIMS Enhancements (v01.05) - Concept Activities	3	2023	3	2023
ETIMS Enhancements (v01.05) - Development / Testing / Prod	4	2023	3	2024
ETIMS Enhancements (v01.05) - Full Deployment	3	2024	3	2024
<b>Logistics Enhancements</b>				
Logistics Enhancements - Pre-Acquisition Activities	4	2022	3	2027
Logistics Enhancements - Development / Testing	2	2024	4	2027
<b>Emerging FIAR - REMIS CFO Reconciliation</b>				
Emerging FIAR Development	4	2021	4	2027
Emerging FIAR Testing	4	2021	4	2027
<b>FLITES</b>				
FLITES - Development/Testing	1	2021	3	2023
FLITES - Limited Deployment ATP MVP1	4	2022	4	2022
FLITES - Limited Deployments	4	2022	2	2023
FLITES - Full Deployment	3	2023	3	2023

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0708610F / <i>Logistics Information Technology (LOGIT)</i>	<b>Project (Number/Name)</b> 675207 / <i>Logistics IT System Modernization</i>	

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Logistics Strike Teams</i></b>				
Logistics Strike Teams - Pre-Acquisition ATP Activities	1	2021	4	2027

**Note**

- Logistics Strike Teams Requirements will continue to conduct pre-acquisition ATP activities. These activities include items such as risk reduction efforts, problem statements, and Clinger-Cohen Act documentation.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0708611F I Support Systems Development							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	10.318	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.318
675042: Log Application Logisitics Integration (LALI)	-	10.318	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.318
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Logistics, Installations and Mission Support - Enterprise View (LIMS-EV) is the A4 reporting and analytics gateway providing a single "source of truth" via aggregated logistics data from numerous authoritative logistics systems using a wide range of analytic tools from streamlined, comprehensive dashboards to intricate, tailored ADHOC reporting for multiple logistics mission areas including weapon systems, engines, support equipment, financials, maintenance, repair network, vehicles, and mobile. LIMS-EV delivers 20+ Business Intelligence capabilities to various logistics business areas by integrating data from 70+ systems with world-wide access by 33K + users including decision makers at all AF levels (Flight, Squadron, Group, Wing, MAJCOM, COCOM).

In FY 2022, Project 675042, Log Application Logistics Integration (LALI) development was completed.

The LIMS-EV modernization included federating/integrating LIMS-EV with the A4 enterprise Basing and Logistics Analytics Data Environment(BLADE), which allowed expansion of LOGCOP capability using LIMS-EV data. Additionally, refactoring LIMS-EV using enterprise technical solutions increased scalability and portability of LIMS-EV views by reducing reliance on legacy software applications which required separate licensing which increased cost and limited portability. Asset Lifecycle Management Automation, Improved Supply Chain Visibility and End-to-End Maintenance Lifecycle Management delivered eight new capabilities, which modernized six views improving usability for a targeted 80% of current LIMS-EV users.

No Budget Year FY23 funding requested.

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 00.000M was expended for civilian pay expenses in this program element, and in FY23 00.000M is forecasted 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.

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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0708611F I Support Systems Development			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	11.816	0.000	0.000	0.000	0.000
Current President's Budget	10.318	0.000	0.000	0.000	0.000
Total Adjustments	-1.498	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	-1.065	0.000			
• SBIR/STTR Transfer	-0.433	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000
Change Summary Explanation					
The FY 2021 funding was decreased to accommodate other AF requirements.					
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.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: LIMS-EV Version 3.0 Product Development	10.318	0.000	0.000	0.000	0.000
Description: Expanded, Scalable, Portable, Enterprise Logistics Data Accessibility					
FY 2022 Plans: Program transitioning to sustainment activities					
FY 2023 Base Plans: N/A					
FY 2023 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	10.318	0.000	0.000	0.000	0.000
D. Other Program Funding Summary (\$ in Millions)					
N/A					

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0708611F / <i>Support Systems Development</i>	
<b>D. Other Program Funding Summary (\$ in Millions)</b>		
<b>Remarks</b> LIMS-EV Version 3.0 program is nearing completion of all development activities and beginning use of O&M funding in FY 2022.		
<b>E. Acquisition Strategy</b> LIMS-EV will utilize services provided by the Air Force Cloud One Government Cloud Framework. AFLCMC/HNII Data Services Program Management Office (PMO), as LIMS-EV Program Manager, is responsible to competitively acquire additional LIMS-EV capabilities using a variety of fixed price, labor hour, time and material, and cost plus contracts within the Cloud One Framework.		

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0708611F / <i>Support Systems Development</i>						<b>Project (Number/Name)</b> 675042 / <i>Log Application Logistics Integration (LALI)</i>			
<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
LALI LIMS-EV Systems Engineering Contractor Support (Product Development) LIMS-EV	C/T&M	Definitive Logic : Arlington, VA	-	10.318	Apr 2021	-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	10.318		-		-		-		-	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	10.318		-		-		-		-	Continuing	Continuing	N/A
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0708611F / <i>Support Systems Developm ent</i>			<b>Project (Number/Name)</b> 675042 / <i>Log Application Logisitics Integration (LALI)</i>

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Support Systems Developments PE 0708611F</i></b>																												
LIMS-EV Version 3.0																												
LIMS-EV alignment with A4 enterprise data environment (BLADE)																												
LIMS-EV native cloud solution integration																												
Asset Lifecycle Management Automation																												
Improved Supply Chain Visibility																												
Machine Learning Integration																												
End-to-End Maintenance Lifecycle Management																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0708611F / Support Systems Developm ent	Project (Number/Name) 675042 / Log Application Logistics Integration (LALI)	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Support Systems Developments PE 0708611F</b>				
LIMS-EV Version 3.0	1	2021	4	2021
LIMS-EV alignment with A4 enterprise data environment (BLADE)	1	2021	4	2021
LIMS-EV native cloud solution integration	2	2021	4	2021
Asset Lifecycle Management Automation	2	2021	4	2021
Improved Supply Chain Visibility	1	2021	4	2021
Machine Learning Integration	2	2021	4	2021
End-to-End Maintenance Lifecycle Management	1	2021	4	2021

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>											
3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	PE 0804743F / <i>Other Flight Training</i>											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	1.281	5.999	2.214	0.000	2.214	2.260	2.302	2.352	2.404	Continuing	Continuing
675304: <i>Aviation Resource Management System (ARMS)</i>	-	1.281	5.999	2.214	0.000	2.214	2.260	2.302	2.352	2.404	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Aviation Resource Management System (ARMS) is the authoritative data source for all aircrew and parachutist management (including flight and jump pay) covering 65,000 Aircrew/Parachutists and used by 2,800 1C0X2 Career Field members with 2.2M transactions per week. The ARMS is a web-based on-line management information system designed to support the base level Director of Operations (DO), aircrew supervisors, and managers. ARMS provides management policies and ensures the status of the Air Force flying programs are available to flying/jump supervisors to make resource allocation decisions. ARMS ensures accurate tracking of flying and ground training programs for each weapon system at each base. ARMS provides accurate and timely aircrew/parachutist information which assists in monitoring, tracking, and scheduling military training required to meet Air Force mission requirements. Additionally, the ARMS manages flying hours for aircrew parachutists world-wide to include USAF, Air Force Reserve Command (AFRC) and the Air National Guard (ANG).

The current ARMS functionality resides at a Defense Information System Agency (DISA) DECC and consists of "5" logical modules to include: Flight, Individual Training, Jumper Aircrew, Resource Tracking, Reports, and System. The sustainment of these capabilities and the introduction of new capabilities follows an agile development process, but the effectiveness of that process is severely limited by the existing production environment. A portion of the ARMS Jumper Aircrew module capabilities are being migrated to a mandated government-approved cloud environment. The cloud environment provides the Continuous Integration and Continuous Deployment (CI/CD) pipeline required to constantly deliver software in an agile framework, following the required DevSecOps methodology. The migration to the cloud environment and the DevSecOps methodology will transform ARMS into a scalable and flexible system capable of meeting all information requirements of the Aviation Resource Management community.

Once the initial cloud ARMS Jumper Aircrew capability is established, all remaining legacy program capabilities and new program requirements will be incorporated into the ARMS product backlog and prioritized for migration/stand-up in the cloud program instance. The ARMS DISA legacy program will sunset, once all capabilities are successfully migrated to the cloud environment.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Other Flight 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 \$00.000M was expended for civilian pay expenses in this program element, and in FY 2023 \$00.000M is forecasted 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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0804743F I Other Flight Training				
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget		1.330	1.999	0.000	0.000	0.000
Current President's Budget		1.281	5.999	2.214	0.000	2.214
Total Adjustments		-0.049	4.000	2.214	0.000	2.214
• 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		0.000	0.000			
• SBIR/STTR Transfer		-0.049	0.000			
• Other Adjustments		0.000	0.000	2.214	0.000	2.214
Congressional Add Details (\$ in Millions, and Includes General Reductions)						
Project: 675304: Aviation Resource Management System (ARMS)						
Congressional Add: Lifecycle Enhanced Asset Decision Software (LEADS)						
Congressional Add Subtotals for Project: 675304						
Congressional Add Totals for all Projects						
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.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Aviation Resource Management System (ARMS)				1.281	1.999	2.214
Description: Hardware/software development to update ARMS, adding functionality and system interfaces.						
FY 2022 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0804743F / <i>Other Flight Training</i>	
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
Continue migrating legacy ARMS capabilities from DISA platform to Cloud One platform; deliver patches as needed to correct system deficiencies or apply required upgrades; and, continue updates to system design, configuration, test, and training.			
<b>FY 2023 Plans:</b> Continue migrating legacy ARMS capabilities from DISA platform to Cloud One platform; deliver patches as needed to correct system deficiencies or apply required upgrades; and, continue updates to system design, configuration, test, and training.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> -Funding increase due to transferring capabilities more rapidly from the legacy DISA system to the cloud- hosted system. Funding will also be needed to provide additional contractor support on EPASS to aid in this transfer.			
<b>Accomplishments/Planned Programs Subtotals</b>		1.281	1.999
		<b>FY 2021</b>	<b>FY 2022</b>
<b>Congressional Add:</b> Lifecycle Enhanced Asset Decision Software (LEADS)		-	4.000
<b>FY 2022 Plans:</b> Contracting and Engineer efforts for LEADS support to facilitate T-38 to T-7 transition. Program will be managed by AETC/A9.			
<b>Congressional Adds Subtotals</b>		-	4.000
<b>D. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>E. Acquisition Strategy</b>			
The ARMS utilizes Agile development methodologies to incrementally develop and field enhancements to the existing system. The ARMS PMO utilizes military programmers for code development/sustainment and government civilians providing program management, engineering, and information technology support. The ARMS PMO has partnered with the USAF Business Enterprise Systems (BES) Directorate's Business Enterprise Systems Programming INnovation (BESPIN) office to acquire contractor resources that are experts at agile software development in a cloud environment. BESPIN has acquired current contractor support via Section 8a direct award using the United States Digital Services guide and templates on agile development which allowed for an agile acquisition.			
The initial ARMS cloud capability will be fielded in FY22 and the updated ARMS Training Management module will be fielded to legacy ARMS in FY22. Once the Jump module capability is established in Cloud One, migration efforts will begin to transition all legacy ARMS capabilities to the Cloud One environment. Changes to the legacy baseline will be limited to patches, vulnerability mitigation, and required capability implementations during the migration. Legacy ARMS will be linked to the Cloud			

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0804743F / <i>Other Flight Training</i>	
<p>One instance throughout the migration effort. This will ensure users a seamless single sign-on application with underlying capabilities existing in both legacy DISA and Cloud One.</p> <p>The rate of migration capability is limited by the funding profile. With additional funding, the ARMS PMO could employ multiple agile teams with subject matter experts to work either on the same module faster or in parallel on separate modules. The ARMS PMO will have to maintain the legacy system during the entire transition to the cloud systems. A cost savings will be realized in the out years once the legacy system is decommissioned.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0804743F / Other Flight Training				Project (Number/Name) 675304 / Aviation Resource Management System (ARMS)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
LEADS Development	C/TBD	Not specified. : TBD	-	-		4.000	Sep 2022	-		-		-	Continuing	Continuing	-
ARMS BESPIN FEARLESS	SS/FFP	Fearless Solution LLC : Baltimore, MD	-	0.050	Mar 2021	-		0.050		-		0.050	Continuing	Continuing	10.000
Subtotal			-	0.050		4.000		0.050		-		0.050	Continuing	Continuing	N/A
Remarks															
ARMS INCREMENT I INCLUDES BUILDS I AND II. ARMS BUILD I AND II ARE NOW LISTED SEPARATELY.															
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ARMS Architecture Contract Support	C/FFP	Copper River Information Technology, LLC : Anchorage, AK	-	0.018	Sep 2021	-		0.030		-		0.030	Continuing	Continuing	-
ARMS C&A SUPPORT III	C/FFP	OASIS : Lexington, MA	-	0.159	Apr 2021	0.845	Apr 2022	0.170		-		0.170	Continuing	Continuing	-
ARMS CONFIGURATION MANAGER	C/FFP	OASIS : Lexington, MA	-	0.130	Apr 2021	0.180	Apr 2022	0.150		-		0.150	Continuing	Continuing	-
ARMS SYSTEM ADMIN III	C/FFP	OASIS : Lexington, MA	-	0.161	Apr 2021	0.215	Apr 2022	0.220		-		0.220	Continuing	Continuing	-
ARMS CIE SUPPORT	C/FFP	TBD : TBD	-	0.227	Apr 2021	0.230	Apr 2022	0.235		-		0.235	Continuing	Continuing	-
ARMS INTEGRATION SUPPORT	C/FFP	Not specified. : TBD	-	0.163	Apr 2021	0.185	Apr 2022	0.190		-		0.190	Continuing	Continuing	-
ARMS Program Assessment	SS/FFP	TM Capture : Maxwell AFB-Gunter Annex, AL	-	0.065	Feb 2021	-		-		-		-	Continuing	Continuing	0.325
Subtotal			-	0.923		1.655		0.995		-		0.995	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0804743F / Other Flight Training				Project (Number/Name) 675304 / Aviation Resource Management System (ARMS)					
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ARMS Test Support	C/FFP	GSA : Maxwell AFB-Gunter Annex, AL	-	0.056	Apr 2021	0.074	Apr 2022	0.150		-		0.150	Continuing	Continuing	0.260
ARMS TEST MANAGER	C/CPAF	OASIS : Lexington, MA	-	0.059	Apr 2021	0.170	Apr 2022	0.175		-		0.175	Continuing	Continuing	-
Subtotal			-	0.115		0.244		0.325		-		0.325	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
ARMS PSC Other Govt Costs	C/TBD	TBD : TBD	-	0.193	Apr 2021	0.100	Jan 2022	0.844		-		0.844	Continuing	Continuing	-
Subtotal			-	0.193		0.100		0.844		-		0.844	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.281		5.999		2.214		-		2.214	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0804743F / Other Flight Training

## Project (Number/Name)

675304 / Aviation Resource Management System (ARMS)

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>ARMS EXHIBIT R-4</b>																												
Advisory and Assistance Services Contract																												
ARMS Program Assessment																												
ARMS Cloud Development/Migration																												
Cloud Development - Jump module																												
Field - Jump Module																												
Cloud Development Resources module																												
Field Resources module multiple releases																												
Cloud Development Flight module																												
Field Flight module multiple releases																												
Cloud development Training module																												
Field Training module multiple releases																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0804743F / <i>Other Flight Training</i>	<b>Project (Number/Name)</b> 675304 / <i>Aviation Resource Management System (ARMS)</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>ARMS EXHIBIT R-4</b>				
Advisory and Assistance Services Contract	1	2022	4	2027
ARMS Program Assessment	1	2022	4	2027
ARMS Cloud Development/Migration	2	2022	4	2025
Cloud Development - Jump module	3	2022	4	2022
Field - Jump Module	3	2022	4	2022
Cloud Development Resources module	4	2023	4	2023
Field Resources module multiple releases	4	2023	4	2024
Cloud Development Flight module	1	2023	4	2024
Field Flight module multiple releases	2	2023	4	2024
Cloud development Training module	1	2024	4	2027
Field Training module multiple releases	2	2024	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0808716F I Other Personnel Activities							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.000	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
675141: DEOMI Faculty Research	-	0.000	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Defense Equal Opportunity Management Institute (DEOMI) provides grants to the civilian academic community to conduct research on military and civilian equal opportunity issues using standard social science methodology and engineering analysis. The research methodology and analysis includes developing a literature review proposing hypotheses and methods of research. The grantee will then gather appropriate data, draw conclusions and present discussions, recommendations and reports based on their funding.

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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	5.000	0.000	0.000	0.000
Total Adjustments	0.000	5.000	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	5.000			
• 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Equal Opportunity Issues	0.000	5.000	0.000
<b>Description:</b> Conduct research on military and civilian equal opportunity issues.			
<b>FY 2022 Plans:</b>			

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0808716F <i>I Other Personnel Activities</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Will conduct research on military and civilian equal opportunity issues				
<b>FY 2023 Plans:</b> N/A				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease in requirements				
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	5.000	0.000
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> Grants will be awarded competitively.				

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0808716F / <i>Other Personnel Activities</i>				<b>Project (Number/Name)</b> 675141 / <i>DEOMI Faculty Research</i>				

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
DEOMI	Various	Various : Various	-	0.000		5.000	Feb 2022	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.000		5.000		-		-		-	Continuing	Continuing	N/A

  

**Remarks**  
Contract method will be a grant

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	0.000	5.000	-	-	-	Continuing	Continuing	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022									
Appropriation/Budget Activity										R-1 Program Element (Number/Name)									
3600 / 7										PE 0808716F / Other Personnel Activities									
										Project (Number/Name)									
										675141 / DEOMI Faculty Research									

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DEOMI Faculty Research																												
Receive Grants																												
Award Grants																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0808716F / Other Personnel Activities	Project (Number/Name) 675141 / DEOMI Faculty Research

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
DEOMI Faculty Research				
Receive Grants	1	2022	2	2022
Award Grants	3	2022	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0901202F I Joint Personnel Recovery Agency							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	2.019	1.841	2.164	0.000	2.164	2.261	2.303	2.354	2.406	Continuing	Continuing
675196: Joint Technology Exploitation	-	2.019	1.841	2.164	0.000	2.164	2.261	2.303	2.354	2.406	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## **A. Mission Description and Budget Item Justification**

Funding supports development of innovative capabilities to address Personnel Recovery in Large Scale Combat Operations, Multi-Domain Operations and anti-access/area denial environments for Combatant Commanders and the Services. Joint personnel Recovery Agency (JPRA) developmental efforts address Personnel Recovery capability gaps and shortfalls identified in the Personnel Recovery Initial Capabilities Document approved by the Joint Requirements Oversight Council memorandum 120-12 on 8 Aug 2012, and subsequent supporting documents approved in the Joint Capabilities Integration Development System. Activities include funding for research and development, support equipment, contract services and all associated costs specifically identified to support the JPRA headquarters Ft. Belvoir, VA and other agency operating locations.

Development and transition to sustainment of an enterprise level information data system [Personnel Recovery Information Data System (PRIDS)] to enable DoD data management, analysis and collaboration. Funds also provide USAF Platform One/Cloud One housing for PRIDS. DODI 3002.1 directed JPRA capability.

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, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 \$0.0M was expended for civilian pay expenses in this program element and in FY22 \$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 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0901202F I Joint Personnel Recovery Agency				
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	
Previous President's Budget	2.088	1.841	0.000	0.000	0.000	
Current President's Budget	2.019	1.841	2.164	0.000	2.164	
Total Adjustments	-0.069	0.000	2.164	0.000	2.164	
• 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	-0.069	0.000	2.164	0.000	2.164	
Change Summary Explanation						
The FY22 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 FY 2023 cannot be made in a relevant manner.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2021	FY 2022	FY 2023
Title: Personnel Recovery Information Data System (PRIDS)				2.019	1.841	2.164
Description: Development of the Personnel Recovery Information Data System						
FY 2022 Plans: Developing and transitioning to sustainment of an enterprise level information data system [Personnel Recovery Information Data System (PRIDS)] to enable DoD data management, analysis and collaboration.						
FY 2023 Plans: Continuing to work an enterprise level information data system [Personnel Recovery Information Data System (PRIDS)] to enable DoD data management, analysis and collaboration.						
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to additional requirements						
Title: Optimal Search Study				0.000	0.000	0.000
Description: Assess and evaluate technologies for personnel recovery geospatial data visualization, predictive and real-time planning capabilities.						
FY 2022 Plans:						

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0901202F <i>I Joint Personnel Recovery Agency</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
N/A				
<b>FY 2023 Plans:</b> No funding requested				
<b>Title:</b> Analysis of Alternatives  <b>Description:</b> Systems analysis to support a future program of record to satisfy the report and locate requirement gaps as identified by the combatant commands (CCMDs).  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> No funding requested		0.000	0.000	0.000
<b>Title:</b> DOD Support to Personnel Recovery in a Chief of Mission Environment (DSPRCE) - Automated Development Tool.  <b>Description:</b> Internet accessible database that addresses personnel recovery roles, responsibilities, and activities to develop a DOD Personnel Recovery Supplement to a U.S. diplomatic post's emergency action plan.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> No funding requested		0.000	0.000	0.000
<b>Title:</b> Smartphone Initiative  <b>Description:</b> Develop capabilities to enable Service members to use their smartphones as Personnel Recovery aids.  <b>FY 2022 Plans:</b> N/A  <b>FY 2023 Plans:</b> No funding requested		0.000	0.000	0.000
<b>Accomplishments/Planned Programs Subtotals</b>		2.019	1.841	2.164
<b>D. Other Program Funding Summary (\$ in Millions)</b>				
N/A				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0901202F <i>I Joint Personnel Recovery Agency</i>	
<b>D. Other Program Funding Summary (\$ in Millions)</b>		
<b>Remarks</b>		
<b>E. Acquisition Strategy</b> Projects will leverage existing program contracts. In the rare instance where a contract does not already exist, contracts will be awarded through full and open competition.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0901202F I Joint Personnel Recovery Agency				Project (Number/Name) 675196 I Joint Technology Exploitation					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
Common Distress Reporting System	SS/TBD	AFLCMC/HBZ : Huntington Beach, CA	-	1.009	Mar 2021	0.880	Mar 2022	1.022	Mar 2023	-		1.022	Continuing	Continuing	-
Optimal Search Study	Various	Various : NV	-	0.000		-		-		-		-	Continuing	Continuing	-
Collaborative Personnel Recovery Planning Systems & PR Capabilities Development	Various	Various : NV	-	1.010	Mar 2021	0.961	Mar 2022	1.142	Mar 2023	-		1.142	Continuing	Continuing	-
Personnel Recovery Modeling and simulation development	Various	Various : NV	-	0.000		-		-		-		-	Continuing	Continuing	-
Subtotal			-	2.019		1.841		2.164		-		2.164	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	2.019		1.841		2.164		-		2.164	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 0901202F / Joint Personnel Recovery Agency						Project (Number/Name) 675196 / Joint Technology Exploitation			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Personnel Recovery Information Data System																												
Common Distress Reporting System																												
Optimal Search Study																												
Collaborative Personnel Recovery planning systems																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901202F / Joint Personnel Recovery Agency	Project (Number/Name) 675196 / Joint Technology Exploitation

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Personnel Recovery Information Data System				
Common Distress Reporting System	1	2021	4	2026
Optimal Search Study	1	2021	4	2026
Collaborative Personnel Recovery planning systems	1	2021	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0901218F I Civilian Compensation Program							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	3.093	3.560	4.098	0.000	4.098	4.181	4.259	4.349	4.445	Continuing	Continuing
674139: Civilian Compensation Program	-	3.093	3.560	4.098	0.000	4.098	4.181	4.259	4.349	4.445	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This program element provides for payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81. The Department of Labor (DOL) administers this program and charges the Department of the Air Force for its employee costs; therefore, this is a MUST PAY bill for Air Force. The Program Element(PE) excludes manpower authorizations and costs. This PE is in Budget Activity 7 in support of payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to FECA under Title 5 U.S.C., Chapter 81.

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.

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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	3.862	3.560	0.000	0.000	0.000
Current President's Budget	3.093	3.560	4.098	0.000	4.098
Total Adjustments	-0.769	0.000	4.098	0.000	4.098
• 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	-0.769	0.000	4.098	0.000	4.098

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0901218F <i>I Civilian Compensation Program</i>		
<p><b><u>Change Summary Explanation</u></b>          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.</p>			
<b><u>C. Accomplishments/Planned Programs (\$ in Millions)</u></b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b><i>Title:</i></b> Civilian Compensation  <b><i>Description:</i></b> Program compensates employees assigned to RDT&E facilities for work-related injuries or occupational diseases.  <b><i>FY 2022 Plans:</i></b> Continue to provide compensation to employees assigned to RDT&E facilities for work-related injuries or occupational diseases, and implement services to expedite the return of employees back to work.  <b><i>FY 2023 Plans:</i></b> Continue to provide compensation to employees assigned to RDT&E facilities for work-related injuries or occupational diseases, and implement services to expedite the return of employees back to work.  <b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Increased funding based to forecasted requirements.	3.093	3.560	4.098
<b>Accomplishments/Planned Programs Subtotals</b>	3.093	3.560	4.098
<b><u>D. Other Program Funding Summary (\$ in Millions)</u></b> N/A			
<b><u>Remarks</u></b>			
<b><u>E. Acquisition Strategy</u></b> Not Applicable.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0901218F / Civilian Compensation Program						Project (Number/Name) 674139 / Civilian Compensation Program			
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Continue development of compensation plan	RO	AF/A1 : Pentagon, DC	-	3.093	Apr 2021	3.560	Apr 2022	4.098	Apr 2023	-		4.098	Continuing	Continuing	-
Subtotal			-	3.093		3.560		4.098		-		4.098	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	3.093		3.560		4.098		-		4.098	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0901218F / Civilian Compensation Program		Project (Number/Name) 674139 / Civilian Compensation Program	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Civilian Compensation Program																												
Compensation program																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901218F / Civilian Compensation Program	Project (Number/Name) 674139 / Civilian Compensation Program

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Civilian Compensation Program				
Compensation program	1	2021	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0901220F I Personnel Administration							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	1.536	3.368	3.191	0.000	3.191	4.012	3.140	3.207	3.278	Continuing	Continuing
675194: Force Development Transformation	-	1.536	3.368	3.191	0.000	3.191	4.012	3.140	3.207	3.278	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The Force Development Transformation program contains two DAF initiatives addressing vital personnel issues: Personnel Services Delivery and the Total Integration Mobilization Execution System.

Personnel Services Delivery (PSD), under the Personnel Administration program, funds operational developments necessary to acquire, field, and modify business processes to transform the delivery of Human Resources (HR) capabilities through the structured redesign of the Total Force Personnel Community's people (Active Duty, Reserve, Guard, and Civilians), processes, and technologies. PSD Transformation fundamentally shifts the way personnel services are provided, transitioning from primarily face-to-face interactions with a personnelist to a tiered model with services delivered through online self-service, contact centers, and fewer in-person interactions. PSD supports the migration of legacy applications and other information technologies from on-premise data centers to a more sustainable cloud-based hosting solution and flexible services-based architecture as defined by the Defense Enterprise Service Management Framework (DESMF).

The Total Integration Mobilization Execution System (TIMES) will be a cloud-based software suite utilized to modernize the Air Force's processes to mobilize (i.e., activate) the 178,000 Guard and Reserve Airmen under Title 10 orders in support of the Active Duty mission. Current mobilization processes include coordination through 32 disparate information systems and numerous databases (e.g., MS SharePoint, Excel) and often results in delays to issuing orders. TIMES will streamline the planning, allocation, and execution process by automating activation processes to enable rapid and accurate information flow from requirements generation, resource planning, identifying an Airman to fulfill a requirement, orders processing and delivery, and finally to initiating pay and benefits. TIMES will have the capability to rapidly adjust to a changing mission environment while minimizing operating costs by utilizing cloud hosting and an agile software development methodology (DevSecOps). It will increase Air Force Guard and Reserve members' confidence that when called to serve, their families are taken care of.

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.

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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0901220F / <i>Personnel Administration</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	1.581	3.368	0.000	0.000	0.000
Current President's Budget	1.536	3.368	3.191	0.000	3.191
Total Adjustments	-0.045	0.000	3.191	0.000	3.191
• 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	-0.045	0.000			
• Other Adjustments	0.000	0.000	3.191	0.000	3.191

**Change Summary Explanation**

The FY22 President's Budget submittal did not reflect FY23 through FY26 funding. Therefore, an explanation of the change between the two budget positions for FY23 cannot be made in a relevant manner.

FY21: \$45K SBIR Transfer

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0901220F / Personnel Administration				Project (Number/Name) 675194 / Force Development Transformation			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675194: Force Development Transformation	-	1.536	3.368	3.191	0.000	3.191	4.012	3.140	3.207	3.278	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The Force Development Transformation program contains two independent DAF initiatives addressing vital personnel issues: Personnel Services Delivery and the Total Integration Mobilization Execution System.

### Personnel Services Delivery:

Personnel Services Delivery (PSD), under the Personnel Administration program, funds operational developments necessary to acquire, field, and modify business processes to transform the delivery of Human Resources (HR) capabilities through the structured redesign of the Total Force Personnel Community's people (Active Duty, Reserve, Guard, and Civilians), processes, and technologies. PSD Transformation fundamentally shifts the way personnel services are provided, transitioning from primarily face-to-face interactions with a personnelist to a tiered model with services delivered through online self-service, contact centers, and reduced in-person interactions. PSD supports the migration of legacy applications and other information technologies from on premises data centers to a more sustainable cloud-based hosting solution and flexible services-based architecture as defined by the Defense Enterprise Service Management Framework (DESMF). In addition, funds will be used to perform studies and innovative integration efforts for common technology capabilities such as cloud migration, technology development, and mobile application.

### Total Integration Mobilization Execution System:

The Total Integration Mobilization Execution System (TIMES) will be a cloud-based software suite utilized to modernize the Air Force's processes to mobilize (i.e., activate) the 178,000 Guard and Reserve Airmen under Title 10 orders in support of the Active Duty mission. Current mobilization processes include coordination through 32 disparate information systems and numerous databases (e.g., MS SharePoint, Excel) and often results in delays to issuing orders. TIMES will streamline the planning, allocation, and execution process by automating activation processes to enable rapid and accurate information flow from requirements generation, resource planning, identifying an Airman to fulfill a requirement, orders processing and delivery, and finally to initiating pay and benefits. TIMES will have the capability to rapidly adjust to a changing mission environment while minimizing operating costs by utilizing cloud hosting and an agile software development methodology (DevSecOps). It will increase Air Force Guard and Reserve members' confidence that when called to serve, their families are taken care of.

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 21 0\$ was expended for civilian pay expenses in this program element, and in CY 22 0\$ is forecasted for civilian pay expenses in this program element.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0901220F / Personnel Administration	Project (Number/Name) 675194 / Force Development Transformation		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2021	FY 2022	FY 2023
<p><b>Title:</b> PSD - Human Resource Systems (HRS) Transition</p> <p><b>Description:</b> The HRS Transition supports the DAF Human Resources Digital Transformation initiative by identifying and documenting human resource legacy systems for modernization, transition and/or decommission; supporting the consolidation of human resource legacy applications and other information technologies utilizing Commercial-off-the-Shelf (COTS) solutions, Agile incremental delivery, and rapid prototyping; ensuring solutions utilize a flexible services-based architecture as defined by the DoD Enterprise Service Management Framework (DESMF); executing risk reduction activities, prototyping, and developing solutions to update or replace legacy human resource systems.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>- Continue to perform technology demonstrations, risk reduction activities, studies for tiered HR service delivery, and to assess the ability to utilize Software as a Service (SaaS) delivery capabilities</li><li>- Evaluate HCM SaaS modules for learning and recruiting/onboarding processes</li><li>- Develop an Oracle-hosted cloud identity management and data strategy</li></ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"><li>- Will continue to perform technology demonstrations, risk reduction activities, and studies for tiered HR service delivery, and to assess the ability to utilize Software as a Service (SaaS) delivery capabilities</li><li>- Will continue to evaluate HCM SaaS modules for learning, recruiting/onboarding, and other AF processes</li></ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>			1.373	1.531	1.247
<p><b>Title:</b> PSD - Test and Evaluation/Systems Engineering</p> <p><b>Description:</b> The Test and Evaluation/Systems Engineering initiative transitions the Test and Development Environment (T&amp;DE) to an approved Cloud Service Provider; continues support for all aspects of engineering including software and systems engineering, requirements analysis, configuration management, database administration, and test and evaluation throughout the lifecycle of all Human Resources applications; and continues infrastructure development.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>- Maintain the Cloud instantiation of the TD&amp;E</li><li>- Continue to support all aspects of engineering, including software and systems engineering, requirements analysis, configuration management, and database administration</li></ul>			0.163	0.166	0.163

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0901220F / <i>Personnel Administration</i>		<b>Project (Number/Name)</b> 675194 / <i>Force Development Transformation</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>- Continue to perform test and evaluation of HRS transition activities including any emergent customer needs and provide system engineering support for the HRS transition</p> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Will maintain the Cloud instantiation of the TD&amp;E</li> <li>- Will continue to support all aspects of engineering, including software and systems engineering, requirements analysis, configuration management, and database administration</li> <li>- Will continue to perform test and evaluation of HRS transition activities including any emergent customer needs and provide system engineering support for the HRS transition</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>					
<p><b>Title:</b> TIMES Development</p> <p><b>Description:</b> TIMES will establish a cloud-based operating environment to modify existing Army Mobilization Common Operating Picture (MOBCOP) software into the Air Force's TIMES software. Overall development will involve establishing automated data pushes and pulls between Air Force systems of record and the TIMES database, establishing necessary virtual servers and cybersecurity compliance in the cloud-hosted environment, and automating the flow of data from the Headquarters Air Force and Major Command level down to the Guard and Reserve unit level. TIMES will move the process from legacy, manual inputs to automated and streamlined inputs in order to eliminate unnecessary bureaucracy and redundancy in the Air Reserve Component utilization process.</p> <p><b>FY 2022 Plans:</b> Maturation of the cloud-hosted environment, promotion of modified software to production environment for Headquarters Air Force and Major Command-level elements of the process, and sunseting of legacy systems.</p> <ul style="list-style-type: none"> <li>- Establish production cloud-hosted environments</li> <li>- Receive Authority To Operate (ATO) certification</li> <li>- Establish initial automated data inputs from systems utilized for planning and execution of Guard and Reserve orders</li> <li>- Promote TIMES ARCORT to production and go live for Air Force use</li> <li>- Sunset legacy ARCORT system</li> <li>- Modify MOBCOP financial management applications into TIMES Air Force Mobilization Management System (AFMMS-S/N)</li> <li>- Transfer data from legacy AFMMS system into TIMES AFMMS module</li> <li>- Promote TIMES AFMMS to production and go live for Air Force use</li> </ul> <p><b>FY 2023 Plans:</b></p>			0.000	1.671	1.781

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0901220F / <i>Personnel Administration</i>	<b>Project (Number/Name)</b> 675194 / <i>Force Development Transformation</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
Expansion of TIMES capabilities to the Guard and Reserve-level functions of the mobilization process, continued improvement of applications in production environment, and monitoring of the cloud environment for efficiency.			
<ul style="list-style-type: none"> <li>- Will maintain and improve on ARCORT and AFMMS-S/N applications based on feedback from Airmen</li> <li>- Will maintain compliance with Authority to Operate certification</li> <li>- Will expand automated inputs from Joint and Air Force systems of record</li> <li>- Will modify MOBCOP Mobilization Deployment Integrated System (MDIS) to provide a data-driven decision tool for mobilization, deployment, and rotation decisions</li> <li>- Will promote TIMES MDIS to production and go live for Air Force use</li> <li>- Will eliminate manual process steps and non-system of record communication involved with mobilization actions</li> </ul>			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>			
- Funding increased to enable initial establishment of intersystem communication necessary in FY23			
<b>Accomplishments/Planned Programs Subtotals</b>		1.536	3.368
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
<p>PSD:</p> <p>Personnel Services Delivery employs an evolutionary acquisition strategy to deliver incremental Information Technology and Human Resources capabilities with development contracts that are awarded in a competitive environment. Technology demonstrations will be used to reduce technology risks, assess Commercial-Off-The-Shelf (COTS) products, and produce technology insertion and migration strategies. In 2015, the government conducted a Full and Open competition for Human Resources System Technical Support and awarded a contract to provide PSD with development and test/technical support. Air Force Program Executive Officer (PEO) for Business and Enterprise Systems (AFPEO BES) is the PEO and Milestone Decision Authority (MDA) for PSD. Air Force Life Cycle Management Center (AFLCMC) is the contracting authority for the PSD Program and provides contracts, legal and comptroller support.</p> <p>TIMES:</p> <p>The Army MOBCOP system has proven capability in reducing system-wide redundancy and speeding up the delivery of orders for soldiers. The DAF's strategy awards a contract to modify the Army's software to work with Air Force data and processes. The DAF's strategy also includes establishing a Task Order with the Platform One contract for cloud hosting and DevSecOps.</p>			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0901220F / Personnel Administration				Project (Number/Name) 675194 / Force Development Transformation					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSD: HRS Transition Phase 2	C/Various	Definitive Logic : San Antonio, TX	-	0.956	Sep 2021	0.826	Jun 2022	0.460	Jun 2023	-		0.460	Continuing	Continuing	-
PSD: HCM SaaS Licenses	C/FFP	Emergent, LLC : Virginia Beach, VA	-	0.078	Oct 2021	0.080	Aug 2022	0.082	Aug 2023	-		0.082	Continuing	Continuing	-
PSD: Acquisition Planning SME	C/FFP	TACG, LLC : Beavercreek, OH	-	0.044	Nov 2021	0.000	Nov 2021	0.000	Nov 2022	-		0.000	Continuing	Continuing	-
TIMES: System Developer	C/FFP	MKGCS, LLC : Herndon, VA	-	-		1.665	Jun 2022	1.712	Jun 2023	-		1.712	Continuing	Continuing	-
TIMES: DevSecOps Pipeline	MIPR	AFPEO/C3I&N (AFLCMC/HN) : Lackland AFB, TX	-	-		0.006	Jun 2022	0.069	Jun 2023	-		0.069	Continuing	Continuing	-
Subtotal			-	1.078		2.577		2.323		-		2.323	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSD: Engineering, Professional, and Administrative Support Services (EPASS)	C/CPFF	Oasis : Lincoln, MA	-	0.358	Mar 2021	0.575	Mar 2022	0.650	Mar 2023	-		0.650	Continuing	Continuing	-
Subtotal			-	0.358		0.575		0.650		-		0.650	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSD: Test/Evaluation Support	C/CPIF	Diversified Technical Services, Inc. : San Antonio, TX	-	-		0.166	Jul 2022	0.168	Jul 2023	-		0.168	Continuing	Continuing	-
Subtotal			-	-		0.166		0.168		-		0.168	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0901220F / Personnel Administration				Project (Number/Name) 675194 / Force Development Transformation					
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
PSD: Program Management Office Support (Travel, Tech Refresh, etc.)	Various	Various : Various	-	0.100		0.050	Mar 2022	0.050	Mar 2023	-		0.050	Continuing	Continuing	-
Subtotal			-	0.100		0.050		0.050		-		0.050	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.536		3.368		3.191		-		3.191	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0901220F / Personnel Administration

## Project (Number/Name)

675194 / Force Development Transformation

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

**Personnel Services Delivery (PSD)**HRS Transition Phase 2 Contract Award/  
Additional Risk ReductionHRS Transition Phase 3 Contract Award/  
Application Migration to HCM SaaS**TIMES Development**

Award TIMES contract

Establish legacy database inputs

Modify and go live for TIMES ARCORT  
module

Sunset legacy ARCORT

Modify and Go live for TIMES AFFMS module

Sunset legacy AFFMS module

Cloud Hosting - Award Contract

Cloud Hosting - Establish virtual servers and  
cybersecurity controls

Data integration with AROWS

Data integration with AROWS-R

Modify and go live for TIMES MDIS module

Sunset legacy mobilization decision tools

Data integration with TRICARE, DEERS

Data integration with ASIMS, VRS, ARCNet,  
DMDCPlan, develop, and Go live for TIMES Tour of  
Duty module

Sunset legacy volunteer sourcing tools

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																				Date: April 2022																	
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0901220F / Personnel Administration								Project (Number/Name) 675194 / Force Development Transformation																			
										FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Connect TIMES to financial systems										[REDACTED]																											
Modify all TIMES modules to optimize ARC mobilization and reporting										[REDACTED]																											

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2023 Air Force

Date: April 2022

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0901220F / Personnel Administration

## Project (Number/Name)

675194 / Force Development Transformation

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Personnel Services Delivery (PSD)</b>				
HRS Transition Phase 2 Contract Award/Additional Risk Reduction	4	2021	4	2023
HRS Transition Phase 3 Contract Award/Application Migration to HCM SaaS	1	2024	4	2026
<b>TIMES Development</b>				
Award TIMES contract	3	2021	4	2021
Establish legacy database inputs	4	2021	1	2022
Modify and go live for TIMES ARCORT module	4	2021	3	2022
Sunset legacy ARCORT	3	2022	4	2022
Modify and Go live for TIMES AFFMS module	1	2022	4	2022
Sunset legacy AFFMS module	4	2022	4	2022
Cloud Hosting - Award Contract	3	2021	4	2021
Cloud Hosting - Establish virtual servers and cybersecurity controls	4	2021	4	2022
Data integration with AROWS	4	2022	2	2023
Data integration with AROWS-R	1	2023	3	2023
Modify and go live for TIMES MDIS module	1	2023	4	2023
Sunset legacy mobilization decision tools	4	2023	4	2023
Data integration with TRICARE, DEERS	1	2024	3	2024
Data integration with ASIMS, VRS, ARCNet, DMDC	4	2024	4	2025
Plan, develop, and Go live for TIMES Tour of Duty module	4	2024	1	2026
Sunset legacy volunteer sourcing tools	2	2026	3	2026
Connect TIMES to financial systems	3	2026	4	2026
Modify all TIMES modules to optimize ARC mobilization and reporting	1	2027	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0901226F I Air Force Studies and Analysis Agency							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	1.151	1.248	0.899	0.000	0.899	1.584	1.617	1.649	1.685	Continuing	Continuing
676009: M & S DEVELOPMENT	-	1.151	1.248	0.899	0.000	0.899	1.584	1.617	1.649	1.685	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Provides for development and enhancement of modeling and simulation (M&S) tools for strategic planning, operational requirements, modernization and recapitalization of systems and programs, as well as the Planning, Programming, Budgeting and Execution (PPBE) processes for the AF Analytic Community and Secretary of the Air Force Standard Analysis Toolkit in support of AF Senior Leadership. As new technologies are introduced to the battlefield (Digital Electronic Jammers, maneuvering Surface-to-Surface Missiles, Directed Energy Weapons, etc.) along with evolving warfighting techniques and support operations, the range of capabilities that needs to be covered by analytic tools needs to expand as well. M&S creation and enhancement can require extensive research in how to properly implement the emerging weapons capabilities as well as demand development of software techniques to implement the changes. Additionally, emerging and continuing focus areas such as Space, Irregular Warfare, Information Operations, Cyber warfare and ISR demand specific tools of their own for new exploration and development. These focus areas require examination in isolation as well as cross-domain making the problem more complex and increasing the R&D challenges to field new decision support tools.

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 0.0M was expended for civilian pay expenses in this program element, and in FY22 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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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>			<b>R-1 Program Element (Number/Name)</b> PE 0901226F <i>I Air Force Studies and Analysis Agency</i>		
<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	1.195	1.248	0.000	0.000	0.000
Current President's Budget	1.151	1.248	0.899	0.000	0.899
Total Adjustments	-0.044	0.000	0.899	0.000	0.899
• 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	-0.044	0.000	0.899	0.000	0.899
 <b>Change Summary Explanation</b>					
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 FY 2023 cannot be made in a relevant manner.					
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>		
<b>Title:</b> Modeling and Simulation Development	1.151	1.248	0.899		
<b>Description:</b> Develop and Update Modeling & Simulation (M&S) tools.					
<b>FY 2022 Plans:</b> Continue research and development of M&S Tools					
<b>FY 2023 Plans:</b> Continue research and development of M&S tools					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decreased requirements					
<b>Accomplishments/Planned Programs Subtotals</b>	1.151	1.248	0.899		
<b>D. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>Remarks</b>					
N/A.					

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0901226F <i>I Air Force Studies and Analysis Agency</i>	

E. Acquisition Strategy

Previous and planned future efforts have been/will be awarded under existing Task Order contracts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0901226F / Air Force Studies and Analysis Agency				Project (Number/Name) 676009 / M & S DEVELOPMENT					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
Software Development	Various	Not specified. : NV	-	1.151	Mar 2021	1.248	Mar 2022	0.899	Mar 2023	-		0.899	Continuing	Continuing	-
Subtotal			-	1.151		1.248		0.899		-		0.899	Continuing	Continuing	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.151		1.248		0.899		-		0.899	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force										Date: April 2022	
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0901226F / Air Force Studies and Analysis Agency					Project (Number/Name) 676009 / M & S DEVELOPMENT	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
M&S Development																												
Modeling & Simulation Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901226F / Air Force Studies and Analysis Agency	Project (Number/Name) 676009 / M & S DEVELOPMENT

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
M&S Development				
Modeling & Simulation Development	1	2021	4	2026

**Note**  
A9 anticipates work continuing in the following areas: (1) research into how to better model new friendly and enemy weapons systems, (2) development of tools to better examine evolving weapons technologies and (3) development of new models to better populate the data requirements of existing tools.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force									Date: April 2022			
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0901538F I Financial Management Information Systems Development							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	6.740	4.852	5.421	0.000	5.421	5.488	5.591	5.710	5.838	Continuing	Continuing
672222: Program Budget Enterprise Service (PBES)	0.000	1.967	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.008
675177: Cost Estimating Modeling (CEM)	0.000	4.773	4.811	5.421	0.000	5.421	5.488	5.591	5.710	5.838	Continuing	Continuing
Program MDAP/MAIS Code: N87												
A. Mission Description and Budget Item Justification												
<p>This program element develops upgrades to existing financial management systems. These upgrades are required to comply with auditability and transparency requirements as well as improve efficiencies in processing financial transactions. This program element also supports studies and analysis to improve future program planning and execution.</p> <p>There are two programs within this program element: Program and Budget Enterprise Services (PBES) and Cost Estimating Modeling (CEM).</p> <p>PBES is a software development effort that utilizes a Service Oriented Architecture (SOA) to deliver budgeting and programming capability for the Department of the Air Force. It replaces the following legacy systems, which support the budget formulation and force programming process: Automated Budget Interactive Data Environment System (ABIDES) (complete), Resource Allocation Programming Information Decision System (RAPIDS), Force Structure Data Management (FSDM), and Enhanced Tradespace Tool (ETT). The transition to Full Deployment (FD) is projected for 31 Mar 22 followed by a transition to the Capability Support (CS) Phase by 31 May 22.</p> <p>CEM is a knowledge-based study effort to improve Department of the Air Force-wide cost estimating by analyzing cost data and recommending changes to estimating models, methods, and tools. Activities also include studies and analysis to support both current program planning and execution and future program planning.</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 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.</p> <p>This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.e</p>												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0901538F I Financial Management Information Systems Development			
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	6.993	4.852	0.000	0.000	0.000
Current President's Budget	6.740	4.852	5.421	0.000	5.421
Total Adjustments	-0.253	0.000	5.421	0.000	5.421
• 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	-0.253	0.000			
• Other Adjustments	0.000	0.000	5.421	0.000	5.421
Change Summary Explanation					
The FY22 President's Budget submittal did not reflect FY23 through FY26 funding. Therefore, an explanation of the change between the two budget positions for FY23 cannot be made in a relevant manner.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0901538F / Financial Management Infor mation Systems Development				Project (Number/Name) 672222 / Program Budget Enterprise Service (PBES)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672222: Program Budget Enterprise Service (PBES)	0.000	1.967	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.008
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

PBES is the single solution software development effort to deliver planning, programming, budgeting and execution (PPBE) capability for the United States Air Force. PBES replaces the Automated Budget Interactive Data Environment System (ABIDES) (complete), Resource Allocation Programming Information Decision System (RAPIDS), Force Structure Data Management (FSDM), and the Enhanced Tradespace Tool (ETT), supporting the budget formulation and force programming process. The system is compliant with the Standard Financial Information Structure (SFIS) and Standard Line of Accounting (SLOA) conventions, which support the enabling of data standardization across the Department of Defense (DoD). The transition to Full Deployment (FD) is projected for 31 Mar 22 followed by a transition to the Capability Support (CS) Phase by 31 May 22.

Utilizing Business Process Re-engineering (BPR), the Air Force designated PBES as the solution to deliver traceability of financial data in support of the PPBE process. Through the use of BPR, PBES addressed excessive overhead, outdated business practices and other time-consuming support activities. PBES is making the budget formulation process more efficient by incorporating business best practices, organizing programming and budgeting personnel, as well as utilizing current technology. PBES also eliminated checks and balances required of older technology, taking advantage of automated reconciliation services. In addition, the solution allows the use of Authoritative Data Sources (ADS) for data exposure, enabling more timely and accurate budget submissions to Office of the Secretary of Defense (OSD), Congress, and other internal and external customers.

A Commercial-off-the-Shelf (COTS) product was selected as the tool of choice which required minor configuration changes to meet the stated user requirements. This strategy required no code changes to the actual COTS product and supports the drive to lower support costs along with making future requirements changes easier in the out-years. Requirements were satisfied through an iterative process of sprint development cycles, where usable capability was produced and made available to operational users after every sprint. The Integrated Product Office construct along with application of agile principles allowed the program to properly plan system requirements, deliver early capability to the end users, achieve early return on investment of taxpayer dollars, provide for division of risk, reduce waste, effectively respond to change, and continuously improve our processes.

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.

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-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022							
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0901538F / Financial Management Information Systems Development		Project (Number/Name) 672222 / Program Budget Enterprise Service (PBES)							
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total					
<p><b>Title:</b> PBES</p> <p><b>Description:</b> Software development effort providing modern and enhanced planning, programming, budgeting and execution capabilities to the USAF. Funding supports engineering, cybersecurity, technical development, implementation and automated testing.</p> <p>ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"><li>- All designated PBES users trained for MAJCOM, Air Staff and Planners</li><li>- Plan-to-Program requirements defined, scheduled and awarded</li><li>- Successful program/independent testing of Sprints 20-24; SAFBUD &amp; SAFPGM-5 patches; 3 critical patches</li><li>- Successful Air Staff user acceptance testing</li><li>- Successful Go-Live/operational deployment for Budget and Program users based on the initial Bounded User Requirements (BUR)</li></ul> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>- Continue acquisition deployment actions in preparation for the Full Deployment and Capability Support Phase authority to proceed milestone decisions</li></ul> <p><b>FY 2023 Base Plans:</b></p> <p>N/A</p> <p><b>FY 2023 OCO Plans:</b></p> <p>N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>Funding decreased because the DAF completed systems development and transitioned to O&amp;M funding for remaining activities.</p>		1.967	0.041	0.000	0.000	0.000					
Accomplishments/Planned Programs Subtotals		1.967	0.041	0.000	0.000	0.000					
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 834010: General Information Technology	0.694	0.000	0.000	-	0.000	-	-	-	-	0.000	0.694

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force									Date: April 2022		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0901538F / Financial Management Information Systems Development				Project (Number/Name) 672222 / Program Budget Enterprise Service (PBES)			
C. Other Program Funding Summary (\$ in Millions)											
				<u>FY 2023</u>	<u>FY 2023</u>	<u>FY 2023</u>				<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>		<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Complete Total Cost</u>
Remarks											
D. Acquisition Strategy											
<p>PBES is a Business Category (BCAT) III program following DOD 5000.75 BCAC policy. The PBES strategy, which was supported by all Stakeholders, employed an empowered joint Program Office, Functional Community, and Senior Stakeholder group to rapidly develop, test, and deploy the DAF's Planning, Programming, and Budgeting capability within three years. This strategy required mutual trust and risk acceptance by all parties to be successful. This strategy has been highly successful delivering PBES capabilities on schedule and substantially under budget.</p> <p>The first step in this strategy utilized early risk reduction efforts (sometimes referred to as "prototyping") to prove that the capability and contractors existed to meet users' needs. This step was conducted using two 6-month contract vehicles which were both completed months early, delivering several hundred user requirements. The success of these efforts led to the strategy of selecting a COTS product called Oracle Hyperion and the hiring of a small-business system integrator (SI). The significance with both of these selections is that the COTS product and the SI have already been utilized by commercial companies and multiple DoD agencies, thus reducing the implementation risk for the Government.</p> <p>Both contract awards for the SI and Oracle licenses were made in 1QFY2018, with substantial cost savings received by negotiating bulk license purchases for all DAF users. The development strategy employed agile development methods creating 8 week "Sprint" releases to deploy capability rapidly with substantial user feedback along the way. Twenty total Sprints were planned across three years in an attempt to match the on-going Air Force PPBE cycles. As Sprints were developed and tested, they were then deployed for operational use.</p> <p>Various DAF organizations used PBES to support the FY2022 PB build. Per the FY2018 decision, DAF Planners transitioned to PBES in February 2021 to develop the FY2023 Financial Plan. The DAF will transition to Full Deployment after concluding the FY23 President's budget cycle, approx. 31 Mar 22. The DAF will transition to the Capability Support (CS) Phase approx. 31 May 22.</p> <p>The success of this strategy can be attributed to mutual buy-in by all parties, risk acceptance that the solution will not be perfect from the start, and an understanding that not all requirements are exactly known up-front and that changes will be required continuously to be successful.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0901538F / Financial Management Information Systems Development						Project (Number/Name) 672222 / Program Budget Enterprise Service (PBES)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
PBES Systems Integrator	C/FFP	AFLCMC : Maxwell-Gunter AFB, AL	0.000	0.539	Dec 2020	0.041	Dec 2021	0.000	Dec 2022	-		0.000	0.000	0.580	2.728		
Subtotal			0.000	0.539		0.041		0.000		-		0.000	0.000	0.580	N/A		
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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		
PBES DEV/TEST Hosting	MIPR	HEDC : Hill AFB, UT	0.000	1.428	Apr 2021	-		-		-		-	0.000	1.428	2.883		
Subtotal			0.000	1.428		-		-		-		-	0.000	1.428	N/A		
Remarks Hill AFB Enterprise Data Center (HEDC)																	
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals			0.000	1.967		0.041		0.000		-		0.000	0.000	2.008	N/A		
Remarks																	

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0901538F / <i>Financial Management Information Systems Development</i>			<b>Project (Number/Name)</b> 672222 / <i>Program Budget Enterprise Service (PBES)</i>

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Program Budget Enterprise Service</i></b>																												
System Integrator Contract Award																												
Develop/Modify Air Staff Application																												
Develop/Modify Planning Application																												
Full Deployment Decision (fully deploy PBES & authorize Legacy sys shutdown)																												
Capability Support Authority to Proceed																												
Continuous Capability Delivery development																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0901538F / <i>Financial Management Information Systems Development</i>	<b>Project (Number/Name)</b> 672222 / <i>Program Budget Enterprise Service (PBES)</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Program Budget Enterprise Service</i></b>				
System Integrator Contract Award	1	2021	1	2021
Develop/Modify Air Staff Application	1	2021	1	2021
Develop/Modify Planning Application	1	2021	2	2021
Full Deployment Decision (fully deploy PBES & authorize Legacy sys shutdown)	2	2022	2	2022
Capability Support Authority to Proceed	3	2022	3	2022
Continuous Capability Delivery development	3	2022	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0901538F / Financial Management Information Systems Development				Project (Number/Name) 675177 / Cost Estimating Modeling (CEM)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675177: Cost Estimating Modeling (CEM)	0.000	4.773	4.811	5.421	0.000	5.421	5.488	5.591	5.710	5.838	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The Cost Estimating Modeling (CEM) program strengthens Department of the Air Force cost estimators' ability to more accurately assess cost requirements. Its products improve the quality, timeliness, and effectiveness of acquisition program cost estimates and ultimately posture the DAF to make better acquisition decisions for more than 200B in critical warfighter capability.

The CEM program performs studies to continuously develop updated cost data and estimating methods and tools, data process re-engineering tools, data structure development tools, and gap filling initiatives. The program focuses on both broad cross-cutting initiatives as well as weapon system type-specific. Products are then uploaded to the OSD Cost Assessment Data Enterprise (CADE) system for the defense cost estimation community to access.

Changing technologies, acquisition laws, policy directives, and initiatives drive the need to continuously revise cost estimating processes, methods, and tools. Specifically CEM initiatives are planned based on the following:

- Statute (e.g., Title 10, section 167; USC 3221, 3227, 4251, 4252, 4253, and 4328)
- Policy directives (e.g., DoDI 5000.02, DoDI 5000.73)
- FY16/17/18/21 NDAA reports (PL 114-92/114-328/115-91/116-283) including provisions relating to Major Defense Acquisition Programs (Section 804 of the FY16 NDAA authorized rapid prototyping and rapid fielding of defense systems)
- Annual life-cycle cost estimation requirements
- Weapon System Acquisition Reform Act (WSARA) (provisions related to improving cost estimating quality and affordability analysis)
- Secretary of the Air Force acquisition excellence plans (priorities to improve cost estimating capability and affordability analysis)
- Office of the Secretary of Defense policy (initiatives on enhanced trade-off analysis, affordability analysis, and cost reduction initiatives)

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)

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> CEM	4.773	4.811	5.421	-	5.421

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0901538F / Financial Management Information Systems Development		Project (Number/Name) 675177 / Cost Estimating Modeling (CEM)		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p><b>Description:</b> Perform knowledge-based studies (KBS) — Develop/modernize cost data, data collection process improvements, collect and analyze data to develop new estimating methods (e.g. statistical tools, cost estimating relationships (CERs), schedule estimating relationships (SERs), technical estimating relationships (TERs)), and perform other gap filling studies for aircraft, UAVs, ballistic and tactical missiles, munitions, electronics and aircraft modifications, ground stations and automated information systems, space and launch systems, operating and support, and cross-cutting areas.</p> <p>ACCOMPLISHMENTS:</p> <ul style="list-style-type: none"><li>- Completed studies in all areas of Air Force weapon systems types. Among these include an aircraft systems engineering/program management dataset with benchmarks, a missile/munitions database/tool with a handbook, a satellite sizing cost model to include payload SERs, ground and airborne radio/terminal dataset, cross-service operating and support cost compatibility study, inflation/escalation impacts to ballistic missile program cost estimates, aircraft schedule dataset and estimating relationships, and a joint Air Force and National Reconnaissance Office resilient ground systems dataset and cost estimating relationships (CERs) as well as DevOps Factory cost analysis.</li><li>- Worked with OSD CADE team to implement process improvements, and data design and structure requirements into the CADE system.</li><li>- Studied the Air Force's use of digital engineering approaches and assessed the perceived and demonstrated benefits and risks over a weapons system's life cycle.</li><li>- Integrated finalized products into CADE system repository for sharing with Air Force and DoD cost community.</li></ul> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>- Develop and start execution of a detailed plan of action with milestones and resource summaries for studies across all of the Air Force weapon system commodity areas that will encompass the next contract period of performance. Plan includes efforts such as agile and software factory cost analysis, software maintenance data collection, cost growth analysis, integrated aircraft database/tool with embedded cost estimating relationships and benchmarks, missile database updates/enhancements and methods development, space programs portfolio technical dataset collection, satellite sizing methods updates and calibration, and others.</li><li>- Continue to mine weapon system program contract modifications data and use this to develop a benchmark tool that estimates the cost of engineering change orders in acquisition program phases and across time.</li><li>- Continue to collect historical program data to fill gaps against defined data collection requirements from previous year efforts and integrate historical data collected into CADE system for central access to all DoD.</li></ul>						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force				<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0901538F / <i>Financial Management Information Systems Development</i>		<b>Project (Number/Name)</b> 675177 / <i>Cost Estimating Modeling (CEM)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>						
		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<ul style="list-style-type: none"> <li>- Assemble and analyze data on the timing, drivers, and cost of initial development and required upgrades to Air Force aircraft mission computers to inform critical upcoming modernization planning decisions.</li> <li>- Conduct analysis of the impacts of digital engineering via detailed case studies, collection of original data, and contractor visits to estimate impacts on life cycle costs.</li> <li>- Continue to work with OSD CADE team to implement data design and structure requirements as well as visual analysis tool requirements into CADE system.</li> <li>- Conduct weekly reviews with technical/cost teams and quarterly contractor progress reviews with government cost community.</li> </ul> <p><b><i>FY 2023 Base Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Will continue to collect historical program data to fill gaps against defined data collection requirements from previous year efforts and integrate historical data collected into CADE system for central access to all DoD</li> <li>- Will direct research to develop integrated datasets with embedded CERs and benchmarks, but with structures that let cost analysts easily and quickly re-normalize data for specialized relationships and benchmarks</li> <li>- Will initiate studies that are topical/timely or surface from prior research</li> <li>- Will continue to work with OSD CADE team to implement data design and structure requirements as well as visual analysis tool requirements into CADE system</li> <li>- Will conduct weekly reviews with technical/cost teams and quarterly contractor progress reviews with entire government cost community</li> </ul> <p><b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding increased to align with labor required for scheduled activities.</p>						
<b>Accomplishments/Planned Programs Subtotals</b>		4.773	4.811	5.421	-	5.421
<b>C. Other Program Funding Summary (\$ in Millions)</b>						
N/A						
<b>Remarks</b>						
N/A						
<b>D. Acquisition Strategy</b>						
The CEM program performs studies to continuously develop updated cost data and estimating methods and tools, data process re-engineering tools, data structure development tools, and gap filling initiatives. Studies are organized by those that span all acquisition initiatives as well as by the following weapon system types:						

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / <i>Financial Management Information Systems Development</i>	Project (Number/Name) 675177 / <i>Cost Estimating Modeling (CEM)</i>
<p>manned aircraft, UAVs, ballistic missiles, tactical missiles, munitions, electronics and aircraft modifications, ground stations and automated information systems, space and launch vehicles.</p> <p>The DAF partnered with OSD to host and maintain products on the CADE system. The CADE and CEM partnership is the lead example for data initiatives designed as a response to a congressional-expressed desire for better acquisition outcomes. The partnership provides data/analysis/methods/tools and institutional knowledge at the analysts' fingertips versus the status quo inefficient, ad hoc approach.</p> <p>CEM contracts are firm-fixed price, cost plus, or hybrid as a combination of fixed price and cost plus, and are awarded through full and open competition following Federal Acquisition Regulation (FAR) guidelines. The DAF provides contract management oversight and direction. Contracted knowledge-based studies progress will be reviewed on a quarterly basis and adjusted as appropriate.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0901538F / Financial Management Information Systems Development				Project (Number/Name) 675177 / Cost Estimating Modeling (CEM)					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Datasets, Analysis, and Methods	C/CPFF	Tecolote Research : Goleta, CA	0.000	1.029	Jan 2021	-		-		-		-	0.000	1.029	-
Datasets, Analysis, and Methods Development	C/Various	Tecolote Research : Goleta, CA	0.000	2.229	Sep 2021	2.213	Sep 2022	2.279	Sep 2023	-		2.279	Continuing	Continuing	-
CADE Studies - OY4 Bridge	MIPR	OSD(CAPE) : Pentagon, VA	0.000	0.338	Feb 2021	-		-		-		-	0.000	0.338	-
CADE System Development/Cost Studies	MIPR	OSD(CAPE) : Pentagon, VA	0.000	0.896	Jun 2021	1.381	Feb 2022	1.423	Feb 2023	-		1.423	Continuing	Continuing	-
Other Knowledge-Based Studies	MIPR	Various : Various	0.000	0.150	Nov 2020	1.073	Jan 2022	1.556	Jan 2023	-		1.556	Continuing	Continuing	-
Subtotal			0.000	4.642		4.667		5.258		-		5.258	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Support Costs	Various	Not specified. : TBD	0.000	0.131	Dec 2020	0.144	Dec 2021	0.163	Dec 2022	-		0.163	0.000	0.438	-
Subtotal			0.000	0.131		0.144		0.163		-		0.163	0.000	0.438	N/A
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	4.773		4.811		5.421		-		5.421	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0901538F / <i>Financial Management Information Systems Development</i>			<b>Project (Number/Name)</b> 675177 / <i>Cost Estimating Modeling (CEM)</i>

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>CEM</b>																												
Commodity Specific Knowledge-Based Studies (KBS)																												
Populate Data Templates w/ Commodity Specific KBS findings (ongoing)																												
Develop CERs/Estimating Tools/Models																												
Data / CERs / Tools / Models Deliverables (Feb 2021)																												
Data / CERs / Tools / Models Deliverables (Sep 2021)																												
Data / CERs / Tools / Models Deliverables (Feb 2022)																												
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Data / CERs / Tools / Models Deliverables (Feb 2025)																												
Data / CERs / Tools / Models Deliverables (Sep 2025)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																				Date: April 2022																	
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 0901538F / Financial Management Information Systems Development										Project (Number/Name) 675177 / Cost Estimating Modeling (CEM)																	
										FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Data / CERs / Tools / Models Deliverables (Feb 2026)										<div></div>																											
Data / CERs / Tools / Models Deliverables (Sep 2026)										<div></div>																											
Data / CERs / Tools / Models Deliverables (Feb 2027)										<div></div>																											
Data / CERs / Tools / Models Deliverables (Sep 2027)										<div></div>																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901538F / Financial Management Information Systems Development	Project (Number/Name) 675177 / Cost Estimating Modeling (CEM)	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>CEM</b>				
Commodity Specific Knowledge-Based Studies (KBS)	1	2021	4	2027
Populate Data Templates w/ Commodity Specific KBS findings (ongoing)	1	2021	4	2027
Develop CERs/Estimating Tools/Models	1	2021	4	2027
Data / CERs / Tools / Models Deliverables (Feb 2021)	2	2021	2	2021
Data / CERs / Tools / Models Deliverables (Sep 2021)	4	2021	4	2021
Data / CERs / Tools / Models Deliverables (Feb 2022)	2	2022	2	2022
Data / CERs / Tools / Models Deliverables (Sep 2022)	4	2022	4	2022
Data / CERs / Tools / Models Deliverables (Feb 2023)	2	2023	2	2023
Data / CERs / Tools / Models Deliverables (Sep 2023)	4	2023	4	2023
Data / CERs / Tools / Models Deliverables (Feb 2024)	2	2024	2	2024
Data / CERs / Tools / Models Deliverables (Sep 2024)	4	2024	4	2024
Data / CERs / Tools / Models Deliverables (Feb 2025)	2	2025	2	2025
Data / CERs / Tools / Models Deliverables (Sep 2025)	4	2025	4	2025
Data / CERs / Tools / Models Deliverables (Feb 2026)	2	2026	2	2026
Data / CERs / Tools / Models Deliverables (Sep 2026)	4	2026	4	2026
Data / CERs / Tools / Models Deliverables (Feb 2027)	2	2027	2	2027
Data / CERs / Tools / Models Deliverables (Sep 2027)	4	2027	4	2027

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0901554F <i>I Defense Enterprise Acntng and Mgt Sys (DEAMS)</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	39.628	54.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
675178: <i>DEAMS Continuous Capability Development</i>	-	39.412	54.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
675179: <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>	-	0.216	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

## **Note**

In FY22, DEAMS Continuous Capability Development (CCD) budget controls have been realigned from Research, Development, Test & Evaluation (RDT&E) Program Element (PE) 0901554F Project 675178, Operations & Maintenance (O&M) AG/SAG 042A, and Other Procurement Line Item 834470 and consolidated into Budget Activity 8 in PE 0608920F in order to participate in the DoD's Software & Digital Technology Pilot Program.

## **A. Mission Description and Budget Item Justification**

Starting in FY22, funding for this PE was transferred to PE 0608920F, Defense Accounting and Management System (DEAMS), Project Number 685178, DEAMS Continuous Capability Development. The FY 2018 NDAA Sections 873/874 directed OSD to streamline software development. The Defense Enterprise Accounting and Management System (DEAMS) was included in an OSD pilot initiative in which all lifecycle funding will be tracked under BA08, Software and Digital Technology Pilot Programs. Pilot programs will test the ability to execute modern software development practices encompassing development, procurement, modification and maintenance activities. The DEAMS pilot program in PE 0608920F, RDT&E, Air Force, BA08 includes Air Force RDT&E, Other Procurement, and Operations & Maintenance funds transferred from PE 0901554F.

This program element develops upgrades to existing financial management systems. These upgrades are required to comply with auditability and transparency requirements as well as efficiencies in processing financial transactions. This program element also supports studies and analysis to improve future program planning and execution.

There are two projects within this program element: Defense Enterprise Accounting and Management System (DEAMS) Increment 1 (Inc 1), and DEAMS Continuous Capability Development (CCD), formerly known as DEAMS Increment 2. Project 675178: DEAMS CCD started in FY2019 under PE 0901538F. Project 675179: DEAMS Increment 1 was under PE 0901538F through FY2019.

DEAMS is a commercial-off-the-shelf (COTS), Oracle-based software implementation which provides an auditable, modern accounting and finance management capability. It is the Department of the Air Force's (DAF) core accounting and financial management solution and is a key component of the DAF's long-term business process improvements needed to sustain auditability and correct financial system weaknesses. DEAMS supports 17,000 users at 170 installations world-wide supporting all Air Force Major Commands, the U.S. Space Force, and Unified Commands where the DAF is the executive agent.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0901554F I Defense Enterprise Acntng and Mgt Sys (DEAMS)	
<p>DEAMS is a joint DAF and United States Transportation Command (USTRANSCOM) Enterprise Resource Planning (ERP) Program that replaces numerous inefficient and/or obsolete legacy accounting and finance systems and provides core funds execution management functions consistent with financial management laws, regulations and policy, general ledger, funds management, payments, receivables, cost and revenues, and fiduciary reporting.</p> <p>The DAF is preparing to transition DEAMS to the Capability Support Phase, in which enhancements are managed through the Agile software development backlog by the Program Management Office (PMO) and Function Management Office (FMO). Enhancement activities will be implemented via a process of development cycles, in which usable capability is produced after every iteration. The PMO construct, along with the application of Agile principles allows the program to properly plan system requirements, deliver early capability to the end users, achieve early return on investment of taxpayer dollars, mitigate risk, reduce waste, effectively respond to change, and continuously improve processes.</p> <p>The DAF is planning to increase DEAMS usage within the acquisition community to include acquisition program executive offices, laboratories, test centers, and air logistics complexes. These deployments will add an additional 4,500 users for a total of 21,500 users.</p> <p>DEAMS is compliant with the Clinger-Cohen Act and the DoD's Business Enterprise Architecture (BEA). DEAMS is key to DAF compliance with the Financial Improvement and Audit Readiness (FIAR) requirement. This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.</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 FY21 0.000M was expended for civilian pay expenses in this program element, and in FY22 0.000M 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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0901554F I Defense Enterprise Acntng and Mgt Sys (DEAMS)			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	40.564	0.000	0.000	0.000	0.000
Current President's Budget	39.628	54.400	0.000	0.000	0.000
Total Adjustments	-0.936	54.400	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	54.400			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.936	0.000			
Change Summary Explanation					
In FY 2023, refer to PE 0608920F, Defense Accounting and Management System (DEAMS), Project Number 675178, DEAMS Continuous Capability Development.					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)				Project (Number/Name) 675178 / DEAMS Continuous Capability Development			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675178: DEAMS Continuous Capability Development	-	39.412	54.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

In FY 2023, DEAMS Continuous Capability Development (CCD) budget controls have been realigned from Research, Development, Test & Evaluation (RDT&E) Program Element (PE) 0901554F Project 675178, Operations & Maintenance (O&M) AG/SAG 042A, and Other Procurement Line Item 834470 and consolidated into Budget Activity 8 in PE 0608920F in order to participate in the DoD's Software & Digital Technology Pilot Program.

In FY 2020, PE 0901554F, DEAMS, changed from PE 0901538F, Financial Management Information Systems Development.

In FY 2020, Project 675178, DEAMS Continuous Capability Development, changed from Defense Enterprise Accounting Management System Increment 2 (DEAMS Inc. 2).

## A. Mission Description and Budget Item Justification

The FY 2018 NDAA Sections 873/874 directed OSD to streamline software development. In FY 2022, DEAMS was included in an OSD pilot initiative in which all lifecycle funding will be tracked under BA08, Software and Digital Technology Pilot Programs. No FY 2022 Pilot programs were initiated, resulting in the shift of the request from FY 2022 to FY 2023. Pilot programs will test the ability to execute modern software development practices encompassing development, procurement, modification and maintenance activities. The DEAMS pilot program in PE 0608920F, RDT&E, Air Force, BA08 includes Air Force RDT&E, Other Procurement, and Operations & Maintenance funds transferred from PE 0901554F.

This program element develops upgrades to existing financial management systems. These upgrades are required to comply with auditability and transparency requirements as well as efficiencies in processing financial transactions. This program element also supports studies and analysis to improve future program planning and execution.

There are two projects within this program element: Defense Enterprise Accounting and Management System (DEAMS) Increment 1 (Inc 1), and DEAMS Continuous Capability Development (CCD), formerly known as DEAMS Increment 2. Project 675178: DEAMS CCD started in FY 2019 under PE 0901538F. Project 675179: DEAMS Increment 1 was under PE 0901538F through FY 2019.

DEAMS is a commercial-off-the-shelf (COTS), Oracle-based software implementation which provides an auditable, modern accounting and finance management capability. It is the Department of the Air Force's (DAF) core accounting and financial management solution and is a key component of the DAF's long-term business process improvements needed to sustain auditability and correct financial system weaknesses. DEAMS supports 17,000 users at 170 installations world-wide supporting all Air Force Major Commands, the U.S. Space Force, and Unified Commands where the DAF is the executive agent.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0901554F / <i>Defense Enterprise Acntng and Mgt Sys (DEAMS)</i>	<b>Project (Number/Name)</b> 675178 / <i>DEAMS Continuous Capability Development</i>

DEAMS is a joint DAF and United States Transportation Command (USTRANSCOM) Enterprise Resource Planning (ERP) Program that replaces numerous inefficient and/or obsolete legacy accounting and finance systems and provides core funds execution management functions consistent with financial management laws, regulations and policy, general ledger, funds management, payments, receivables, cost and revenues, and fiduciary reporting.

The DAF is preparing to transition DEAMS to the Capability Support Phase, in which enhancements are managed through the Agile software development backlog by the Program Management Office (PMO) and Function Management Office (FMO). Enhancement activities will be implemented via a process of development cycles, in which usable capability is produced after every iteration. The PMO construct, along with the application of Agile principles allows the program to properly plan system requirements, deliver early capability to the end users, achieve early return on investment of taxpayer dollars, mitigate risk, reduce waste, effectively respond to change, and continuously improve processes.

The DAF is planning to increase DEAMS usage within the acquisition community to include acquisition program executive offices, laboratories, test centers, and air logistics complexes. These deployments will add an additional 4,500 users for a total of 21,500 users.

DEAMS is compliant with the Clinger-Cohen Act and the DoD's Business Enterprise Architecture (BEA). DEAMS is key to DAF compliance with the Financial Improvement and Audit Readiness (FIAR) requirement. 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 FY 2021 0.212M was expended for civilian pay expenses in this program element, and in FY 2022 0.216M is forecasted for civilian pay expenses in this program element.

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

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<p><b>Title:</b> DEAMS Continuous Capability Development (CCD) Product Development</p> <p><b>Description:</b> DEAMS CCD system capabilities will be developed and enhanced through completion of iterative development cycles in accordance with an Agile software development strategy. The DAF is implementing a steady-state incremental development tempo that is more complimentary to the Agile software development process. Development activities include requirements analysis, design, build, test, data conversion, migration from legacy system as required, implementation into the DEAMS baseline, and the resolution of deficiency reports and defects. Activities also include various Advisory and Assistance Services (A&amp;AS) and Program Management Administration (PMA) activities to support the aforementioned development efforts.</p> <p><b>FY 2022 Plans:</b></p>	38.546	53.533	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)		Project (Number/Name) 675178 / DEAMS Continuous Capability Development		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<div>- Continue incremental planning and support initiatives to organize CCD backlog requirements into capability delivering epics.</div> <div>- Develop additional Business Intelligence (BI) functionality to enhance reporting capability</div> <div>- Implement governance capabilities to effectively shape system behavior to Department of the Air Force (DAF) finance business rules and workflow</div> <div>- Continue implementing additional Treasury Direct Dispersing capability to bring DEAMS into compliance with OUSD Treasury Disbursing and Collections Initiatives including, but not limited to implementing Military Cost Pay Accounting, implementing acquisition data standards for contract writing systems, and developing accounting capability for base supply purchases</div> <div>- Continue to implement Oracle's Splunk platform as an OSD Cybersecurity pilot program to more effectively manage data and enhance decision-space and system performance</div> <div>- Leverage Agile methods and cadence to resolve existing/new defects and add enhancements in the production environment</div> <div>- Research, design, and build a secure and continuous process for development and delivery of capabilities (Dev/Sec/Ops)</div> <div>- Restructure the system architecture to improve performance of the End of Day/End of Month processing</div> <div>- Continue migration/development/transition activities to implement Cloud solution</div> <div>- Refine near-term technical requirements/tools to ensure smooth operation of DEAMS and mature development capabilities</div> <div>- Continue to reduce technical debt and modernize system by implementing improved software development methods and solutions</div> <div>FY 2023 Base Plans:</div> <div>See PE 0608920F, Defense Accounting and Management System (DEAMS), Project Number 675178, DEAMS Continuous Capability Development.</div> <div>FY 2023 OCO Plans:</div> <div>N/A</div> <div>FY 2022 to FY 2023 Increase/Decrease Statement:</div> <div>- There is no significant increase/decrease in baseline funding between FY 2022 and FY 2023.</div> <div>- See PE 0608920F, Defense Accounting and Management System (DEAMS), Project Number 675178, DEAMS Continuous Capability Development.</div>						
Title: Test and Evaluation		0.866	0.867	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force				Date: April 2022							
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)		Project (Number/Name) 675178 / DEAMS Continuous Capability Development							
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total					
<p><b>Description:</b> The T&amp;E process will be a complete system operational test to determine DEAMS effectiveness, suitability and mission capability. The T&amp;E efforts conducted are in developer sites, Air Force test sites, DISA production sites and user locations.</p> <p>The T&amp;E effort will include the implementation of the AGILE principles which includes Sprint Testing where functionality developed code in the sprint is tested for conformance to functional and non-functional requirements. Sprint Testing shall address unit and integrated testing. Additionally, there will continue to be regression testing to validate that the work within the sprint has not introduced new defects into areas of the product no directly impacted by the work of the sprint and has not introduced defects into the cross-product dependencies such as interfaces.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"><li>- Continue Follow-on Operational Test and Evaluation as required</li><li>- Continue to validate planned software releases and coordinate testing</li><li>- Continue to validate user deployments and coordinate testing</li></ul> <p><b>FY 2023 Base Plans:</b></p> <p>See PE 0608920F, Defense Accounting and Management System (DEAMS), Project Number 675178, DEAMS Continuous Capability Development.</p> <p><b>FY 2023 OCO Plans:</b></p> <p>N/A</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <ul style="list-style-type: none"><li>- There is no significant increase/decrease in baseline funding between FY 2022 and FY 2023.</li><li>- See PE 0608920F, Defense Accounting and Management System (DEAMS), Project Number 675178, DEAMS Continuous Capability Development.</li></ul>											
Accomplishments/Planned Programs Subtotals		39.412	54.400	0.000	0.000	0.000					
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPAF 03 834470: Defense Enterprise Accounting & Mgt Sys	1.078	3.103	-	-	-	-	-	-	-	0.000	4.181

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0901554F / <i>Defense Enterprise Acntng and Mgt Sys (DEAMS)</i>	<b>Project (Number/Name)</b> 675178 / <i>DEAMS Continuous Capability Development</i>	

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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**Remarks**

Project Number 685178, DEAMS Continuous Capability Development.

**D. Acquisition Strategy**

The DAF concluded Increment I deployment and has begun preparation for the Business Capability Acquisition Cycle's (BCAC) Capability Support Phase. Implementation is accomplished via the Continuous Capability Development program in which requirements are prioritized by the associated Program and Functional Management Offices and organized in the requirements backlog. DEAMS capabilities are developed and sustained in accordance with the selected Agile software implementation strategy. Development activities include requirements analysis, design, build, test, data conversion, migration from legacy system as required, implementation into the DEAMS baseline, and the resolution of deficiency reports and defects. Sustainment activities include day-to-day operations and support, production environment management, and numerous system performance improvement initiatives. This strategy has been refined to enable continual enhancements and process improvements for the life of the system.

The DEAMS program will develop functionality on cadence and release on demand. User experience and mission impact will be considered when determining release dates during the execution cycle.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)				Project (Number/Name) 675178 / DEAMS Continuous Capability Development					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DEAMS: Rapid Acquisition	C/Various	Various : Various	-	13.107	Aug 2021	10.200	Feb 2022	-		-		-	0.000	23.307	-
DEAMS: SME Support, General Ledger Reports and Analysis, Business Process Analysis, Master Data Conversion and Training Development	C/T&M	Kearney & Company : Various	-	12.998	Feb 2021	24.832	Mar 2022	-		-		-	0.000	37.830	-
DEAMS: ERP Solution Architecture services	C/FP	Lintech Global Inc. : Farmington Hills, MI	-	2.588	Feb 2021	6.449	Jan 2022	-		-		-	0.000	9.037	-
DEAMS: Direct mission Support (Development, Integration Environments)	Various	Various : Various	-	1.926	Jan 2021	0.885	May 2022	-		-		-	0.000	2.811	-
DEAMS: Oracle Software Solutions	Various	Various : Various	-	2.260	May 2021	10.000	May 2022	-		-		-	0.000	12.260	-
DEAMS: ERP DBA Development and Support Services	C/FFP	DDC IT Services, LLC : Albuquerque, NM	-	1.147	Jun 2021	1.167	May 2022	-		-		-	0.000	2.314	-
Subtotal			-	34.026		53.533		-		-		-	0.000	87.559	N/A
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DEAMS: Test Services from AFOTEC, JITC, LDTO and other miscellaneous Test services	C/CPAF	Various : Various	-	0.866	May 2021	0.867	May 2022	-		-		-	0.000	1.733	-
Subtotal			-	0.866		0.867		-		-		-	0.000	1.733	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2023 Air Force</b>												<b>Date: April 2022</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)						<b>Project (Number/Name)</b> 675178 / DEAMS Continuous Capability Development			
<b>Management Services (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Administrative (PMA) Costs	C/Various	Various : Various	-	4.520	Feb 2021	-		-		-		-	0.000	4.520	-
<b>Subtotal</b>			-	4.520		-		-		-		-	0.000	4.520	N/A
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	39.412		54.400		-		-		-	0.000	93.812	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force											Date: April 2022			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)				
3600 / 7					PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)					675178 / DEAMS Continuous Capability Development				

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DEAMS CCD																												
Rapid Acquisition																												
Acquisition Planning																												
Agile Software Development Contract Award																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)	Project (Number/Name) 675178 / DEAMS Continuous Capability Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
DEAMS CCD				
Rapid Acquisition	2	2021	4	2022
Acquisition Planning	1	2021	4	2022
Agile Software Development Contract Award	4	2021	4	2022

**Note**  
Starting in FY 2023, funding transferred to PE 0608920F, Defense Accounting and Management System (DEAMS), Project Number 685178, DEAMS Continuous Capability Development.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)				Project (Number/Name) 675179 / Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675179: Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)	-	0.216	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 2023, DEAMS Continuous Capability Development (CCD) budget controls have been realigned from Research, Development, Test & Evaluation (RDT&E) Program Element (PE) 0901554F Project 675178, Operations & Maintenance (O&M) AG/SAG 042A, and Other Procurement Line Item 834470 and consolidated into Budget Activity 8 in PE 0608920F in order to participate in the DoD's Software & Digital Technology Pilot Program.

In FY 2020, PE 0901554F, DEAMS, changed from PE 0901538F, Financial Management Information Systems Development.

In FY 2020, Project 675178, DEAMS Continuous Capability Development, changed from Defense Enterprise Accounting Management System Increment 2 (DEAMS Inc.2).

**A. Mission Description and Budget Item Justification**

The FY 2018 NDAA Sections 873/874 directed OSD to streamline software development. In FY 2022, DEAMS was included in an OSD pilot initiative in which all lifecycle funding will be tracked under BA08, Software and Digital Technology Pilot Programs. No FY 2022 Pilot programs were initiated, resulting in the shift of the request from FY 2022 to FY 2023. Pilot programs will test the ability to execute modern software development practices encompassing development, procurement, modification and maintenance activities. The DEAMS pilot program in PE 0608920F, RDT&E, Air Force, BA08 includes Air Force RDT&E, Other Procurement, and Operations & Maintenance funds transferred from PE 0901554F.

This program element develops upgrades to existing financial management systems. These upgrades are required to comply with auditability and transparency requirements as well as efficiencies in processing financial transactions. This program element also supports studies and analysis to improve future program planning and execution.

There are two projects within this program element: Defense Enterprise Accounting and Management System (DEAMS) Increment 1 (Inc 1), and DEAMS Continuous Capability Development (CCD), formerly known as DEAMS Increment 2. Project 675178: DEAMS CCD started in FY 2019 under PE 0901538F. Project 675179: DEAMS Increment 1 was under PE 0901538F through FY 2019. DEAMS is a commercial-off-the-shelf (COTS), Oracle-based software implementation which provides an auditable, modern accounting and finance management capability. It is the Department of the Air Force's (DAF) core accounting and financial management solution and is a key component of the DAF's long-term business process improvements needed to sustain auditability and correct financial system weaknesses. DEAMS supports

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0901554F / <i>Defense Enterprise Acntng and Mgt Sys (DEAMS)</i>	<b>Project (Number/Name)</b> 675179 / <i>Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)</i>	

17,000 users at 170 installations world-wide supporting all Air Force Major Commands, the U.S. Space Force, and Unified Commands where the DAF is the executive agent.

DEAMS is a joint DAF and United States Transportation Command (USTRANSCOM) Enterprise Resource Planning (ERP) Program that replaces numerous inefficient and/or obsolete legacy accounting and finance systems and provides core funds execution management functions consistent with financial management laws, regulations and policy, general ledger, funds management, payments, receivables, cost and revenues, and fiduciary reporting.

The DAF is preparing to transition DEAMS to the Capability Support Phase, in which enhancements are managed through the Agile software development backlog by the Program Management Office (PMO) and Function Management Office (FMO). Enhancement activities will be implemented via a process of development cycles, in which usable capability is produced after every iteration. The PMO construct, along with the application of Agile principles allows the program to properly plan system requirements, deliver early capability to the end users, achieve early return on investment of taxpayer dollars, mitigate risk, reduce waste, effectively respond to change, and continuously improve processes.

The DAF is planning to increase DEAMS usage within the acquisition community to include acquisition program executive offices, laboratories, test centers, and air logistics complexes. These deployments will add an additional 4,500 users for a total of 21,500 users. DEAMS is compliant with the Clinger-Cohen Act and the DoD's Business Enterprise Architecture (BEA). DEAMS is key to DAF compliance with the Financial Improvement and Audit Readiness (FIAR) requirement. 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 FY 2021 0.212M was expended for civilian pay expenses in this program element, and in FY 2022 0.216M 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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
<b>Title:</b> DEAMS Continuous Capability Development (CCD) Product Development	0.216	0.000	0.000	0.000	0.000
<b>Description:</b> DEAMS CCD system capabilities will be developed and enhanced through completion of iterative development cycles in accordance with an Agile software development strategy. The DAF is implementing a steady-state incremental development tempo that is more complimentary to the Agile software development process. Development activities include requirements analysis, design, build, test, data conversion, migration from legacy system as required, implementation into the DEAMS baseline, and the resolution of deficiency					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)	Project (Number/Name) 675179 / Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
reports and defects. Activities also include various Advisory and Assistance Services (A&AS) and Program Management Administration (PMA) activities to support the aforementioned development efforts.					
<b><i>FY 2022 Plans:</i></b> None					
<b><i>FY 2023 Base Plans:</i></b> See PE 0608920F, Defense Accounting and Management System (DEAMS), Project Number 675178, DEAMS Continuous Capability Development.					
<b><i>FY 2023 OCO Plans:</i></b> N/A					
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> N/A					
<b>Accomplishments/Planned Programs Subtotals</b>	0.216	0.000	0.000	0.000	0.000

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF 03 834470: <i>Defense Enterprise Accounting &amp; Mgt Sys</i>	1.078	3.103	-	-	-	-	-	-	-	0.000	4.181

**Remarks**

**D. Acquisition Strategy**

The DAF concluded Increment I deployment and has begun preparation for the Business Capability Acquisition Cycle's (BCAC) Capability Support Phase. Implementation is accomplished via the Continuous Capability Development program in which requirements are prioritized by the associated Program and Functional Management Offices and organized in the requirements backlog. DEAMS capabilities are developed and sustained in accordance with the selected Agile software implementation strategy. Development activities include requirements analysis, design, build, test, data conversion, migration from legacy system as required, implementation into the DEAMS baseline, and the resolution of deficiency reports and defects. Sustainment activities include day-to-day operations and support, production environment management, and numerous system performance improvement initiatives. This strategy has been refined to enable continual enhancements and process improvements for the life of the system.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)	<b>Project (Number/Name)</b> 675179 / Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)

The DEAMS program will develop functionality on cadence and release on demand. User experience and mission impact will be considered when determining release dates during the execution cycle.

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force													<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)				<b>Project (Number/Name)</b> 675179 / Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)					

  

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
DEAMS: Rapid Acquisition	C/Various	Various : Various	-	0.216	Aug 2021	-		-		-		-	0.000	0.216	-
<b>Subtotal</b>			-	0.216		-		-		-		-	0.000	0.216	N/A

  

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	0.216	-	-	-	-	0.000	0.216	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)	Project (Number/Name) 675179 / Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DEAMS CCD																												
Rapid Acquisition																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0901554F / Defense Enterprise Acntng and Mgt Sys (DEAMS)	Project (Number/Name) 675179 / Defense Enterprise Accounting Management System Increment 1 (DEAMS Inc 1)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
DEAMS CCD				
Rapid Acquisition	2	2021	4	2021

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>					PE 1201921F / <i>Service Support to STRATCOM - Space Activities</i>							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	0.991	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
670373: <i>DCIP</i>	-	0.493	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
67A011: <i>Space Analysis and Application Development</i>	-	0.498	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The USSTRATCOM Data Integration and Fusion Center (DIFC) is an innovative organization developing and experimenting innovative concepts designed to validate both material and non-material methodologies to overcome data isolation in order to enable kill chains in the Joint Battlespace. Funds are necessary to update current government-owned software to ingest and disseminate new data sources from Title 10 and Title 50 sensors. The DIFC efforts at COCOM sponsored experimentation events will inform service acquisition decisions, capability gaps, intelligence gaps and tactics, techniques and procedures (TTP) development and implementation to mitigate effects on warfighter operations.

Mission Assurance (MA) is a DoD risk management effort, driven by DODD 3020.40 that seeks to ensure the availability of networked assets critical to DoD missions. "DoD will continue, under the MA construct and policy, existing efforts to meet national and Defense Critical Infrastructure (DCI) requirements established by PPD-21. Existing Department-level Defense Critical Infrastructure Program policy will remain effective until integrated into, replaced, or rescinded by MA policy. DoD Components will maintain sufficient resources to meet DCI responsibilities for identifying, assessing, managing, and monitoring risk to critical infrastructure and align associated security, protection, and risk management efforts under an MA construct." Critical infrastructure assets can include installations, facilities, antennas, vehicles, computing systems, and communications links. The USSTRATCOM Defense Critical Infrastructure Protection 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 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.

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 2023 Air Force				Date: April 2022	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 1201921F I Service Support to STRATCOM - Space Activities			
B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.991	0.000	0.000	0.000	0.000
Current President's Budget	0.991	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					
Program terminated					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 1201921F / Service Support to STRAT COM - Space Activities				Project (Number/Name) 670373 / DCIP			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
670373: DCIP	-	0.493	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note												
An October 2014 memorandum of agreement between USSTRATCOM and Deputy Assistant Secretary of Defense for Defense Continuity and Mission Assurance transferred budget authority for DCIP funding to USSTRATCOM beginning in FY16. THIS IS NOT A NEW START.												
A. Mission Description and Budget Item Justification												
Mission Assurance (MA) is a DoD risk management effort, driven by DODD 3020.40 that seeks to ensure the availability of networked assets critical to DoD missions. "DoD will continue, under the MA construct and policy, existing efforts to meet national and Defense Critical Infrastructure (DCI) requirements established by PPD-21. Existing Department-level Defense Critical Infrastructure Program (DCIP) policy will remain effective until integrated into, replaced, or rescinded by MA policy. DoD Components will maintain sufficient resources to meet DCI responsibilities for identifying, assessing, managing, and monitoring risk to critical infrastructure and align associated security, protection, and risk management efforts under an MA construct." Critical infrastructure assets can include installations, facilities, antennas, vehicles, computing systems, and communications links.												
The USSTRATCOM Defense Critical Infrastructure Protection 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 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 2021	FY 2022	FY 2023	
Title: Mission Assurance Defense Critical Infrastructure Program									0.493	0.000	0.000	
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.												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 1201921F / <i>Service Support to STRATCOM - Space Activities</i>	<b>Project (Number/Name)</b> 670373 / <i>DCIP</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<b><i>FY 2022 Plans:</i></b> No FY22 funding requested.			
<b><i>FY 2023 Plans:</i></b> No funding requested.			
<b>Accomplishments/Planned Programs Subtotals</b>		0.493	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b> The Defense Critical Infrastructure Program is an on-going program, cost to complete is N/A			
<b>D. Acquisition Strategy</b> Projects funded through DCIP will be awarded using competitive contracts to the maximum extent possible.			

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force													<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 1201921F / <i>Service Support to STRATCOM - Space Activities</i>					<b>Project (Number/Name)</b> 670373 / <i>DCIP</i>				

  

<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Asset Dependency and Risk Characterization Research	C/Various	TBD : TBD	-	0.493	Jan 2021	-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.493		-		-		-		-	Continuing	Continuing	N/A

  

	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	-	0.493	-	-	-	-	Continuing	Continuing	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force																Date: April 2022			
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 1201921F / Service Support to STRAT COM - Space Activities								Project (Number/Name) 670373 / DCIP			

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1201921F / Service Support to STRAT COM - Space Activities	Project (Number/Name) 670373 / DCIP

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Defense Critical Infrastructure Program</b>				
Asset Dependency, Risk Mitigation, Ops Research, Design/Development, Modeling and Simulation, Test and Evaluation...this is an on-going effort	1	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 1201921F / Service Support to STRAT COM - Space Activities				Project (Number/Name) 67A011 / Space Analysis and Application Development			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
67A011: Space Analysis and Application Development	-	0.498	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The USSTRATCOM Data Integration and Fusion Center (DIFC) is an innovative organization developing and experimenting innovative concepts designed to validate both material and non-material methodologies to overcome data isolation in order to enable kill chains in the Joint Battlespace. Funds are necessary to update current government-owned software to ingest and disseminate new data sources from Title 10 and Title 50 sensors. The DIFC efforts at COCOM sponsored experimentation events will inform service acquisition decisions, capability gaps, intelligence gaps and tactics, techniques and procedures (TTP) development and implementation to mitigate effects on warfighter operations.

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)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Data Integration and Fusion Center	0.498	0.000	0.000
<b>Description:</b> USSTRATCOM/J8 Data Integration and Fusion Center (DIFC) is an innovative organization developing and experimenting innovative concepts designed to validate both material and non-material methodologies to overcome data isolation in order to enable kill chains in the Joint Battlespace. The DIFC will work to update current government-owned software to ingest and disseminate new data sources from Title 10 and Title 50 sensors. The DIFC efforts at COCOM sponsored experimentation events will inform service acquisition decisions, capability gaps, intelligence gaps and tactics, techniques and procedures (TTP) development and implementation to mitigate effects on warfighter operations.			
<b>FY 2022 Plans:</b> No funding requested.			
<b>FY 2023 Plans:</b> No funding requested.			
<b>Title:</b> Space Analysis and Application Development	0.000	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 1201921F / <i>Service Support to STRATCOM - Space Activities</i>	<b>Project (Number/Name)</b> 67A011 / <i>Space Analysis and Application Development</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<p><b>Description:</b> The Space Analysis and Application Development program (Space Modeling and Simulation) transferred into the new USSPACECOM PE 1202140F.</p> <p><b>FY 2022 Plans:</b> No funding requested.</p> <p><b>FY 2023 Plans:</b> No funding requested.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		0.498	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
Space Campaign Modeling and Simulation funding moved to the newly created USSPACECOM PE 1202140F beginning in FY20. All that will remain in BPAC 67A011 PE 1201921F is the Data Integration and Fusion Center RDT&E funding. It will be an on-going program. Cost to complete is N/A			
<b>D. Acquisition Strategy</b>			
Any new projects funded in this program will be awarded using competitive procedures to the maximum extent possible.			
Best value to the government selected contractors, universities, government facilities, federally funded research and development centers, laboratories, or other organizations			

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 1201921F / <i>Service Support to STRATCOM - Space Activities</i>				<b>Project (Number/Name)</b> 67A011 / <i>Space Analysis and Application Development</i>				

  

<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>					
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Data Integration and Fusion Center	C/Various	Multiple Gov/Civ Agencies : Schriever AFB, CO	-	0.498	Jan 2021	-		-		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	0.498		-		-		-		-		-	Continuing	Continuing	N/A

  

**Remarks**  
Best value to the government selected contractors, universities, government facilities, federally funded research and development centers, laboratories, or other organizations

  

	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	-	0.498	-	-	-	-	Continuing	Continuing	N/A

  

**Remarks**  
Beginning in FY20 the RDT&E funding in the USSTRATCOM Space Analysis and Application Development program is transferring into the newly created PE 1202140F, USSPACECOM

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 1201921F / Service Support to STRAT COM - Space Activities			Project (Number/Name) 67A011 / Space Analysis and Application Development

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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>Data Integration and Fusion Center</b>																												
Experimentation with current government owned software to inject and disseminate new data sources from Title 10 and Title 50 sensors																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force			<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 1201921F / <i>Service Support to STRATCOM - Space Activities</i>	<b>Project (Number/Name)</b> 67A011 / <i>Space Analysis and Application Development</i>	

**Schedule Details**

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
<b><i>Data Integration and Fusion Center</i></b>				
Experimentation with current government owned software to inject and disseminate new data sources from Title 10 and Title 50 sensors	1	2021	4	2021

**Note**

Beginning in FY20 the funding portfolio for the Space Analysis Modeling and Simulation program within USSTRATCOM will transfer to the newly created PE 1202140F, USSPACECOM

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 1202140F I Service Support to SPACECOM Activities							
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	8.983	6.737	13.766	0.000	13.766	9.756	15.553	15.874	16.226	Continuing	Continuing
672486: JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES	-	7.484	5.195	6.964	0.000	6.964	8.018	11.716	11.961	12.226	Continuing	Continuing
67A011: Space Analysis and Application Development	-	1.499	1.542	6.802	0.000	6.802	1.738	3.837	3.913	4.000	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The Space Analysis and Application Development program integrates space based effects into Department's 'Model of Record' for joint campaign analysis. Current modeling and simulation (M&S) models are inadequate to represent the contribution that U.S space capabilities make to the air, sea, and land fight and do not accurately portray current and future space threats. This line of effort integrates effects of space capabilities into mission and campaign-level M&S tools. Enhanced space M&S will enable the DoD to make informed decisions regarding the direction of U.S. Space Doctrine, Tactics, Techniques, Procedures, and Resource Decisions. The DoD requires the ability to conduct campaign-level analysis to quantify the holistic operational impacts of adversary space actions on military campaigns and U.S. global operations.

Navigation Warfare (NAVWAR) is deliberate defensive and offensive action to assure and prevent positioning, navigation, and timing (PNT) information through coordinated employment of space, cyberspace, and electronic warfare (EW) operations. Funds are used to create and maintain NAVWAR knowledge and ensure NAVWAR superiority across the DoD. IAW the most recent Unified Command Plan, USSPACECOM is responsible for (a) (U) Advocating for requirements and capabilities supporting NAVWAR operations and joint resilient PNT for the DoD, and (b) (U) Providing contingency and operations support to CCMDs for NAVWAR and joint resilient PNT planning. USSPACECOM will research, develop, test, assess and evaluate NAVWAR options IOT advocate across Services and the other CCMDs to achieve PNT overmatch. Funds are used to create and maintain NAVWAR knowledge. NAVWAR expertise is developed in part by execution of PNT Operational Field Assessments (POFAs) that assess Red and Blue PNT-related capabilities, limitations, and vulnerabilities. GYPSY POFA's are linked to Commander USSPACECOM's Joint Exercise Program (JEP) and nested within the Chairman's Exercise Program (CEP) and Combatant Commander's (CCMD) Tier 1 exercises (PACIFIC SENTRY AND AUSTERE CHALLENGE are examples) and provide operationally realistic threat-representative, PNT-contested environments for analytical assessment of air, ground, maritime, space & cyberspace mission capability. FORTUNE POFAs are PNT capability and vulnerability assessments associate with a Service exercise or mission event. PRISM POFAs encompass all other Operations, Actions, and Activities (OAAs) and other assessments to include evaluation of rapid innovative NAVWAR capabilities and/or solutions. Assessments inform materiel and non-materiel solutions, service acquisition decisions, capability gaps, intelligence gaps and tactics, techniques and procedures (TTP) development and implementation to mitigate effects on warfighter operations in the anticipated theater NAVWAR threat environments. JNWC assesses department wide PNT posture through the PNT Biennial assessment IAW DoDI 4650.08.

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 1202140F / <i>Service Support to SPACECOM Activities</i>
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This program element may include necessary civilian pay expenses required to manage, execute, and deliver Space Analysis and Application Development 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 \$0.0M was expended and in FY22 \$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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	8.983	6.737	0.000	0.000	0.000
Current President's Budget	8.983	6.737	13.766	0.000	13.766
Total Adjustments	0.000	0.000	13.766	0.000	13.766
• 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	13.766	0.000	13.766

## 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 FY 2023 cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 1202140F / Service Support to SPACE COM Activities				Project (Number/Name) 672486 / JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
672486: JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES	-	7.484	5.195	6.964	0.000	6.964	8.018	11.716	11.961	12.226	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Navigation Warfare (NAVWAR) is deliberate defensive and offensive action to assure and prevent positioning, navigation, and timing (PNT) information through coordinated employment of space, cyberspace, and electronic warfare (EW) operations. Funds are used to create and maintain NAVWAR knowledge and ensure NAVWAR superiority across the DoD. IAW the most recent Unified Command Plan, USSPACECOM is responsible for (a) (U) Advocating for requirements and capabilities supporting NAVWAR operations and joint resilient PNT for the DoD, and (b) (U) Providing contingency and operations support to CCMDs for NAVWAR and joint resilient PNT planning. USSPACECOM will research, develop, test, assess and evaluate NAVWAR options IOT advocate across Services and the other CCMDs to achieve PNT overmatch. Funds are used to create and maintain NAVWAR knowledge. NAVWAR expertise is developed in part by execution of PNT Operational Field Assessments (POFAs) that assess Red and Blue PNT-related capabilities, limitations, and vulnerabilities. GYPSY POFA's are linked to Commander USSPACECOM's Joint Exercise Program (JEP) and nested within the Chairman's Exercise Program (CEP) and Combatant Commander's (CCMD) Tier 1 exercises (PACIFIC SENTRY AND AUSTERE CHALLENGE are examples) and provide operationally realistic threat-representative, PNT-contested environments for analytical assessment of air, ground, maritime, space & cyberspace mission capability. FORTUNE POFAs are PNT capability and vulnerability assessments associate with a Service exercise or mission event. PRISM POFAs encompass all other Operations, Actions, and Activities (OAAs) and other assessments to include evaluation of rapid innovative NAVWAR Capabilities and/or solutions. Assessments inform materiel and non-materiel solutions, service acquisition decisions, capability gaps, intelligence gaps and tactics, techniques and procedures (TTP) development and implementation to mitigate effects on warfighter operations in the anticipated theater NAVWAR threat environments. JNWC assesses department wide PNT posture through the PNT Biennial assessment IAW DoDI 4650.08.

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 PY 0M was expended for civilian pay expenses in the program element and in CY 0M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> PNT Operational Assessments	7.484	5.195	6.964
<b>Description:</b> The JNWC will investigate, operationally assess, and simulate current, emerging, and potential threats and mitigation strategies for denial of blue force PNT capabilities as well as preventing the hostile use of PNT information. Major Performers - Best value to the government selected contractors, universities, government facilities, federally funded research and development centers, laboratories, or other organizations.			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 1202140F / <i>Service Support to SPACE COM Activities</i>	<b>Project (Number/Name)</b> 672486 / <i>JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<p><b><i>FY 2022 Plans:</i></b> Continuing Operational assessments - Modeling and simulation equipment, to simulate potential threats (Red force vs Blue Force capabilities)and develop mitigation strategies for potential denial of blue force PNT capabilities.</p> <p>Execution of operational assessments in live open-air, laboratory hardware in the loop, simulation, and anechoic chamber environments to assess advanced and potential PNT threats and assist in development of tactics, techniques and procedures (TTP) to mitigate these threats.</p> <p>Planned exercises - GYPSY x2 for Combatant Command objectives, Fortune exercises x4 are for Service objectives, and PRISM events, for alternate-PNT and other supported organizations/agencies.</p> <p><b><i>FY 2023 Plans:</i></b> Execution of operational assessments in live open-air, laboratory hardware in the loop, simulation, and anechoic chamber environments to assess advanced and potential PNT threats and assist in development of tactics, techniques and procedures (TTP) to mitigate these threats.</p> <p>Continued evaluation of innovative technologies to prevent the hostile use of PNT information and rapidly develop and present NAVWAR playbook options for the joint force; including modeling and simulation tools to enable NAVWAR operations.</p> <p>Planned exercises - GYPSY x2 for Combatant Command objectives, Fortune exercises x4 are for Service objectives, and PRISM events, for alternate-PNT and other supported organizations/agencies.</p> <p><b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Increase in requirements</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		7.484	5.195
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
New contracts will be awarded using competitive procedures to the maximum extent possible.			

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force												<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 1202140F / Service Support to SPACE COM Activities						<b>Project (Number/Name)</b> 672486 / JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES			
<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Product Development	C/Various	Not specified. : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
Position Navigation and Timing Operational Field Assessments	Various	Multiple, Kirtland AFB NM : Kirtland, NM	-	7.484	Oct 2020	5.195	Oct 2021	6.964	Oct 2022	-		6.964	Continuing	Continuing	-
<b>Subtotal</b>			-	7.484		5.195		6.964		-		6.964	Continuing	Continuing	N/A
<b>Remarks</b> Prior to the FY20 PB cycle, The Joint Navigation and Warfare Center (JNWC) was reported under PE 1201921F, WSC 672486. Beginning in FY20, the program will be reported under the newly created PE 1202140F, Service Support to U.S. SPACECOM Activities															
			<b>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	7.484		5.195		6.964		-		6.964	Continuing	Continuing	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force												Date: April 2022					
Appropriation/Budget Activity 3600 / 7								R-1 Program Element (Number/Name) PE 1202140F / Service Support to SPACE COM Activities						Project (Number/Name) 672486 / JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES			

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Navigation Warfare (NAVWAR)																												
NAVWAR Operational Field Assessments - Continuing																												
Create / Maintain NAVWAR Knowledge - Continuing																												
NAVWAR Operational and CONOPS Events - Continuing																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1202140F / Service Support to SPACE COM Activities	Project (Number/Name) 672486 / JOINT NAVWAR CENTER (JNWC) SPACE ACTIVITIES

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Navigation Warfare (NAVWAR)				
NAVWAR Operational Field Assessments - Continuing	1	2021	4	2027
Create / Maintain NAVWAR Knowledge - Continuing	1	2021	4	2027
NAVWAR Operational and CONOPS Events - Continuing	1	2021	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 1202140F / Service Support to SPACE COM Activities				Project (Number/Name) 67A011 / Space Analysis and Application Development			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
67A011: Space Analysis and Application Development	-	1.499	1.542	6.802	0.000	6.802	1.738	3.837	3.913	4.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Space Analysis and Application Development program integrates space based effects into Department's 'Model of Record' for joint campaign analysis. Current modeling and simulation (M&S) models are inadequate to represent the contribution that U.S space capabilities make to the air, sea, and land fight and do not accurately portray current and future space threats. This line of effort integrates effects of space capabilities into mission and campaign-level M&S tools. Enhanced space M&S will enable the DoD to make informed decisions regarding the direction of U.S. Space Doctrine, Tactics, Techniques, Procedures, and Resource Decisions. The DoD requires the ability to conduct campaign-level analysis to quantify the holistic operational impacts of adversary space actions on military campaigns and U.S. global operations.

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 PY 0M was expended for civilian pay expenses in the program element and in CY 0M is forecasted for civilian pay expenses in this program element.

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

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Space Campaign Modeling and Simulation, Development/Modification/Verification/Validation	1.499	1.542	6.802
<b>Description:</b> Developed, modifies, verifies, and validates new models for Space mission areas and modifies existing models to portray new capabilities			
<b>FY 2022 Plans:</b>			
- Continue priority integration of 22 Joint Mission Threads, space-based capabilities, and counter-space effects on the Warfighter in STORM			
- Continue to develop change request proposals and submit to STORM Configuration Control Board (CCB) to improve instantiation of potential future and denied/degraded space-based capabilities and their effects on the Warfighter in STORM			
- In coordination with HAF A/9 (HQ Air Force Studies, Analysis, and Assessments), develop schedule to identify requirements toward implementation of approved change requests and instantiation of space and contested space capabilities in STORM			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 1202140F / <i>Service Support to SPACE COM Activities</i>	<b>Project (Number/Name)</b> 67A011 / <i>Space Analysis and Application Development</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>
<ul style="list-style-type: none"> <li>- Develop and modify user-friendly, front-end campaign-level M&amp;S software and tools supporting sufficiently accurate and very timely exploratory analytics to optimize more costly campaign-level STORM M&amp;S, operational planning, gaming, and concept development</li> <li>- Continue development of software and tools to model Red on Blue contested space (one versus one, many versus many, and space campaign-level) and analyze/assess results to determine impact/effects on U.S. military campaigns and global operations</li> <li>- Coordinate and update current and future Blue space order of battle data, Red counter-space order of battle data, Red counter-space CONOPS, future Blue and Red CONOPs to support integration of contested space into mission and campaign-level M&amp;S</li> <li>- Continue updates to software, tools, models, and data at the mission- and campaign-level to inform senior leaders evolving inquiries and decisions on space investments, requirements, acquisition, operational COAs, operational risk, and future planning</li> <li>- Assess and integrate enterprise-level model data for SATCOM capabilities into campaign-level modeling</li> <li>- In coordination with European Command, Indo-Pacific Command, other combatant commands, and respective USSPACECOM Integrated Planning Elements; explore improved integrated risk analysis with new campaign-level M&amp;S capabilities</li> <li>- Utilize updated tools and data to support analytical efforts in support of SPACECOM activities, new Space Analysis Consortium, and evolving space analytical capabilities; and collaborate with partners to inform senior leader forums and decisions on space investments, requirements, acquisition, and operational risk decisions</li> <li>- Support cost benefit analyses of Space Control activities with quantifiable impacts to warfighter operations</li> <li>- Provide analysis support to inform Air Force Space Command's Space Enterprise Vision (SEV)</li> </ul> <p><b>FY 2023 Plans:</b> Continue priority integration of 22 Joint Mission Threads, space-based capabilities, and counter-space effects on the Warfighter in STORM</p> <ul style="list-style-type: none"> <li>- Continue to develop change request proposals and submit to STORM Configuration Control Board (CCB) to improve instantiation of potential future and denied/degraded space-based capabilities and their effects on the Warfighter in STORM</li> </ul>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 1202140F / <i>Service Support to SPACE COM Activities</i>		<b>Project (Number/Name)</b> 67A011 / <i>Space Analysis and Application Development</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- In coordination with HAF A/9 (HQ Air Force Studies, Analysis, and Assessments), develop schedule to identify requirements toward implementation of approved change requests and instantiation of space and contested space capabilities in STORM</li> <li>- Develop and modify user-friendly, front-end campaign-level M&amp;S software and tools supporting sufficiently accurate and very timely exploratory analytics to optimize more costly campaign-level STORM M&amp;S, operational planning, gaming, and concept development</li> <li>- Continue development of software and tools to model Red on Blue contested space (one versus one, many versus many, and space campaign-level) and analyze/assess results to determine impact/effects on U.S. military campaigns and global operations</li> <li>- Coordinate and update current and future Blue space order of battle data, Red counter-space order of battle data, Red counter-space CONOPS, future Blue and Red CONOPs to support integration of contested space into mission and campaign-level M&amp;S</li> <li>- Continue updates to software, tools, models, and data at the mission- and campaign-level to inform senior leaders evolving inquiries and decisions on space investments, requirements, acquisition, operational COAs, operational risk, and future planning</li> <li>- Continue to assess and integrate enterprise-level model data for SATCOM capabilities into campaign-level modeling</li> <li>- In coordination with European Command, Indo-Pacific Command, other combatant commands, and respective USSPACECOM Integrated Planning Elements; explore improved integrated risk analysis with new campaign-level M&amp;S capabilities</li> <li>- Continue to utilize updated tools and data to support analytical efforts in support of SPACECOM activities, new Space Analysis Consortium, and evolving space analytical capabilities; and collaborate with partners to inform senior leader forums and decisions on space investments, requirements, acquisition, and operational risk decisions</li> <li>- Continue to support cost benefit analyses of Space Control activities with quantifiable impacts to warfighter operations</li> <li>- Continue to provide analysis support to inform Air Force Space Command's Space Enterprise Vision (SEV)</li> </ul>					
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to increased requirements					
<b>Accomplishments/Planned Programs Subtotals</b>			1.499	1.542	6.802

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1202140F / Service Support to SPACE COM Activities	Project (Number/Name) 67A011 / Space Analysis and Application Development
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy Any new projects funded in this program will be awarded using competitive procedures to the maximum extent possible.		

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 1202140F / Service Support to SPACE COM Activities				Project (Number/Name) 67A011 / Space Analysis and Application Development					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPAF	Not specified. : TBD	-	0.000		-		-		-		-	Continuing	Continuing	-
Model Space effects for two mission tasks and integrate into STORM for joint campaign analysis	C/CPAF	TBD : TBD	-	1.499	Oct 2020	1.542	Oct 2021	6.802	Oct 2022	-		6.802	Continuing	Continuing	-
Subtotal			-	1.499		1.542		6.802		-		6.802	Continuing	Continuing	N/A
Remarks															
Prior to the FY20 PB cycle, The Space Analysis and Application Development Program was reported under PE 1201921F, WSC 67A011. Beginning in FY20, the program will be reported under the newly created PE 1202140F, USSPACECOM															
			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	1.499		1.542		6.802		-		6.802	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force			<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 1202140F / <i>Service Support to SPACE COM Activities</i>		<b>Project (Number/Name)</b> 67A011 / <i>Space Analysis and Application Development</i>	

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1	2	3	4	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><i>Space Analysis Modeling and Simulation</i></b>																												
Identify and develop additional Joint Mission Threads and Space Mission Threads for integration into mission and campaign level modeling	██████████																											
Complete mission-level modeling and analysis for Joint Mission Threads and Space Mission Threads					██████████																							
Run improved STORM model and update integrated risk analysis with Combatant Commands									██████████																			
Develop software and tools to model Red on Blue contested space environment. Develop space playbook to define Red counter-space threat													██████████															
Update mission and campaign level M&S to inform senior leaders evolving inquiries and decisions on innovation, space investments, rapid acquisition, operational COAs, risk, and planning																					████████████████████							

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1202140F / Service Support to SPACE COM Activities	Project (Number/Name) 67A011 / Space Analysis and Application Development	

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Space Analysis Modeling and Simulation</b>				
Identify and develop additional Joint Mission Threads and Space Mission Threads for integration into mission and campaign level modeling	1	2021	4	2021
Complete mission-level modeling and analysis for Joint Mission Threads and Space Mission Threads	1	2022	4	2022
Run improved STORM model and update integrated risk analysis with Combatant Commands	1	2023	4	2023
Develop software and tools to model Red on Blue contested space environment. Develop space playbook to define Red counter-space threat	1	2024	4	2024
Update mission and campaign level M&S to inform senior leaders evolving inquiries and decisions on innovation, space investments, rapid acquisition, operational COAs, risk, and planning	1	2025	4	2026